WETLAND AND STREAM ASSESSMENT REPORT

I-90/SR 18 Interchange to Deep Creek Interchange Improvements & Widening

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King County

Prepared by:

Northwest Region Environmental Services

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I-90/SR 18 Interchange to Deep Creek Interchange Improvements & Widening

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Acronyms and Abbreviations

cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
DDI	Diverging Diamond Interchange
DPS	distinct population segment
Ecology	Washington State Department of Ecology
ESA	Endangered Species Act
ESU	evolutionarily significant unit
HGM	hydrogeomorphic
HRM	Highway Runoff Manual
I-90	Interstate 90
ITS	intelligent transportation system
KCC	King County Code
LB	left bank
LWM	large woody material
MP	milepost
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PEM	palustrine emergent
PFO	palustrine forested
PHS	Priority Habitats and Species
PSS	palustrine scrub-shrub
RCW	Revised Code of Washington
ROW	right-of-way
SR	State Route
TMDL	Total Maximum Daily Load
UGA	Urban Growth Area
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

Chapter 1. Introduction

The Washington State Department of Transportation (WSDOT) proposes to rebuild the existing Interstate 90 (I-90)/State Route (SR) 18 Interchange and widen SR 18 to Deep Creek. The project will construct a Diverging Diamond Interchange (DDI) at the I-90/SR 18 interchange and will widen SR 18 to four lanes to Deep Creek. In addition, the project will correct fish passage barriers within the project limits and provide stormwater treatment, including retrofit of some existing pavement on SR 18. The project is scheduled to begin construction in the spring of 2022 and end in the fall of 2024.

The I-90/SR 18 interchange is located in the Cascade foothills approximately 25 miles east of Seattle and just south of the City of Snoqualmie (Figure 1).

The purpose of the project is to develop a long-term solution that both improves travel reliability and safety for all vehicles by adding capacity and reducing existing congestion. Aquatic species will have improved access to a minimum of 3.8 miles of lineal habitat (WDFW 2019), as well as restored habitat features in each of the six creeks within the project location with the installation of large wood and the removal of invasive species. This report presents existing conditions for wetlands, streams and buffers in accordance with the WSDOT Environmental Manual (2019). The project will result in temporary and permanent impacts to wetlands and several streams to complete the project; however, impacts and habitat restoration will be covered and detailed in a separate document to support the Joint Aquatic Resources Permit Application. Information in this report facilitates WSDOT efforts to assist project designers in avoiding and/or minimizing impacts to sensitive areas and species; documenting wetland and stream boundary determinations for regulatory reviewers, providing early indicators to project engineers of sensitive fish, wildlife and plant species within the project corridor and offering information required for mitigation reports.

This report is anticipated to support the follow permits, at minimum:

- U.S. Army Corps of Engineers (Corps) Section 404 Permit
- Washington Department of Ecology (Ecology) Section 401 Letter of Verification
- Washington Department of Fish and Wildlife (WDFW) Hydraulic Project Approval
- Coastal Zone Management Certification of Consistency
- King County Shoreline Development Permit

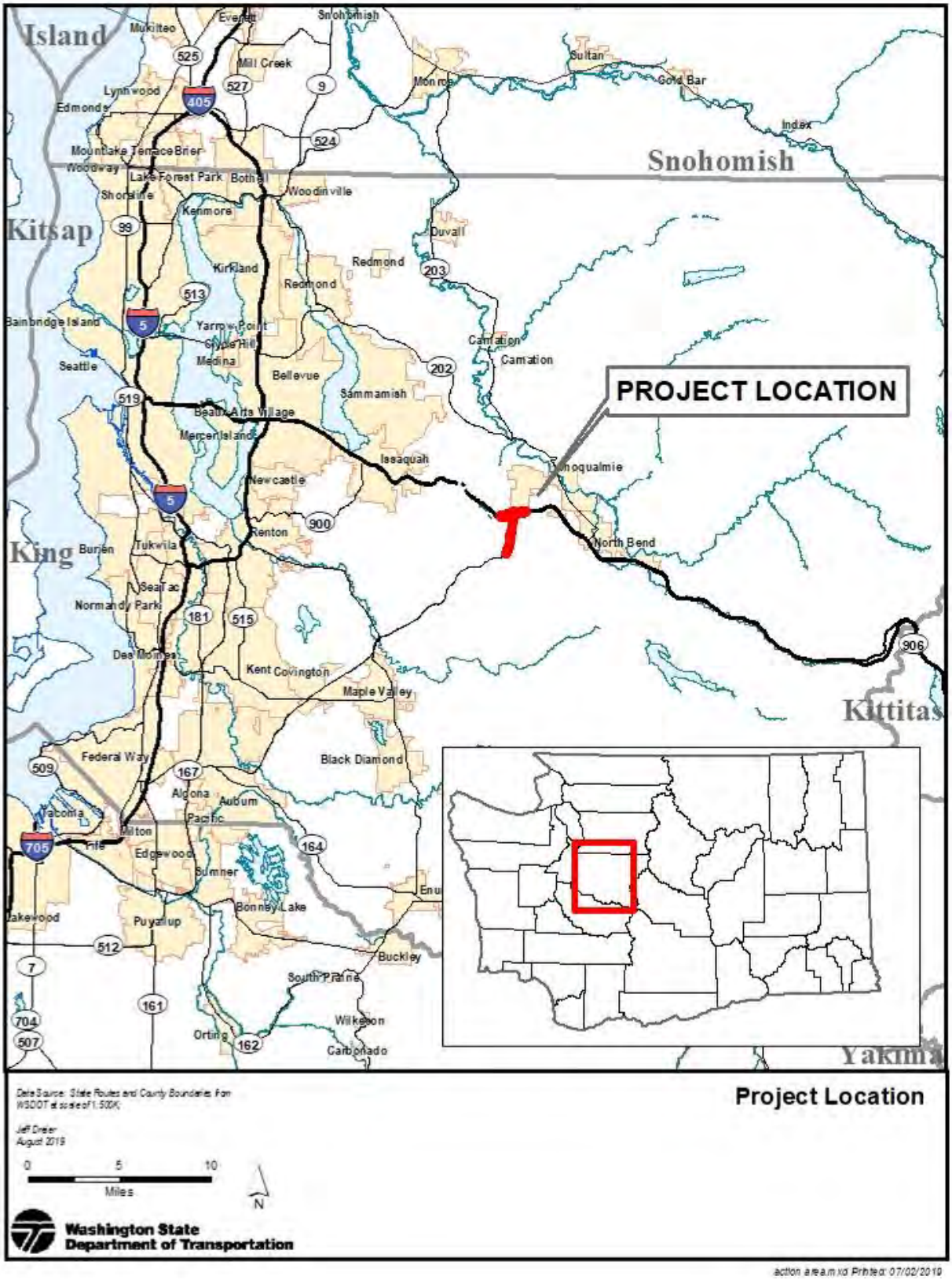


Figure 1. Project Vicinity map

Chapter 2. Proposed Project

Location

The I-90/SR 18 interchange is located about 300 feet south of the City of Snoqualmie, with North Bend to the east and Issaquah to the west (Figure 1). The project is located in township 23 north, range 7 east, and sections 2, 3, 10, 11, and 15. The interchange portion of the project extends approximately from I-90 mileposts (MP) 24.80 to 27.49 and the SR 18 widening portion of the project from SR 18 MPs 25.41 to 27.91 and along Snoqualmie Parkway from CORDI50+00 – CORDI 60+81.22 (Figure 2). The project is outside of the Urban Growth Area (UGA) in King County, Washington with portions of the project occurring on U.S. Forest Service (USFS) land in the Mount Baker-Snoqualmie National Forest, King County property, Washington State Department of Natural Resources (WDNR) parcels, WSDOT right of way, and private property.

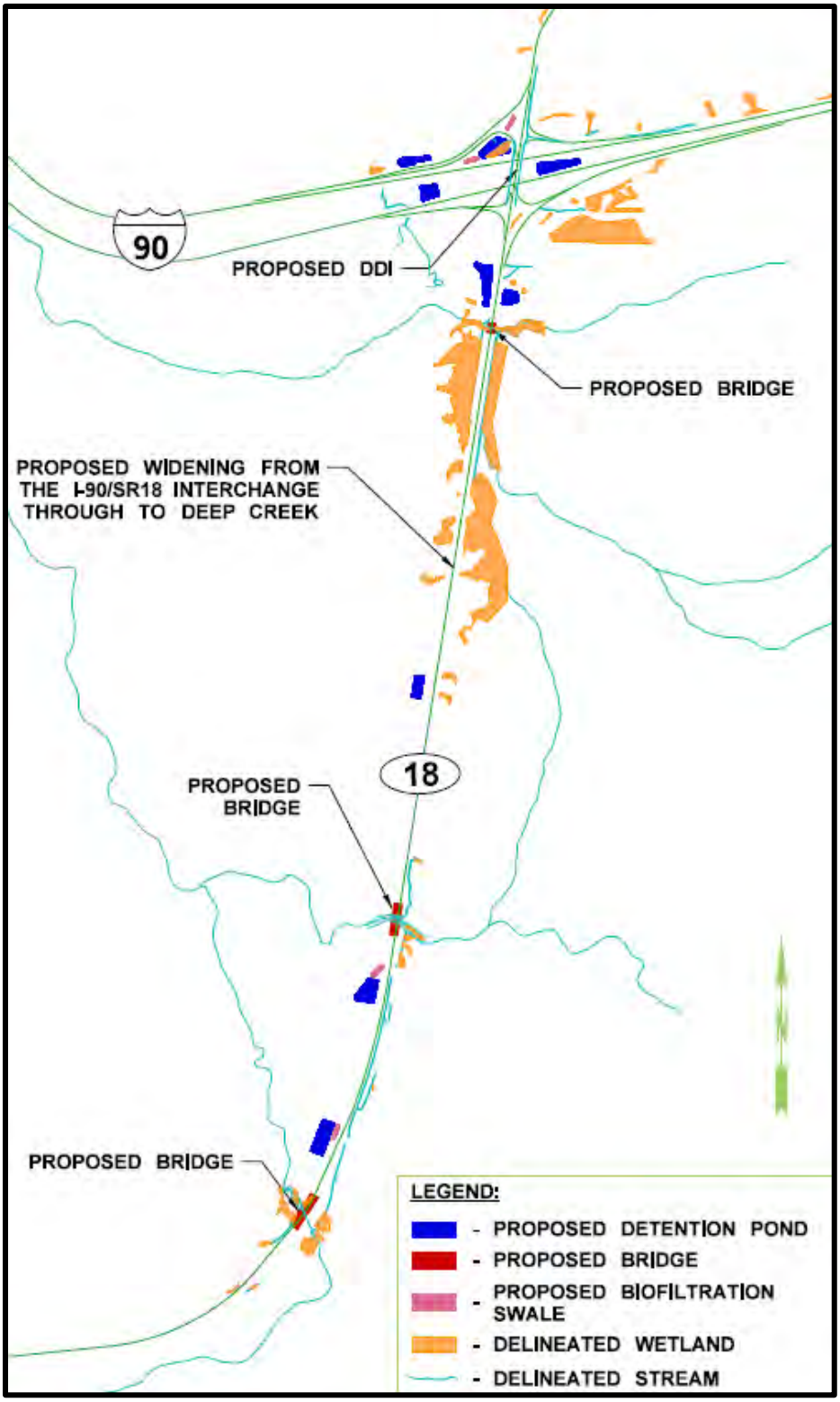


Figure 2. Project Location and Proposed Major Work Elements

Project Description

The project will construct a diverging diamond interchange at the I-90/SR 18 interchange and will widen SR 18 to four lanes to Deep Creek. The project improvements will provide additional capacity at the interchange and along SR 18 to Deep Creek, improve safety, and reduce existing congestion. The project is to begin construction in the spring of 2022 and end in the fall of 2023.

The project is broken into two major components, one is the I-90/SR 18 Interchange and the other is the SR 18 widening to Deep Creek. Major project components and their subcomponents are discussed in the following subsections.

I-90/SR 18 Interchange Diverging Diamond Interchange

A four-lane diverging diamond interchange will replace the existing diamond interchange at I-90 and SR 18. Major work elements between SE 99th St and SE 104th St include roadway, pavement, drainage, signalization, illumination, intelligent transportation system (ITS) devices, signing, striping and landscaping. Within the interchange, six fish passage barriers will be corrected (on the east side of the interchange) and five barriers will be converted to a stormwater conveyance system (on the west side of the interchange). A new stream will be constructed along the east side of the roadway under the I-90 bridges along with new fish passable culverts under the westbound-off and eastbound-on ramps. Flow will be directed from the west side of the interchange to the east side, to increase stream flow and function.

SR 18 Widening to Deep Creek

SR 18 will be widened from three existing lanes to a total of four lanes between SE 104th St. and Deep Creek, with a new intersection control at the intersection of SR 18 and SE 104th St. The existing twin circular concrete culverts at Lake Creek will be replaced with a new bridge, with a minimum 44 foot span to provide fish passage. A new two-lane bridge (approximately 300-foot span) will be constructed for the southbound direction across the Raging River, with the existing Raging River Bridge converted for use as two northbound lanes. A new four-lane bridge (100' minimum hydraulic span) will replace the existing Deep Creek fish passage barrier culvert. SR 18 between Deep Creek and the southern project limit will be reduced to three lanes to tie into the existing three lanes. Other major construction activities include roadway, pavement, drainage, signing, striping, and landscaping. SR 18 is a high stormwater retrofit priority, and this project will exceed the standards from the WSDOT Highway Runoff Manual (HRM).

Raging River Bridge and In-water Work

At the crossing of the Raging River, a new two-lane bridge will be constructed for the two new southbound lanes and the existing bridge will be converted for use by two northbound lanes. The existing bridge is an approximately 300-foot long, 3-span reinforced concrete box girder bridge supported by reinforced concrete columns and drilled shafts. No structural alteration of the existing bridge is anticipated for the project.

The new bridge will be constructed adjacent to the existing structure and will be 38 feet wide to accommodate two travel lanes and shoulders. The total area of the bridge deck will be approximately 11,400 square feet.

Temporary work trestles will be constructed from both ends of the embankments and may cross the river; however, no foundations will be within the ordinary high water mark (OHWM). Therefore, there will be no in-water work at this location.

Deep Creek Bridge and In-water Work

Deep Creek currently flows under SR 18 in a 12-feet-wide, 260-feet-long corrugated steel culvert. The culvert, identified by WDFW as site 07.0396, is listed as fish passage barrier due to slope. The existing culvert will be replaced by a new three-span pre-stressed concrete girder bridge. The new bridge will be approximately 400 feet long and 79 feet wide to accommodate three travel lanes and shoulders. The two southbound lanes will be separated from the northbound lanes by a median barrier. An extra wide shoulder will be constructed on the west side of the bridge to accommodate widening of the roadway across the bridge to four lanes in the future.

Stormwater Treatment

The project improvements at the I-90/SR 18 interchange and SR 18 widening section add impervious area within the project limits. SR 18 is a high stormwater retrofit priority, and this project will exceed the standards from the HRM. Prior to disposal of stormwater to downstream systems, the Project will provide enhanced stormwater treatment and detention to avoid or minimize impacts on surface waters that could result from the increase impervious and PGIS created by the project as per requirements in the HRM. The drainage approach assumes that the existing TDA boundaries and main outfalls within the TDA will be maintained to the extent feasible. The proposed improvements add approximately 13 acres of new PGIS; however, at least 23 acres of PGIS will be treated. As a result of the project, WSDOT anticipates increased stormwater treatment and reduced pollutant runoff.

The following permanent stormwater facilities and BMPs described in the HRM may be used to reduce surface water runoff impacts:

- Stormwater Detention Ponds
- Media Filter Drains
- Compost Amended Biofiltration Swales (CABS).

Approximately 10,000 LF of MFD and seven (7) CABS will treat runoff from added and existing pavement. Nine (9) proposed stormwater detention ponds will provide flow control for pavement added by project improvements and some of the existing pavement.

Fish Passage

The project will address 14 fish passage barriers that will open up nearly 4 miles of fish habitat. At Deep Creek, the existing culvert will be replaced with a structure with a minimum 100-foot hydraulic opening. By correcting the barrier, the WDFW barrier assessment shows a potential upstream habitat gain of 18,017 linear feet. At Lake Creek, the proposed project would replace the two existing culverts with a minimum 44-foot span (hydraulic opening) structure to improve fish passage. WDFW reports 2,168 feet of linear habitat gain above the SR 18 Lake Creek culvert. The project also proposes to construct a series of modifications to an Unnamed Tributary to Lake Creek, removing barriers and enhancing fish habitat throughout the project reach. Six fish passage barriers will be replaced by consolidating the stream into a daylighted channel

between the I-90 westbound off-ramps and the I-90 eastbound on-ramp, including a portion beneath the I-90 eastbound and westbound bridges. This daylighted stream will cross the I-90 westbound off-ramp and I-90 eastbound on-ramp in two fish-passable crossings. The result will be a net reduction of road crossings from six existing barriers to two fish-passable crossings, as well as a minimum upstream habitat gain of 1,720 linear feet in the daylighted stream channel.

Chapter 3. Methods

Wetland and Stream Identification, Delineation and Classification

WSDOT and consultant biologists delineated wetlands and streams according to state and federal laws and policies as outlined by agency technical guidelines and resources in the Environmental Manual (WSDOT 2019). Wetland resources were delineated using guidelines and methods described in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) as amended with the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys and Coast Region (Regional Supplement)* (Corps 2014). In general, the wetland delineation consisted of three main tasks: (1) assessing vegetation, soil and hydrologic characteristics to identify areas meeting the wetland criteria, (2) evaluating constructed drainage features to determine if they would be regulated as wetlands or streams, and (3) marking wetland boundaries. Wetland boundaries were identified in the field by WSDOT and consultant biologists and surveyed in the field by survey crews. Wetland location plan sheets were developed for design planning (Appendix A).

Biologists used several tools to conduct a rainfall analysis (NRCS 1997); and to identify and classify plants and soils examined within the study area. Plant indicator status and scientific plant names were identified using the 2018 National Wetland Plant List. Soil characteristics were recorded and classified using methods prescribed by the *Field Book for Describing and Sampling Soils* (USDA, NRCS 2012). Hydric soil conditions were assessed using *Field Indicators of Hydric Soils in the United Sates, Version 8.2* (USDA, NRCS 2018). Rainfall analysis results were summarized in table format (Appendix B). Vegetation, soil and hydrology information were recorded in the field on wetland data forms (Appendix C).

Wetlands delineated within the study area were classified according to: United States Fish and Wildlife (USFWS) Cowardin classification system (FGDC 2013); Western Washington Wetland (Ecology) Rating System (Hruby 2014) (Appendix D); and the Hydrogeomorphic Approach (HGM) (Brinson 1993). Following wetland delineation and assessment, a plant list was created to reflect species observed in the study area (Appendix E). Wetland functions are discussed in separate document, the Wetland and Buffer Impacts Memorandum.

Streams delineated in the study area were classified according to Washington Administrative Code (WAC) 222-16-030 water typing system as described by Washington State Department of Natural Resources (WDNR 2013). This stream typing system is consistent with the King County Code for Critical Areas (King County 2020). Biologists collected qualitative stream habitat and hydrologic information during the assessment including riparian condition, flow levels, field indicators of flow levels, presence and location of pool/riffle complexes, and observation of fish presence to assist with wetland and stream characterization. Riparian habitat within the project area were also described by WDFW in the Fish Passage Inventory for barriers within the project limits (WDFW 2016). To delineate the OHWM, the bed and adjacent banks of aquatic areas in the study area were examined for indications of regular high water events by qualified biologists trained in the use of ordinary high water determination methods developed by Ecology (Stockdale et al. 2016). Factors considered when assessing changes in vegetation include scour (removal of vegetation and exposure of gravel, sand, or other soil substrate), drainage patterns, elevation of floodplain benches, changes in sediment texture across the floodplain, sediment

layering, sediment or vegetation deposition, and changes in vegetation communities across the floodplain. Streams were classified according to local and state regulations and buffers assigned according to King County (2020). King County Code (KCC) 21A.24.355, Aquatic Areas—Water Types classifies streams into the following classes:

- Type S: All aquatic areas inventoried as "shorelines of the state" under King County's Shoreline Master Program (KCC Title 25) in accordance with Chapter 90.58 Revised Code of Washington (RCW), including segments of streams where the mean annual flow is more than 20 cubic feet per second (cfs), and marine shorelines and lakes are 20 acres in size or larger.

- Type F: All segments of aquatic areas that are not Type S waters and that contain fish or fish habitat, including waters diverted for use by a federal, state, or tribal fish hatchery from the point of diversion for 1,500 feet or the entire tributary if the tributary is highly significant for protection of downstream water quality.

- Type N: All segments of aquatic areas that are not Type S or F waters and that are physically connected to Type S or F waters by an aboveground channel system, stream, or wetland.

- Type O: All segments of aquatic areas that are not Type S, F, or N waters and that are not physically connected to Type S, F, or N waters by an aboveground channel system, pipe, culvert, stream, or wetland.

Fish presence or absence was assessed by reviewing WDNR water type maps, WDFW fish distribution maps, and field observations.

King County stream buffers for areas outside the UGA range from 25 to 165 feet depending on water type (KCC 21A.24.358(C)). Type S or F streams receive a 165-foot buffer; Type N receives a 65-foot buffer; and Type O receives a 25-foot buffer. Stream LC-B and Lake Creek (Stream LC-A) have portions that occur or may occur on USFS property that require stream buffer widths from 100 to 300 feet, depending on fish presence and seasonal or permanent flows (USDA et al. 1994). Buffers in tables and on plan sheets only show King County buffer requirements.

Wetland and stream buffers were determined in the project corridor based on the location of the roadway fill prism (WSDOT 2008), Washington Department of Ecology (Granger et al. 2005), and Washington Department of Natural Resources (WDNR 2013) recommendations for buffer widths. Buffers do not include landscape areas that are functionally disconnected from the stream, wetland, or buffer system, or landscape areas that are functionally obsolete due to the presence of a public roadway. Wetland and stream buffers were applied based on KCC 21A.24.325 (2020). These buffers are dependent on the intensity of impact of adjacent land use and the habitat score of the wetland. For the purpose of this report, buffers were calculated assuming that the adjacent land use, I-90 and SR 18, had a high-intensity impact. Thus, buffer widths range from 50 to 300 feet.

Roadside drainage features were also assessed to determine if they met jurisdictional criteria, and, if so, whether they would be regulated as a wetland, stream or jurisdictional ditch.

Delineation History

A wetland and stream assessment was originally conducted by WSDOT in 2005/2006 and 2011/2012 (WSDOT 2013, Appendix G) for the westbound flyover ramp study area. This investigation identified five streams (Lake Creek [Stream LC-A], and Streams LC-B, LC-C, LC-I, and LC-G) and 20 wetlands. The OHWM of these streams and an additional 12 streams, including the Raging River and Deep Creek, in the study area were re-delineated in 2018 and 2019. At this time, the original 20 wetlands delineated in 2011/2012 were re-verified and 23 additional wetlands were also delineated and rated as described above. Additional streams found on the site were delineated by identifying their OHWMs as described above. A reverification memo was prepared in January 2022 that describes any changes to the wetland delineation or description between the WSDOT 2013 WSAR and the WSDOT 2021 WSAR (Appendix H).

Chapter 4. Existing Conditions

Study Area

The study area for wetlands, streams, and ditches included (Figure 3):

- The I-90/SR 18 Interchange and SR 18 south to Deep Creek (I-90 MP 25.3 to 26.5 and SR 18 MP 25.41 to MP 27.9)
- Landscapes within 300 feet of the roadway prism

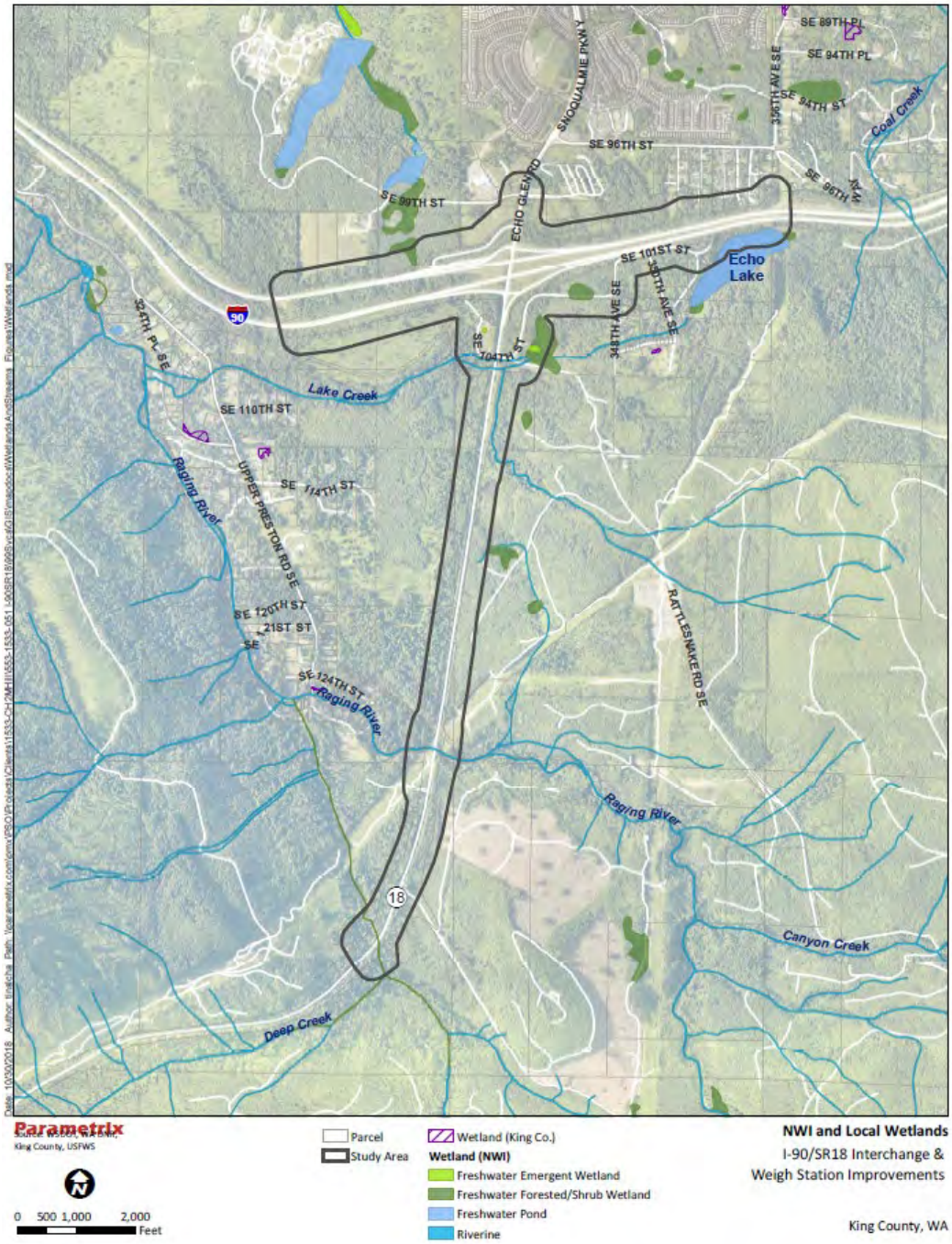


Figure 3. Approximate study area for wetlands and streams

Landscape Setting

The project is situated at the southern extent of the North Cascades Province (Franklin and Dyrness 1988) in foothills on the western slopes of the Cascade Mountains. This region has been shaped by a complex geologic history including inundation by the sea, geologic uplift, glacial activity, development of volcanoes, erosion of soils, and deposition of glacial till in valley bottoms. These geologic processes directly shape the present-day landscape, which is characterized by coniferous forests with many steep-sided mountains and foothills with river valleys below. Soils in the region generally comprise forest soils establishing on top of glaciated material. Soil textures can contain material ranging from very coarse to finer-textured silts and clays.

The project is approximately 15 miles east and inland of Lake Washington and 20 miles west of Snoqualmie Pass. The City of Snoqualmie is less than 300 feet north of the northern extent of the project. Land use in the vicinity of the project is mostly rural residential and active forest land operations, apart from the two highways and the City of Snoqualmie to the north. Parcels surrounding the project are owned primarily by USFS, King County, and WDNR, with some private property north of I-90 and west of Echo Lake.

Watershed Description

The project is in the Upper Snoqualmie River watershed (watershed 1711001004) (BLM 2012) at the upper extent of Water Resource Inventory Area (WRIA) 7 Snohomish (Ecology 2000). Topography in the area varies from valley bottoms to steep hillslopes. The peaks surrounding the project are between 2,000 and 2,700 feet above sea level, with the project between 700 and 900 feet elevation. Rattlesnake Mountain, with a peak of 2,250 feet, lies southeast of the project. This landscape feature generally creates runoff and drainage heading west, contributing hydrologic inputs to the southern quadrants of the project, south of I-90. Echo Lake at the northern toe of the slope of Rattlesnake Mountain drains to Lake Creek, which flows west just south of the I-90/SR 18 interchange. In general, surface water moves from the northeast and northwest project areas flowing south and west, draining first to Lake Creek, then to the Raging River downstream. In addition, surface water moves from the southeast and southwest project areas flowing west, draining to the Raging River via Deep Creek. The contributing basins upstream of the study area for the Raging River, Lake Creek, and Deep Creek are approximately 12.95, 1.65, and 4.45 square miles, respectively (USGS 2018). The Raging River, which receives surface water from the center of the study area, is a tributary of the Snoqualmie River. The confluence of the two rivers is approximately 4.5 linear miles downstream of the project.

Several wetlands are mapped by the National Wetland Inventory (NWI) (USFWS 2014) within the project area (Figure 3). There is a wetland complex which includes freshwater emergent wetland (PEM), freshwater scrub-shrub wetland (PSS), and freshwater forested wetland (PFO) on the southeast corner of the I-90/SR 18 Interchange, south and east of SE 104th St. There are several other smaller wetland complexes mapped within the project area (Figure 3).

Climate and Weather
The study area is situated approximately 23 miles inland from Puget Sound. The project lies in the foothills of the Cascade Mountains. A cool marine climate produced by Puget Sound results in cool, dry summers and wet, mild winters. The general area receives an average total snowfall of about 7 inches per year and an overall total of 57 inches of precipitation per year, as recorded at the Landsburg weather station, with most of the precipitation occurring between September and June (NRCS 2002; WSDOT 2013).

Normal conditions were present for 3 months prior to the wetland delineations in October 2018, July 2019 and August 2019, based on rainfall data from the Landsburg weather station (NRCS 2019b) (Appendix B). Precipitation observed at the Landsburg weather station was drier than normal throughout the wetland delineations in August 2018, September 2018, and June 2019 (NRCS 2019b) (Appendix B). Hydrology indicators at the time of the delineation would have been informative. All wetlands in the study area met all three delineation criteria.

Vegetation
The study area is primarily forested upland and wetland areas associated with Deep Creek, the Raging River, Lake Creek, and their tributaries, with WDNR forest land and rural residences adjacent to the riparian corridor. The areas closest to I-90 and SR 18 are primarily road fill material, with reed canarygrass (*Phlaris arundinacea*), osoberry (*Oelmeria cerasiformis*), Himalayan blackberry *(Rubus armeniacus)* and western swordfern (*Polystichum munitum*) dominating vegetation adjacent to the roadway prism. Other dominant species in the study area include cottonwood (*Populus balsamifera*), Douglas fir (*Pseudotsuga heterophylla*), Western hemlock (*Tsuga heterophylla*), salmonberry (*Rubus spectabilis*), and salal (*Gaultheria shallon*). Please refer to Appendix E for a complete species list.

Growing Season
The growing season in the region is heavily influenced by the Pacific Ocean and typically lasts between 180 to 196 days long. The average, frost-free growing season generally occurs from late March (March 25) to mid-November (November 15), totaling 180 days. Several features were observed during the wetland delineation to determine the growing season in the study area, including observing herbaceous plants to be green on the ground, and leaves on trees were observed during delineations during the growing season.

Soils
Six soil types were identified and mapped within the study area (Figure 4):
• Klaber silt loam, 0 to 8 percent slopes (Hydric rating: 100)
• Klaus sandy loam, 0 to 8 percent slopes (Hydric rating: 1)
• Seattle muck, 0 to 1 percent slopes (Hydric rating: 100)
• Tokul gravelly medial loam, 8 to 15 percent slopes (Hydric rating: 5)
• Tokul gravelly medial loam, 15 to 30 percent slopes (Hydric rating: 0)
• Tokul-Pastik complex, 45 to 90 percent slopes (Hydric rating: 0)

The predominant soil types mapped within the study area are Tokul gravelly medial loam, 8 to 15 percent slopes and 15 to 30 percent slopes. The Tokul series consists of moderately well-

drained soils that occur on the west slopes of the Cascade Mountains in northwestern Washington. This soil type typically does not have hydric soil conditions (NRCS 2019a).

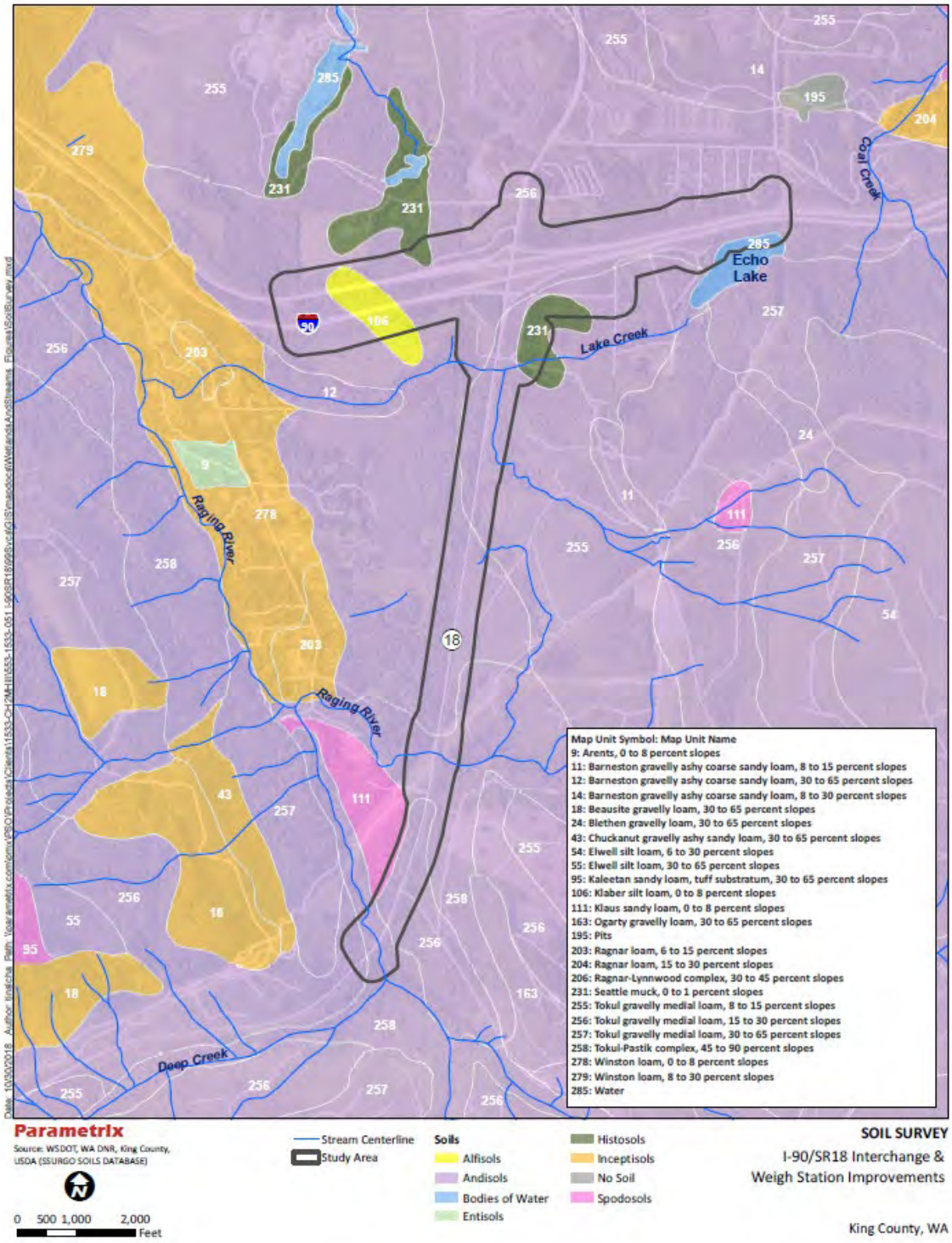


Figure 4. Mapped NRCS Soils

Delineated Wetlands and Streams

In total, 43 wetlands and 20 streams were delineated within the study area (see wetland summary in Table 1 and stream summary in Table 43 and Figure 5 below). Biologists completed field data sheets (Appendix C) and Ecology wetland rating forms (Appendix D) for all delineated wetlands. A list of plants encountered in wetlands was compiled for the study area (Appendix E). Wetlands are presented and named by drainage basin with a breakout map for each basin followed by the wetland summary tables provide a summary of data collected that drove decisions for placing wetland boundaries and assessing wetland conditions (Tables 2-42).

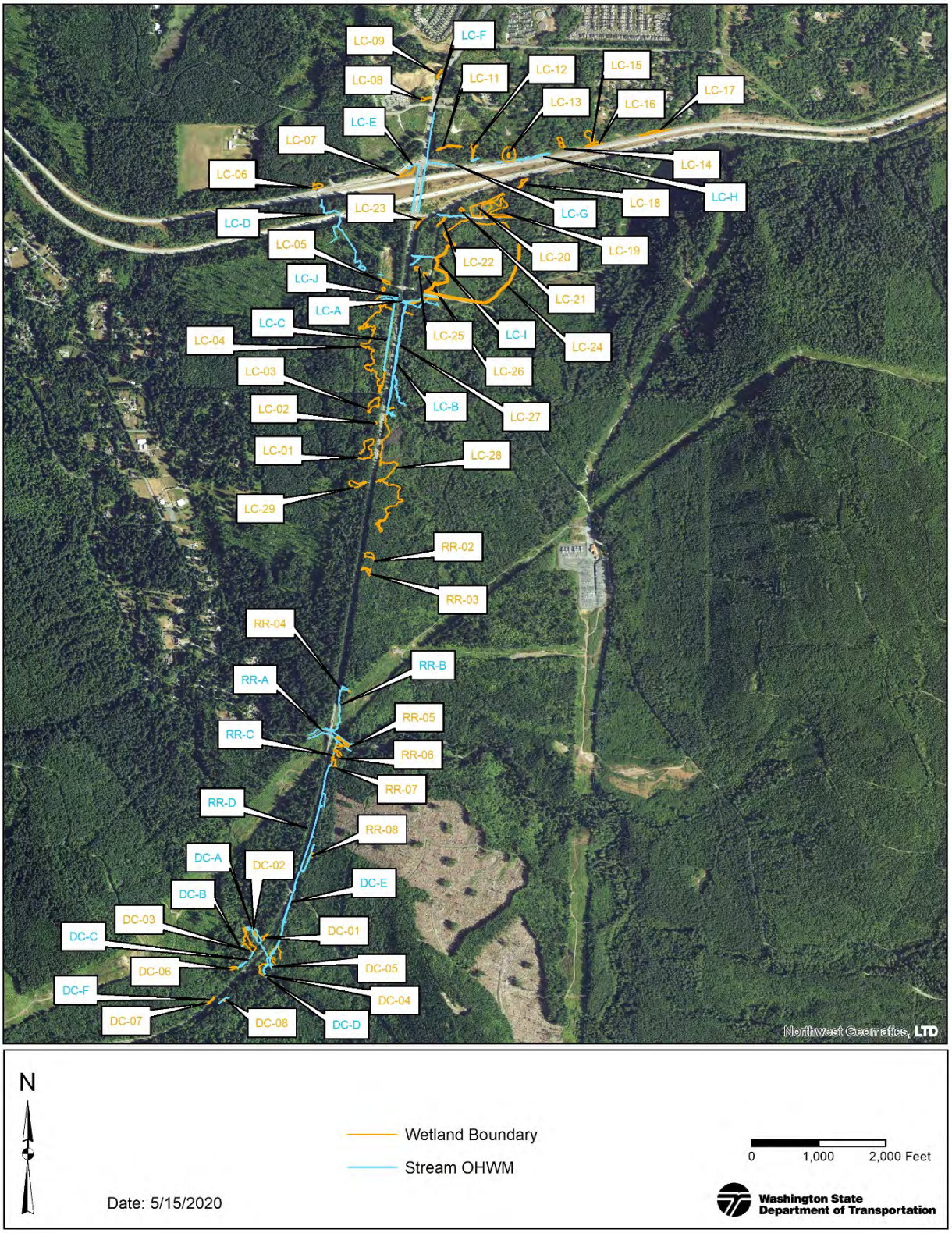


Figure 5. Wetlands and Streams Delineated in the Study Area

Table 1. Summary of wetlands delineated in the study area

#	Wetland	USFWS Classification[a]	HGM Classification[b]	Ecology Rating (2014)[c]	Wetland Size (sf/acres)	King County Buffer Width (ft)[d]
	Lake Creek Drainage					
1	LC-01	PFO/PSS	Depressional	I	34,374/0.79	300
2	LC-02	PSS/PEM	Depressional	II	660/0.015	150
3	LC-03	PFO/PSS	Depressional	I	17,124/0.39	300
4	LC-04	PFO	Depressional/ Riverine/Slope	I	281,160/6.45	150
5	LC-05	PSS/PEM	Slope	III	4,549/0.10	150
6	LC-06	PFO/PSS	Depressional	III	>8,250/0.19	150
7	LC-07	PEM	Slope	III	>15,595/0.358	80
8	LC-08*			II		300
9	LC-09*			II		300
10	LC-11	PFO/PSS	Depressional	III	6,962/0.16	150
11	LC-12	PFO/PSS	Depressional/ Slope	II	10,030/0.23	150
12	LC-13	PSS	Slope	III	1,634/0.04	150
13	LC-14	PFO/PSS	Slope	III	4,748/0.11	150
14	LC-15	PFO/PSS	Slope	IV	2,114/0.05	50
15	LC-16	PSS/PEM	Slope	III	6,277/0.14	80
16	LC-17	PSS/PEM	Slope	III	9,596/0.22	80
17	LC-18	PFO	Slope	III	4,697/0.11	150
18	LC-19	PFO	Depressional	II	15,267/0.35	150
19	LC-20	PFO/PSS	Slope	III	38,297/0.90	150
20	LC-21	PFO/PSS	Depressional	III	1,111/0.03	150
21	LC-22	PFO/PSS	Depressional	II	3,191/0.07	150
22	LC-23	PSS/PEM	Slope	III	>2,352/0.054	80
23	LC-24	PEM/PFO/PSS	Riverine/Depressional	I	>1,154,000/26.5	300
24	LC-25	PFO/PSS	Depressional	III	2,310/0.05	150
25	LC-26	PSS/PEM	Depressional	III	507/0.01	150
26	LC-27	PFO/PSS/PEM	Depressional	II	>313,500/7.20	300
27	LC-28	PFO/PSS/PEM	Depressional	I	>402,500/>9.24	300
28	LC-29	PSS/PEM	Depressional	II	11,850/0.272	150
	Raging River Drainage					
29	RR-02	PFO/PSS	Depressional	II	8,000/0.18	300
30	RR-03	PFO/PSS	Depressional	III	4,900/0.07	300
31	RR-04	PFO	Depressional / Riverine / Slope	III	>5,000/0.12	300
32	RR-05	PSS	Riverine	II	4,500/0.10	300
33	RR-06	PFO/PSS	Slope	II	3,300/0.08	300
34	RR-07	PFO/PSS	Depressional / Riverine	II	>14,000/0.32	300
35	RR-08	PFO/PSS	Depressional	III	>6,000/0.14	300
	Deep Creek Drainage					
36	DC-01	PFO/PSS	Slope	III	3,500/0.08	300
37	DC-02	PSS/PEM	Riverine	II	4,250/0.10	300
38	DC-03	PFO/PSS	Depressional/Riverine	II	20,200/0.46	300
39	DC-04	PFO/PSS	Slope	III	>28,250/0.64	300

40	DC-05	PFO/PSS	Slope	III	>26,900/0.61	300
41	DC-06	PSS	Depressional	II	3,441/0.08	150
42	DC-07	PSS/PEM	Riverine	II	1,263/0.029	300
43	DC-08	PSS/PEM	Riverine	II	1,995/0.05	300

Note: Wetland LC-10 was determined to be a stormwater conveyance and not a wetland and was removed from this table. Wetland RR-01 was reclassified to the Lake Creek Drainage and is now LC-29.

*Ratings based on King County Critical Areas Map information. Wetlands were not delineated due to the inability to access the fenced private land. The buffer is assumed based on the listed rating.

a FGDC 2013; Cowardin et al. 1979
b Brinson 1993
c Hruby 2014
d KCC 21A.24.325
PFO = palustrine forested; PSS = palustrine scrub-shrub; PEM = palustrine emergent

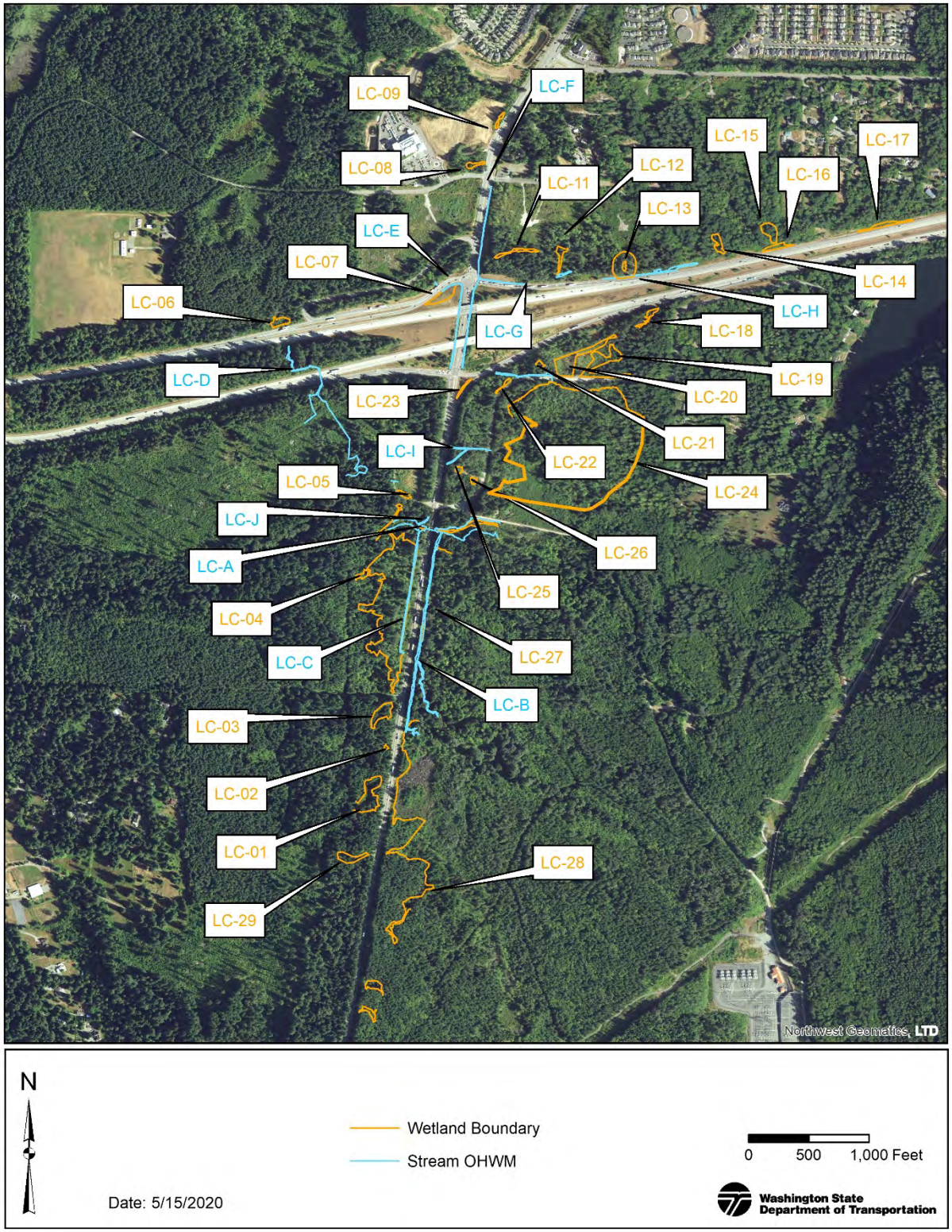


Figure 6. Wetlands and Streams in the Lake Creek Subwatershed

Table 2. Wetland LC-01 Summary

WETLAND LC-01 – INFORMATION SUMMARY			
Location:	SW quadrant of I-90/SR 18 intersection, west of westbound SR 18		
		**Delineation/Verification Date**	October 31, 2011/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	I
		King Co. Buffer Width	300 feet
		Wetland Size (sf/acres)	34,374/0.79
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W1-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W1-SP2
Dominant Vegetation	Trees – western red cedar (*Thuja plicata*). Sapling/shrubs – salmonberry (*Rubus spectabilis*), red huckleberry (*Vaccinium parvifolium*). Herbaceous – American skunk-cabbage (*Lysichiton americanus*), water parsley (*Oenanthe sarmentosa*), with western swordfern (*Polystichum munitum*) on hummocks. Non-vascular - sphagnum moss (*Sphaguum* sp.).		
Soils	Soil matrices of 10YR 2/1 with redoximorphic concentrations, hereinafter referred to as concentrations, to greater than 18 inches. Indicator Redox Dark Surface (F6). Some locations had soils with high organic content. Indicator F1: Loamy Mucky Mineral.		
Hydrology	Wetland situated in a forested depression below and to the west of SR 18 with a high water table as the dominant hydrology source. Precipitation and stormwater runoff from SR 18 contribute secondary hydrologic inputs. Water leaves the wetland through a constricted outlet (culvert) that flows east under SR 18 into LC-28.		
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Topographic break near toe of slope of the depression and obvious change in vegetation community helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-01 is Category I based on functions. Organic soils and sphagnum moss present in some areas; however, does not meet special characteristics criteria for bogs in the Washington State Wetland Rating System due to the vegetation community not having the characteristic bog species.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to large size, constricted outlet (culvert), and ability to retain significant amounts of water; high opportunity because wetland receives overland flow of surface water during and following storms. High potential to trap nutrients and toxicants due to due to densely vegetated topographic depression with high organic content in soils; high opportunity because wetland receives stormwater runoff from SR 18 through its vegetated buffer (<50 feet wide in places).		
Hydrologic	Moderate potential to alter flood flow due to landscape position high in watershed and depressional topography that retain high volumes of water; opportunity is moderate from run-on during precipitation and snow melt events. Moderate erosion control and shoreline stabilization functions provided because wetland shares a hydrologic surface connection with Wetland LC-28, a headwater to Stream LC-B.		
Habitat	High habitat quality due to connection with large mature forested upland corridor, other wetlands and Raging River. WDFW Priority Habitats and Species (PHS) present.		
Buffer Condition	Buffer function is high. Greater than half of the wetland circumference to the west consists of mature coniferous forest dominated by western red cedar and western hemlock (*Tsuga heterophylla*), intermixed with some historically logged areas where trees and shrubs have reestablished. The eastern wetland boundary is buffered by a thin strip of mature coniferous trees separating the wetland from the westbound lanes of SR 18. These forested areas provide wildlife habitat, shade, organic matter inputs, and some water quality and hydrologic buffering form stormwater runoff.		

Table 3. Wetland LC-02 Summary

WETLAND LC-02 – INFORMATION SUMMARY			
Location:	SW quadrant of I-90/SR 18 intersection, west of westbound SR 18		
		**Delineation/Verification Date**	October 31, 2011/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King Co. Buffer Width	150 feet
		Approximate Wetland Size (sf/acres)	660/0.015
		Cowardin Classification	PSS/PEM
		HGM Classification	Depressional
		Wetland Data Sheets	WSDOT 2013; Appendix C; Sampling Point W2-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W2-SP2
Dominant Vegetation	Trees – red alder (*Alnus rubra*). Sapling/shrubs – salmonberry. Herbaceous – slough sedge (*Carex obnupta*), common ladyfern (*Athyrium filix-femina*).		
Soils	Soil matrices were depleted with 2.5Y 6/1 with concentrations to greater than 16 inches. Indicator Depleted Matrix (F3).		
Hydrology	Wetland situated in a depression below and to the west of SR 18 with a high water table as the dominant hydrology source. Precipitation and stormwater runoff from SR 18 contribute secondary hydrologic inputs. Water leaves the wetland through a constricted outlet at a culvert flowing east under SR 18, emptying into Wetland LC-28, the headwaters of Stream LC-B.		
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Topographic break near toe of slope of the depression and obvious change in vegetation community helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-02 is Category II.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to depressional topography with dense herbaceous vegetation and a constricted outlet (a culvert), allowing for significant ponding and fine sediments to settle out of the water column; high opportunity because wetland receives overland flow of surface water during and following storms. High potential to trap nutrients and toxicants due to the same physical characteristics described for sediment trapping function, though overall size of wetland is small, reducing its ability to perform this function; high opportunity because wetland receives stormwater runoff from SR 18.		
Hydrologic	Moderate potential to alter flood flow due to small size; opportunity is moderate as significant amounts of water drain into the wetland from up-slope areas during and following precipitation. Moderate erosion control and shoreline stabilization functions are provided because wetland shares a hydrologic surface connection with Wetland LC-28, a headwater to Stream LC-B.		
Habitat	Moderate habitat quality. Wetland is connected to a large upland forested corridor that connects to other wetlands and Raging River. Function limited by wetland size. Wetland provides habitat for aquatic invertebrates; breeding, juvenile, and adult amphibians; passerine birds; small mammals; and deer.		
Buffer Condition	Buffer function is high. Approximately half of the wetland circumference to the west consists of mature forest dominated by western red cedar and red alder, intermixed with some historically logged areas where trees and shrubs have reestablished. The eastern half of the wetland boundary is buffered by a thin strip of mature coniferous trees separating the wetland from the westbound lanes of SR 18. These forested areas provide wildlife habitat, shade, organic matter inputs, and some water quality and hydrologic buffering form stormwater runoff.		

Table 4. Wetland LC-03 Summary

WETLAND LC-03 – INFORMATION SUMMARY			
Location:	SW quadrant of I-90/SR 18 intersection, west of westbound SR 18		
		**Delineation/Verification Date**	October 31, 2011/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	I
		King Co. Buffer Width	300 feet
		Wetland Size	0.39 acre
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W3-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W3-SP2
Dominant Vegetation	Trees – western red cedar. Sapling/shrubs – devil's club (*Oplopanax horridus*), salmonberry, western red cedar saplings. Herbaceous – common ladyfern, western swordfern on hummocks, Pacific trillium (*Trillium ovatum*). Non-vascular - sphagnum moss present.		
Soils	Soil matrices were 10YR 3/1 with concentrations to greater than 16 inches. Indicator Redox Dark Surface (F6). High organic matter present in some areas.		
Hydrology	Wetland situated in a forested closed depression below and west of SR 18 with a high water table as the dominant hydrology source. Precipitation and stormwater runoff from SR 18 contribute secondary hydrologic inputs. The wetland has no outlet, indicating water leaves through infiltration and evapotranspiration.		
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Topographic break near toe of slope of the depression and obvious change in vegetation community helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-03 is Category I. Soils with high organic content and sphagnum moss present in some areas of the wetland; however, does not meet the bog criteria for special characteristics in the Washington State Wetland Rating System due to the vegetation community not having the characteristic bog species.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to closed depressional topography, dense vegetation, and seasonal ponding, which allow fine sediments to settle out of the water column; moderate opportunity because wetland receives overland flow of surface water during and following storms. High potential to trap nutrients and toxicants due to densely vegetated topographic closed depression with high organic content in soils; moderate opportunity because portions of the wetland receive stormwater runoff from SR 18.		
Hydrologic	High potential to alter flood flow due to landscape position high in watershed and depressional topography able to retain high volumes of water; opportunity is high from run-on during precipitation events. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	High habitat quality due to connection with large mature forested upland corridor, other wetlands and Raging River. Forested wetland with canopy stratification, decadence, various water regimens, and other characteristics able to support various wildlife. Wetland has uniqueness and heritage: Category I forested and PHS present.		
Buffer Condition	Buffer function is high. Greater than half of the western wetland circumference consists of mature coniferous forest dominated by western red cedar and western hemlock, intermixed with some historically logged areas where trees and shrubs have reestablished. The eastern wetland boundary is buffered by a thin strip of mature coniferous trees separating the wetland from the westbound lanes of SR 18. These forested areas provide wildlife habitat, shade, organic matter inputs, and some water quality and hydrologic buffering form stormwater runoff.		

Table 5. Wetland LC-04 Summary

WETLAND LC-04 – INFORMATION SUMMARY			
Location:	SW quadrant of I-90/SR 18 intersection, west of westbound SR 18		
		**Delineation/Verification Date**	October 31, 2011/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	I
		King Co./USFS Buffer Width	150 feet/150 feet
		Wetland Size	6.45 acres
		Cowardin Classification	PFO
		HGM Classification	Depressional/Riverine
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W4-SP1, W4-SP3
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W4-SP2, W4-SP4
Dominant Vegetation	Trees – red alder, black cottonwood (*Populus balsamifera*), Cascara buckthorn (*Frangula purshiana*), vine maple (*Acer circinatum*). Sapling/shrubs – salmonberry, Pacific ninebark (*Physocarpus capitatus*). Herbaceous – youth on age (*Tolmiea menziesii*), sedges (*Carex* spp.), common ladyfern.		
Soils	Soil matrices were 10YR 2/1 and 10YR 3/2 to five inches. A second layer from 5 to 16 inches with a depleted matrix of 10YR 5/2 with concentrations and depletions is present. Indicators Depleted Below Dark Surface (A11) and Depleted Matrix (F3).		
Hydrology	Wetland situated in a forested depression with Lake Creek running through it. It is below and to the west of SR 18. A high water table is the dominant hydrology source. Precipitation, hyporheic flow and occasional overbank flooding form Lake Creek, and stormwater runoff from SR 18 contribute secondary hydrologic inputs to portions of the wetland. Parts of the wetland have no outlet, while other areas outlet to Lake Creek.		
Rationale for Delineation	Depressional and riverine wetland with hydric soils, supporting hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and hydric soils helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-04 is Category I. It is Category I based on special characteristics for mature forested wetland and Category II based on functions.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to large size and ability to retain significant amounts of water; moderate opportunity because wetland receives runoff from multiple sources including Lake Creek during and following storms. High potential to trap nutrients and toxicants due to densely vegetated topographic depression with some organic content in soils; moderate opportunity because portions of the wetland receive stormwater runoff from SR 18.		
Hydrologic	High potential to alter flood flow due to landscape position high in watershed and depressional and undulating topography able to retain water; opportunity is high due to flood overflow from Lake Creek and stormwater inputs. Moderate erosion control and shoreline stabilization functions provided because Lake Creek flows through the wetland.		
Habitat	High habitat quality due to connection with large mature forested upland corridor, other wetlands and Lake Creek. Mature forested wetland with canopy stratification, decadence, various water regimens, and other characteristics able to support various wildlife including fish, wetland mammals, amphibians, large and small land mammals, and passerine birds. Wetland has uniqueness and heritage: Category I Mature Forested greater than 1 acre and WDFW PHS present.		
Buffer Condition	Buffer function is high. Greater than half of the western wetland circumference has mature coniferous forest dominated by western red cedar, western hemlock, Douglas-fir (*Pseudotsuga menziesii*), and vine maple intermixed with some historically logged areas where trees and shrubs have reestablished. The eastern wetland boundary is buffered by a thin strip of mature coniferous trees separating the wetland from the westbound lanes of SR 18 and the southern portion of the WSDOT maintenance yard. These forested areas provide wildlife habitat, shade, organic matter inputs, and some water quality and hydrologic buffering form stormwater runoff.		

Table 6. Wetland LC-05 Summary

WETLAND LC-05 – INFORMATION SUMMARY			
Location:	SW quadrant of I-90/SR 18 intersection, south end of WSDOT maintenance yard		
		**Delineation/Verification Date**	October 22, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King Co. Buffer Width	150 feet
		Wetland Size	0.10 acre
		Cowardin Classification	PSS/PEM
		HGM Classification	Slope
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W5-SP1, W5-SP3
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W5-SP2
Dominant Vegetation	Trees – none. Sapling/shrubs – hardhack (*Spiraea douglasii*), black cottonwood, willows (*Salix* spp.), cutleaf blackberry (*Rubus laciniatus*). Herbaceous – poverty rush (*Juncus tenuis*), tapertip rush (*Juncus acuminatus*), sedges, woolgrass (*Scirpus cyperinus*), spike bentgrass (*Agrostis exarata*), common velvetgrass (*Holcus lanatus*).		
Soils	Soil matrices were 10YR 2/2 to 7 inches. A second layer from 7 to 13 inches had a matrix of 10YR 3/3 with concentrations. Soils are significantly disturbed but are assumed to be hydric because soils meet the definition: saturated or ponded for long periods during the growing season. In addition, presence of a hydrophytic plant community and wetland hydrology indicate that the soils are hydric.		
Hydrology	Wetland situated in disturbed sloping area on WSDOT maintenance yard. Surface run-on from precipitation from up-slope maintenance yard is the primary source of hydrology. Water saturates the upper portion of the soil and small depressions impound water. Water leaves the wetland sheet flowing across the access road to the maintenance yard, and enters a ditch, before draining to Lake Creek.		
Rationale for Delineation	Slope wetland supporting hydrophytic vegetation and wetland hydrology. This is a newly forming wetland area due to activities associated with the WSDOT maintenance yard. Soil excavation in this area allows water to pond and subsequently a hydrophytic plant community has established.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-05 is Category III.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to gentle sloping topography with depressions and dense herbaceous vegetation, allowing water to move through system relatively slowly and fine sediments to settle out of the water column; high opportunity because WSDOT maintenance yard is directly upslope, with the majority of sheet flow off the maintenance yard flowing through wetland before entering Lake Creek. High potential to trap nutrients and toxicants due to sloping topography with depressions and dense herbaceous vegetation; high opportunity because maintenance yard upslope contributes inputs.		
Hydrologic	Moderate potential to alter flood flow due to small densely vegetated depressions able to retain runoff; opportunity is moderate as wetland receives surface runoff from up-slope maintenance but water leaves wetland as sheetflow across access road flowing to ditch draining to Lake Creek. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Low habitat quality due to lacking or low-functioning buffer, surrounding WSDOT maintenance yard, and small wetland size.		
Buffer Condition	Buffer function is limited for the entire circumference of the wetland. Half of the wetland lacks a buffer and is bordered by a gravel road accessing the WSDOT maintenance yard. The other half has a sloping buffer on the southern end of the maintenance yard with disturbed/compacted soils dominated by upland pasture grasses and some invasive species. Upland grasses to the north may provide some hydrologic and water quality functions.		

Table 7. Wetland LC-06 Summary

WETLAND LC-06 – INFORMATION SUMMARY			
Location:	Northwest of the I-90/SR 18 Interchange and to the west of decommissioned weigh station		
		**Delineation Date**	October 24, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King County Buffer Width	150 feet
		Approximate Wetland Size (sf/acres)	>8,250/0.19
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional
		Wetland Data Sheets	Appendix C; Sampling Point 34
		Upland Data Sheets	Appendix C; Sampling Point 35 and 36
Dominant Vegetation	Trees—Western red cedar, black cottonwood, and red alder. Sapling/shrubs —salmonberry, hardhack, trailing blackberry, twinberry honeysuckle, Pacific ninebark, Cascara buckthorn, and vine maple. Herbaceous—American skunk-cabbage, American speedwell *(Veronica Americana)*, stinging nettles (*Urtica dioica*), and water parsley.		
Soils	Soils within Wetland LC-06 generally had two layers. The surface layer (0 to 7 inches) was 10YR 2/1 silt loam. The second layer (7 to 16 inches) was 10YR 3/2 loam 7.5YR 4/6 concentrations. These soils met the criteria for hydric soil indicators F6 (redox dark surface).		
Hydrology	A high water table is the primary source of hydrology for Wetland LC-06. Additional hydrologic inputs include ephemeral overland flow from the north and precipitation. Water from Wetland LC-06 flows into a catch basin and is conveyed from the north to south under I-90 and into Stream LC-D. Depth of ponding is between 0.5 and <2 feet deep.		
Rationale for Delineation	Depressional wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland LC-06 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Low site potential for water quality improvement due to minor seasonal ponding and lower coverage of persistent vegetation; moderate potential for water quality improvement within the landscape due to reception of stormwater discharges.		
Hydrologic	Low site potential for hydrologic function due to lack of ponding; moderate landscape potential to support hydrologic functions because of stormwater inputs into the wetland. Societal value is high because flooding occurs in the sub-basin immediately downgradient of Wetland LC-06.		
Habitat	Moderate habitat quality with scrub-shrub plant communities and multiple hydroperiods and low habitat interspersion. Special habitat features include large downed wood and snags that benefit small mammals and amphibians such as salamanders and a variety of birds.		
Buffer Condition	Wetland LC-06 buffer is partially limited by SR 18; remaining buffer is relatively undisturbed forest consisting primarily of western hemlock and Douglas-fir. Wetland LC-06 is part of a relatively undisturbed vegetated corridor, which connects to other wetlands and to undisturbed uplands greater than 25 acres in size.		

Table 8. Wetland LC-07 Summary.

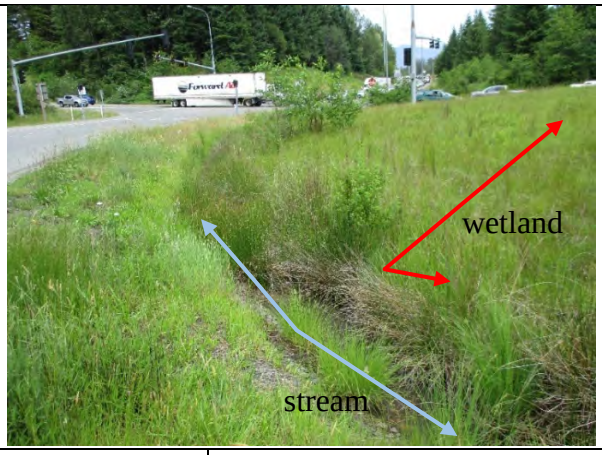
WETLAND LC-07 – INFORMATION SUMMARY			
Location:	Northwest of the I-90 overpass and south of the westbound onramp.		
		**Delineation Date**	June 20, 2019
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King Co. Buffer Width	80 feet
		Wetland Size (sf/acres)	15,595/0.358
		Cowardin Classification	PEM
		HGM Classification	Slope
		Wetland Data Sheet(s)	Sampling Point W41-SP2, W41-SP4, and W41-SP6
		Upland Data Sheet (s)	Sampling Point W41-SP1, W41-SP3, and W41-SP5
Dominant Vegetation	Trees- none. Sapling/shrubs - hardhack (5% cover). Herbaceous - colonial bentgrass, sweet vernalgrass (*Anthoxanthum odoratum*), soft rush (*Juncus effusus*).		
Soils	Soils examined to a depth of 8-12 inches exhibited hydric characteristics. Dark 10YR 3/2 soils from 0 to 4 inches. Depleted matrices of 7.5YR 5/1 and 2.5Y 5/1 with concentrations present from 4 to 8-12 inches underlain by a restrictive layer of cobbles and gravel. Indicators Depleted Matrix (F3) and Depleted Below Dark Surface (A11) met.		
Hydrology	Precipitation and stormwater sheet flow on top of a restrictive layer appear to be the main sources of hydrology. Water leaves the wetland as sheet flow into the roadside ditch at the toe of the slope.		
Rationale for Delineation	Positive indicators of hydrophytic vegetation and hydric soils present. Hydrology is naturally problematic due to the site visit occurring during the normal annual dry season, however conditions 2f and 3a are met for wetlands that periodically lack indicators of wetland hydrology (Corps 2010). Placement of boundary determined by vegetation and soils.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-07 is Category III.		
Wetland Functions Summary			
Water Quality	Low potential for production of organic matter and its export due to >90% cover of dense herbaceous vegetation across the wetland. A surface water outlet to a roadside ditch has the potential to readily export organic material to down-gradient habitats. Diversity and interspersion of vegetation is low.		
Hydrologic	No potential to alter flood flow or low ability to provide sediment removal due to small size and sloping topography. Erosion control and shoreline stabilization not provided because wetland is not associated with a water course or shoreline.		
Habitat	No potential to provide habitat functions due to fragmentation by development, low diversity of plant species, and only one Cowardin Class present.		
Buffer Condition	Buffer function is limited. The wetland is bordered by an onramp to I-90 to the north and west, SR 18 to the east, and I-90 to the south.		

Table 9. Wetland LC-11 Summary

WETLAND LC-11 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90 off-ramp at Exit 25		
		**Delineation/Verification Date**	October 31, 2011/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014)	III
		King Co. Buffer Width	150 feet
		Wetland Size	0.16 acre
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W13-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W13-SP2
Dominant Vegetation	Trees – black cottonwood, vine maple, Cascara buckthorn. Sapling/shrubs – salmonberry, vine maple, devil's club. Herbaceous - western swordfern, common ladyfern, trailing blackberry.		
Soils	Soil matrices were 10YR 3/1 to greater than16 inches with concentrations. Indicator Redox Dark Surface (F6).		
Hydrology	Depressional wetland with a highly constricted outlet situated on a forested terrace above and to the east of SR 18 with a high water table as the dominant hydrology source. Precipitation contributes secondary hydrologic inputs. Outlet flow to a ditch draining to LC-12.		
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Topographic break near toe of slope of the depression and vegetation helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-11 is Category III.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to densely vegetated depression with a constricted outlet, allowing water to move through system relatively slowly and fine sediments to settle out of the water column; low opportunity because significant sources of sediments are not present in surrounding intact upland forest areas. High potential to trap nutrients and toxicants due to densely vegetated depressional topography and mineral soils with high organic content; low opportunity because stormwater runoff from roadways or other sources does not enter the wetland.		
Hydrologic	High potential to alter flood flow due to vegetated depressional topography with a highly constricted outlet; high opportunity as wetland captures and slows runoff from upland forest areas during and following precipitation events. Erosion control and shoreline stabilization functions are high because of flooding problems downstream.		
Habitat	High habitat quality due to habitat connectivity with other forested uplands and wetlands. Good canopy stratification and variable water regimen throughout the growing season provide habitat for passerine birds, small mammals, amphibians, and deer.		
Buffer Condition	Buffer function is high for the entire circumference of the wetland with mature forest providing wildlife habitat, shade, and organic matter inputs. Red alder, western hemlock, and bigleaf maple (*Acer macrophyllum*) dominate the over story with salmonberry, vine maple, and red huckleberry (*Vaccinium parvifolium*) in the shrub layer. The wetland is up-slope from I-90 and does not receive stormwater or have other sources of poor water quality inputs.		

Table 10. Wetland LC-12 Summary

WETLAND LC-12 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90 off-ramp at Exit 25		
		**Delineation/Verifcation Date**	October 1, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014)	II
		King Co. Buffer Width	150 feet
		Wetland Size	0.23 acre
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional/slope
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W14-SP1, W14-SP3
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W14-SP2, W14-SP4
Dominant Vegetation	Trees – red alder, black cottonwood. Sapling/shrubs – salmonberry, vine maple, Cascara buckthorn. Herbaceous - youth on age, common ladyfern, trailing blackberry, sedges, scouring rush horsetail (*Equisetum hyemale*), and reed canarygrass.		
Soils	Soils from in the upper two layers were 10YR 2/1 or 10YR 3/2. Concentrations present in some layers. Two different soil types were observed in different areas of the wetland. Some had high organic content in loamy mucky mineral soils meeting Indicator Loamy Mucky Mineral (F1), while others had higher mineral content meeting Indicator Redox Dark Surface (F6).		
Hydrology	Depressional and slope wetland situated in a forested drainage above and to the north of I-90 with a high water table and surface and subsurface run-on as the dominant hydrology sources. A water table intersects the slope and seeps down the slope in some areas. Two ditches draining to the depressional portion of the wetland contribute secondary hydrologic inputs to the lowest portion of the wetland. Wetland lacks a surface outlet.		
Rationale for Delineation	Depressional and slope wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Hydrology and soils helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-12 is Category II.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments in vegetated closed depressional topographic area impounding water and allowing fine sediments to settle out of the water column; low opportunity because stormwater from upland forested areas enters the wetland and is not carrying significant amounts of sediment. High potential to trap nutrients and toxicants in closed depression with some organic matter in the soil; low opportunity because stormwater inputs are from forested upland areas not likely carrying nutrients and toxicants.		
Hydrologic	High potential to alter flood flow due to closed depression at bottom of slope able to retain surface water during and following precipitation events; opportunity is high as water sheet flows off upland forested areas during and after storms. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	High habitat quality due to habitat connectivity with other forested uplands and wetlands. Good canopy stratification and variable water regimen throughout the growing season provide habitat for passerine birds, small mammals, amphibians, and deer.		
Buffer Condition	Buffer function is moderate for the majority of the circumference of the wetland with mature forest providing shade and organic matter inputs. Wildlife habitat is limited due to a large right-of-way (ROW) fence which bisects the wetland and buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Western hemlock, red alder, and black cottonwood dominate the over story with salmonberry, vine maple, and twinberry honeysuckle in the shrub layer. The wetland is up-slope from I-90 and does not receive polluted stormwater or have other sources of poor water quality inputs.		

Table 11. Wetland LC-13 Summary

WETLAND LC-13 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90 off-ramp at Exit 25		
		**Delineation/Verification Date**	September 24, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014)	III
		King Co. Buffer Width	150 feet
		Wetland Size	0.04 acre
		Cowardin Classification	PSS
		HGM Classification	slope
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W15-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W15-SP2
Dominant Vegetation	Trees – none. Sapling/shrubs – hardhack, Scouler's willow (*Salix scouleriana*), Cascara buckthorn. Herbaceous – soft rush, spike bentgrass, red fescue (*Festuca rubra*), sedges.		
Soils	A depleted matrix of 2.5Y 5/1 with concentrations is present from 0 to 6 inches. A gravel hardpan restrictive layer present at 6 inches below the surface. Indicator Depleted Matrix (F3).		
Hydrology	Wetland has shallow soils above a restrictive layer which perch water during the rainy season. Precipitation and run-on are the primary hydrologic inputs. Water leaves the wetland through infiltration and as sheetflow following precipitation events.		
Rationale for Delineation	Slope wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Soils helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-13 is Category III.		
Wetland Functions Summary			
Water Quality	Low potential to trap sediments due to vegetated slope with only a few small depressions; low opportunity because significant sources of sediments are not present. Moderate potential to trap nutrients and toxicants due to sloping topography with only a few vegetated depressions; low opportunity because inputs are low; I-90 is down-slope of the wetland and surrounding upland areas are forested.		
Hydrologic	Low potential to alter flood flow due to small size of wetland and sloping topography with an un-constricted outlet and few depressions; opportunity is low due to forested upland areas not contributing significant amounts of runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Moderate habitat quality due to forested buffers and connection to other wetlands. Habitat connectivity limited because wetland is in ROW between I-90 and ROW fence. Wetland provides habitat for passerine birds and small mammals.		
Buffer Condition	Buffer function is moderate for the majority of the circumference of the wetland with mature forest providing shade and organic matter inputs. Wildlife habitat is limited due to a large ROW fence which fragments the habitat along the current WSDOT ROW from other forested areas. Black cottonwood and Douglas-fir dominate the over story with hardhack in the shrub layer. The wetland is up-slope from I-90 and does not receive stormwater or have other sources of poor water quality inputs.		

Table 12. Wetland LC-14 Summary

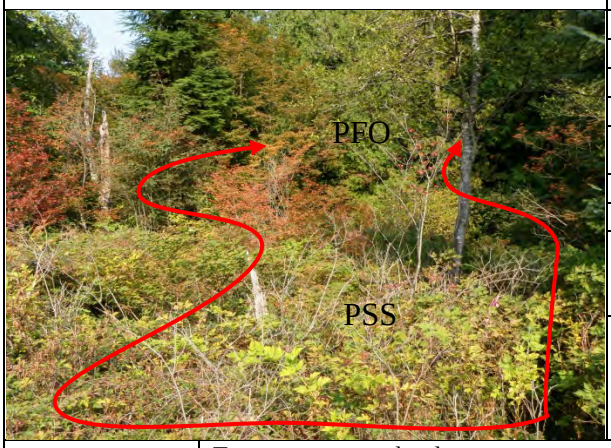
WETLAND LC-14 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90, east of Exit 25 off-ramp		
		**Delineation/Verification Date**	September 24, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014)	III
		King Co. Buffer Width	150 feet
		Wetland Size	0.11 acre
		Cowardin Classification	PFO/PSS
		HGM Classification	Slope
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W17-SP1, W17-SP3
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W17-SP2, W17-SP4
Dominant Vegetation	Trees – western red cedar. Sapling/shrubs – hardhack and salmonberry. Herbaceous – common ladyfern, giant horsetail.		
Soils	Soils were dark 10YR 2/1 from 0 to 8 inches. The matrix from 8 to 12 inches was 10YR3/2 with concentrations. Indicator Redox Dark Surface (F6). In other areas soils meet Indicator Loamy Mucky Mineral (F1)		
Hydrology	Slope wetland situated in a forested drainage above and to the north of I-90 which receives surface and subsurface run-on as the dominant hydrology source. A water table intersects the slope and seeps down the slope in some areas. A water conveyance structure is located at the lowest point in the wetland at toe of slope of the I-90 roadway structure, allowing surface water to leave the wetland through this constricted outlet.		
Rationale for Delineation	Slope wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Soils and vegetation helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-14 is Category III.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to sloping topography with dense herbaceous vegetation and small depressional areas; low opportunity because significant sources of sediments are not present. Moderate potential to trap nutrients and toxicants due to sloping topography with dense herbaceous vegetation and small depressional areas; low opportunity because inputs are low; I-90 is down-slope of the wetland and surrounding upland areas are forested.		
Hydrologic	Low potential to alter flood flow due to small size of wetland and sloping topography with few depressions and a constricted outlet through a culvert; opportunity is low due to forested upland areas not contributing significant amounts runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Moderate habitat quality due to forested buffers and connection to other wetlands. Habitat connectivity limited because wetland is in ROW between I-90 and ROW fence. Wetland provides habitat for passerine birds, small mammals, and possibly amphibians.		
Buffer Condition	Buffer function is moderate for the majority of the circumference of the wetland with mature forest providing shade and organic matter inputs. Wildlife habitat is limited due to the tall ROW fence which bisects the wetland and buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Sitka spruce, black cottonwood, Douglas-fir, and red alder dominate the over story with salmonberry, vine maple, and devil's club in the shrub layer. The wetland is up-slope from I-90 and does not receive stormwater or have other sources of poor water quality inputs.		

Table 13. Wetland LC-15 Summary

WETLAND LC-15 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90, east of Exit 25 off-ramp		
		**Delineation/Verification Date**	September 24, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014)	IV
		King Co. Buffer Width	50 feet
		Wetland Size	0.05 acre
		Cowardin Classification	PFO/PSS
		HGM Classification	Slope
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W19-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W19-SP2
Dominant Vegetation	Trees – none. Sapling/shrubs – salmonberry. Herbaceous - youth on age, common ladyfern, sedges.		
Soils	Soils from 0 to 10 inches were 10YR 2/1 with concentrations. A layer from 10 to 23 inches was 10YR 4/1 with concentrations and depletions. High organic content in this loamy mucky mineral soil. Indicators Depleted Below Dark Surface (A11), Loamy Mucky Mineral (F1), Depleted Matrix (F3), and Redox Dark Surface (F6).		
Hydrology	Slope wetland in a forested drainage above and north of I-90 with a high water table and surface and subsurface run-on as the dominant hydrology sources. A water table intersects the slope and seeps down the slope in some areas. A catch basin is present on the lowest end of the wetland draining surface water from the lowest part of the wetland as well as other adjacent areas.		
Rationale for Delineation	Slope wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. All three factors helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-15 is Category IV.		
Wetland Functions Summary			
Water Quality	Low potential to trap sediments due to steep vegetated slope lacking depressions; low opportunity because significant sources of sediments are not present. Low potential to trap nutrients and toxicants due to steep vegetated slope lacking depressions; low opportunity because inputs are low; I-90 is down-slope of the wetland and surrounding upland areas are forested.		
Hydrologic	Low potential to alter flood flow due to sloping topography lacking depressions and a constricted outlet through a culvert/French drain; opportunity is low due to forested upland areas not contributing significant amounts runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Moderate habitat quality due to forested buffers and connection to other wetlands. Habitat connectivity limited due to ROW fence bisecting the wetland and buffer. Wetland provides habitat for passerine birds, small mammals, and deer.		
Buffer Condition	Buffer function is moderate for the majority of the circumference of the wetland with mature forest providing shade and organic matter inputs. Wildlife habitat is limited due to a large ROW fence which bisects the wetland and buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Bigleaf maple, vine maple, red alder, and western red cedar dominate the over story with salmonberry in the shrub layer. The wetland is up-slope from I-90 and does not receive stormwater or have other sources of poor water quality inputs.		

Table 14. Wetland LC-16 Summary

WETLAND LC-16 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90, east of Exit 25 off-ramp		
		**Delineation/Verification Date**	September 24, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014)	III
		King Co. Buffer Width	80 feet
		Wetland Size	0.14 acre
		Cowardin Classification	PSS/PEM
		HGM Classification	Slope
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W18-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W18-SP2
Dominant Vegetation	Trees and Shrubs – none. Herbaceous – giant horsetail, common velvetgrass, red fescue.		
Soils	Soils from 0 to > 12 inches were 10YR 3/2 with concentrations and depletions. Indicator Redox Dark Surface (F6) and Depleted Dark Surface (F7).		
Hydrology	A water table intersecting the slope and then saturating the slope below is the primary source of hydrology. Surface and subsurface run-on during and following precipitation events provide secondary hydrologic inputs. Water leaves the wetland as sheetflow into the roadside ditch at the toe of slope.		
Rationale for Delineation	Slope wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Soils and vegetation helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-16 is Category IV.		
Wetland Functions Summary			
Water Quality	Low potential to trap sediments due to steep vegetated slope lacking depressions; low opportunity because significant sources of sediments are not present. Low potential to trap nutrients and toxicants due to due to steep vegetated slope lacking depressions; low opportunity because inputs are low; I-90 is down-slope of the wetland and surrounding upland areas are forested.		
Hydrologic	Flood flow alteration functions not provided due to steep slopes without woody vegetation; opportunity is low due to forested upland areas not contributing significant amounts runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Low habitat quality due to cutslope wetland in ROW between I-90 and ROW fence. Wetland provides minimal habitat for passerine birds and small mammals.		
Buffer Condition	Buffer function is limited for the majority of the circumference of the wetland. The wetland is bordered by the I-90 road prism to the south and by a tall ROW fence to the north. Stormwater from I-90 flows directly into a small portion of the wetland, and the fence creates habitat fragmentation. Some deciduous trees and shrubs are directly adjacent to the wetland and may provide limited buffering functions.		

Table 15. Wetland LC-17 Summary

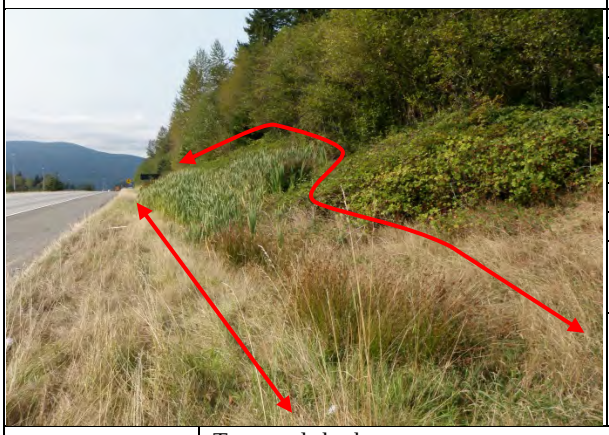
WETLAND LC-17 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90, east of Exit 25 off-ramp		
		**Delineation/Verification Date**	September 24, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014)	III
		King Co. Buffer Width	80 feet
		Wetland Size	0.22 acre
		Cowardin Classification	PSS/PEM
		HGM Classification	Slope
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W20-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W20-SP2
Dominant Vegetation	Trees and shrubs – none. Herbaceous – broadleaf cattail (*Typha latifolia*), sawbeak sedge (*Carex stipata*), common velvetgrass, soft rush, red fescue, quackgrass (*Elymus repens*).		
Soils	Soils from 0 to >12 inches were 10YR 2/1 with concentrations. Indicator Redox Dark Surface (F6).		
Hydrology	A water table intersecting the slope and then saturating the slope below is the primary source of hydrology. Surface and subsurface run-on during and following precipitation events provide secondary hydrologic inputs. Water leaves the wetland as sheetflow into the roadside ditch at the toe of slope.		
Rationale for Delineation	Slope wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Soils and vegetation helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-17 is Category III.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to sloping topography with dense herbaceous vegetation with small depressions; low opportunity because significant sources of sediments are not present. Moderate potential to trap nutrients and toxicants due to sloping topography with dense herbaceous vegetation and small depressional areas; low opportunity because inputs are low; stormwater from I-90 only enters the lowest portion of the wetland that is ditched at the toe of slope of the I-90 roadway structure.		
Hydrologic	Low potential to alter flood flow due to sloping topography with an unconstricted outlet and few depressions; opportunity is low due to forested upland areas not contributing significant amounts runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Moderate habitat quality due to forested buffers and connection to other wetlands. Habitat connectivity limited due to ROW fence. Wetland provides habitat for passerine birds and small mammals.		
Buffer Condition	Buffer function is limited for the majority of the circumference of the wetland. The wetland is bordered by the I-90 road prism to the south and by a tall ROW fence to the north. Stormwater from I-90 flows directly into a small portion of the wetland, and the fence creates habitat fragmentation. Upland grasses and Himalayan blackberry are present on the northern wetland boundary and may provide limited buffering functions.		

Table 16. Wetland LC-18 Summary

WETLAND LC-18 – INFORMATION SUMMARY			
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on-ramp		
		**Delineation/Verification Date**	October 31, 2011/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014)	III
		King Co. Buffer Width	150 feet
		Wetland Size	0.11 acre
		Cowardin Classification	PFO
		HGM Classification	Slope
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W12-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W12-SP2
Dominant Vegetation	Trees – western red cedar, red alder, vine maple. Sapling/shrubs – salmonberry, twinberry honeysuckle *(Lonicera involucrata)*. Herbaceous – American skunk-cabbage, western swordfern on hummocks.		
Soils	Soil matrices of 10YR 4/2 with concentrations and depletions to greater than16 inches. Indicator Depleted Matrix (F3).		
Hydrology	Wetland situated on a forested slope below and south of I-90 with a water table intercepting a slope; creating a seep. Inundation present in the flatter areas or in small depressions on the slope. Precipitation and stormwater runoff from I-90 contribute secondary hydrologic inputs. Surface water leaves the wetland and flows into the upper portion of LC-19 near the ROW fence.		
Rationale for Delineation	Slope wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and wetland hydrology indicators helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-18 is Category III.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to vegetated surface depressions; high opportunity because significant sources of stormwater enter and flow through the wetland. High potential to trap nutrients and toxicants due to sloping vegetated depressions and soils with high organic matter content; high opportunity because stormwater from I-90 flows through the wetland.		
Hydrologic	Moderate potential to alter flood flow due to densely vegetated areas with depressions; opportunity is moderate as stormwater runoff from I-90 drains through the wetland and wetland occurs high in watershed. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Low habitat quality due to extremely limited habitat connectivity, as wetland is confined on one side by I-90 and the ROW fence on the other. Function also limited by high stormwater inputs. Provides limited habitat for passerine birds, small mammals, and amphibians.		
Buffer Condition	Buffer function is moderate. Wildlife habitat is limited due to a large ROW fence which bisects the buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Western red cedar, Sitka spruce *(Picea sitchensis)*, and red alder dominate the over story with salmonberry and vine maple in the shrub layer. The wetland is down-slope form I-90 and may receive stormwater or have other sources of poor water quality inputs.		

Table 17. Wetland LC-19 Summary

WETLAND LC-19 – INFORMATION SUMMARY			
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on-ramp		
		**Delineation/Verification Date**	October 3, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014)	II
		King Co. Buffer Width	150 feet
		Wetland Size	0.35 acre
		Cowardin Classification	PFO
		HGM Classification	Depressional
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W11-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W10-SP2 & W11-SP2
Dominant Vegetation	Trees – black cottonwood. Sapling/shrubs – black cottonwood, hardhack, western red cedar. Herbaceous – soft rush, spike bentgrass, tapertip rush,common selfheal (*Prunella vulgaris*).		
Soils	Soil to 4 inches was a depleted matrix of 10YR 4/1 with concentrations. A restrictive layer of gravels present at 4 inches. Indicator Depleted Matrix (F3).		
Hydrology	Wetland has depressional areas able to impound surface water. Previous land use activities appear to have compacted soils and cleared/disturbed vegetation. Precipitation and surface run-on from up-slope areas perches on compacted soils in a ditched area with depressions along SE 104th St where water ponds for long periods. This ditch drains through a stormwater conveyance and ultimately to Stream LC-G.		
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and hydric soils helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-19 is Category II.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to depressions and densely established herbaceous and woody vegetation; high opportunity because significant sources of stormwater sheet flow and channel flow through the wetland. High potential to trap nutrients and toxicants due to depressions with dense herbaceous vegetation; high opportunity because wetland receives stormwater runoff from I-90 and an up-slope wetland that also receives runoff from I-90.		
Hydrologic	Moderate potential to alter flood flow due to ability to slow small amounts of water as it drains through vegetated areas with variable topography; opportunity is high as significant amounts of water flow through the wetland, then through LC-20, and on to LC-G during and following precipitation events. Low potential to reduce erosion and stabilize banks. Wetland drains to LC-G through a ditch, which has some ability to reduce erosion and stabilize banks.		
Habitat	Moderate habitat quality due to forested plant community with other vegetation strata below and seasonal inundation. Habitat for passerine birds, small mammals, and amphibians.		
Buffer Condition	Buffer function is high for the majority of the circumference of the wetland. The buffer is a previously disturbed area that has a mixed stand of red alder and black cottonwood with Douglas-fir, western red cedar, and hardhack in the understory. An old abandoned temporary access road boarders the west side of the wetland and SE 104th St boarders the southern boundary. The up-slope buffer areas provide hydrologic functions. Poor water quality in-puts enter wetland. The buffer provides wildlife habitat functions.		

Table 18. Wetland LC-20 Summary

WETLAND LC-20 – INFORMATION SUMMARY			
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on-ramp		
		**Delineation/Verification Date**	October 3, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014)	II
		King Co. Buffer Width	150 feet
		Wetland Size	0.90 acre
		Cowardin Classification	PFO
		HGM Classification	Slope
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W10-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W10-SP2 & W11-SP2
Dominant Vegetation	Trees – black cottonwood. Sapling/shrubs – hardhack, western red cedar. Herbaceous – soft rush, spike bentgrass, sedges.		
Soils	Soil to 6 inches was a depleted matrix of 10YR 3/1 with concentrations. A restrictive layer of gravels present at 6 inches. Indicator Depleted Matrix (F3).		
Hydrology	Wetland situated on a slope with some depressional areas able to impound surface water. Previous land use activities appear to have compacted soils and cleared/disturbed vegetation. Precipitation and surface run-on from up-slope areas perches on compacted soils in sloping areas and runs down-slope to a ditch along SE 104th St. This ditch drains surface water leaving the wetland to LC-G.		
Rationale for Delineation	Slope wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and hydric soils helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-20 is Category II.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to sloping topography with depressions and densely established herbaceous and woody vegetation; high opportunity because significant sources of stormwater sheet flow and channel flow through the wetland. High potential to trap nutrients and toxicants due to depressions with dense herbaceous vegetation; high opportunity because wetland receives stormwater runoff from I-90 and up-slope wetlands that also receive runoff from I-90.		
Hydrologic	Moderate potential to alter flood flow due to ability to slow small amounts of water as it drains through vegetated areas with variable topography; opportunity is high as significant amounts of water flow through the wetland and then into LC-G during and following precipitation events. Low potential to reduce erosion and stabilize banks. Wetland drains to LC-G through a ditch which has some ability to reduce erosion and stabilize banks.		
Habitat	Moderate habitat quality due to forested plant community with other vegetation strata below and seasonal inundation. Habitat for passerine birds, small mammals, and amphibians.		
Buffer Condition	Buffer function is high for the circumference of the wetland. The buffer is in a previously disturbed area that has a mixed stand of red alder and black cottonwood with Douglas-fir, western red cedar, and hardhack in the understory. An old abandoned temporary access road boarders the east side of the wetland. The up-slope buffer areas provide hydrologic functions. Poor water quality in-puts enter wetland. Wildlife habitat is limited due to a large ROW fence which bisects the wetland and buffer, fragmenting the forested habitat along the current WSDOT ROW from other forested areas.		

Table 19. Wetland LC-21 Summary

WETLAND LC-21 – INFORMATION SUMMARY			
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on-ramp		
		**Delineation/Verification Date**	November 19, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King Co. Buffer Width	150 feet
		Wetland Size	0.03 acre
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W9-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W9-SP2
Dominant Vegetation	Trees – none. Sapling/shrubs – salmonberry, hardhack, twinberry honeysuckle, western red cedar. Herbaceous – creeping buttercup (*Ranunculus repens*), trailing blackberry.		
Soils	Hydric soils are present in this wetland. Soils were too wet to observe during the 2012 field visit due to heavy rains. Soils meet the definition of a hydric soil: soils that are saturated or ponded for long periods during the growing season.		
Hydrology	A high water table is the primary source of hydrology in this wetland. Surface and subsurface run-on during and following precipitation events provide secondary hydrologic inputs. A ditch conveying runoff from up-slope wetlands (LC18-20) and run-on from precipitation events parallels the I-90 on-ramp at toe of slope and flows through this wetland. This ditch runs through LC-21 and ultimately drains to LC-G.		
Rationale for Delineation	Depressional wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Vegetation, hydrology, and topography helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-21 is a Category III.		
Wetland Functions Summary			
Water Quality	The wetland ponds (less than 0.5 feet) and has an intermittently flowing outlet, which provides the potential to trap sediments. In addition, the wetland has the potential to improve water quality given the location down-slope from I-90 and other wetlands that also contribute hydrology to this wetland. Moderate potential to trap nutrients and toxicants due to dense vegetation; moderate opportunity because wetland is downslope from I-90 and other wetlands in similar landscape position below I-90, that contribute surface flows through this wetland.		
Hydrologic	Moderate potential to alter flood flow due to the low depth of storage during wet periods. The wetland opportunity is moderate because wetland receives hydrology from up-slope wetlands, uplands, and stormwater from I-90, which eventually drains to LC-G. Erosion control and shoreline stabilization functions provided at a low level. Wetland is not directly connected to streambank; however, it drains to a ditch that drains to LC-G.		
Habitat	Low habitat quality due to tall ROW fence directly adjacent to wetland, cutting off connection with upland buffer areas. Fence limits wildlife connectivity. Small size of wetland also limits habitat functions. Minimal habitat for passerine birds, small mammals, and aquatic invertebrates.		
Buffer Condition	Buffer function is moderate. Wildlife habitat is limited due to a large ROW fence which bisects the buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Western red cedar and Douglas-fir dominate the over story with salal dominating in the shrub layer. The wetland is down-slope from I-90 and likely receives stormwater or other sources of poor water quality inputs.		

Table 20. Wetland LC-22 Summary

WETLAND LC-22 – INFORMATION SUMMARY			
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on-ramp		
		**Delineation/Verification Date**	November 19, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King Co./USFS Buffer Width	150 feet/100 feet
		Wetland Size	0.07 acre
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W8-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W8-SP2
Dominant Vegetation	Trees – Black cottonwood, red alder. Sapling/shrubs – redosier dogwood (*Cornus alba*), Pacific ninebark. Herbaceous – reed canarygrass *(Phalaris arundinacea)*, trailing blackberry *(Rubus ursinus)*.		
Soils	Hydric soils are present in this wetland. Soils were too wet to observe during the 2012 field visit due to heavy rains. Matrix colors of 10YR 4/2 with redox observed. Soils meet the definition of a hydric soil: soils that are saturated or ponded for long periods during the growing season.		
Hydrology	A high water table is the dominant hydrology source. Precipitation and runoff from SE 104th St contribute secondary inputs. Surface water leaves the wetland through a culvert, draining to LC-G.		
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community, hydrology, and topography helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-22 is Category II.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to depressional topography with long periods of ponding and a highly constricted outlet (a culvert), allowing water to move through system relatively slowly and fine sediments to settle out of the water column; moderate opportunity from upland areas and roadside runoff. High potential to trap nutrients and toxicants due to depressional topography with a constricted outlet that ponds greater than 2 feet of water for long periods; high opportunity because stormwater runoff from SE 104th St drains directly to wetland.		
Hydrologic	High potential to alter flood flow due to depression with highly constricted outlet and ability to impound significant amounts of surface water for long periods; opportunity is high due to run-on from up-slope forested areas and stormwater from adjacent street. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Moderate habitat quality due to connectivity with forested uplands, other wetlands, and streams. Wetland provides minimal habitat for passerine birds and small mammals.		
Buffer Condition	Buffer function is moderate for half of the circumference of the wetland. Wildlife habitat is limited due to a large right-of-way (ROW) fence which bisects the buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Western red cedar and Douglas-fir dominate the over story with salal *(Gaultheria shallon)* and vine maple dominating the shrub layer. The wetland receives stormwater from SE 104th St. The south side does not have a functioning or regulated buffer. It is a mowed and maintained strip of road ROW along SE 104th St.		

Table 21. Wetland LC-23 Summary

WETLAND LC-23 – INFORMATION SUMMARY			
Location:	Southeast of the SR 18 and I-90 onramp intersection.		
		**Delineation Date**	October 24, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King Co. Buffer Width	80 feet
		Wetland Size (sf/acres)	2,352/0.054 acre
		Cowardin Classification	PSS/PEM
		HGM Classification	Slope
		Wetland Data Sheet(s)	Sampling Point W42-SP1
		Upland Data Sheet(s)	Sampling Point W42-SP2
Dominant Vegetation	Trees- none. Sapling/shrubs - hardhack (*Spiraea douglasii*), red alder (*Alnus rubra*). Herbaceous - sweet vernalgrass (*Anthoxanthum odoratum*), western Canada goldenrod (*Solidago lepida*), soft rush (*Juncus effusus*).		
Soils	Soils examined to a depth of 11 inches exhibited hydric characteristics. Dark 10YR 3/2 soils from 0 to 5 inches. Depleted matrix of 2.5Y 5/1 with concentrations present from 5 to 11 inches underlain by a restrictive layer of cobbles and gravel. Indicators Depleted Below Dark Surface (A11) and Depleted Matrix (F3) met.		
Hydrology	Precipitation and stormwater sheet flow on top of a restrictive layer appear to be the main sources of hydrology. Water leaves the wetland through a roadside ditch and out a culvert flowing east under the I-90 onramp.		
Rationale for Delineation	Positive indicators of all three wetland criteria are present. Placement of boundary determined by vegetation and soils.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-23 is Category III.		
Wetland Functions Summary			
Water Quality	Low potential for production of organic matter and its export due to >90% cover of dense herbaceous vegetation across the wetland. Presence of deciduous plants increase plant matter and provide additional strata. A surface water outlet to a roadside ditch has the potential to readily export organic material to down-gradient habitats. Diversity and interspersion of vegetation is low.		
Hydrologic	No potential to alter flood flow or provide sediment removal due to small size and sloping topography. Erosion control and shoreline stabilization not provided because wetland is not associated with a water course or shoreline.		
Habitat	No potential to provide habitat functions. Two Cowardin Class are present, but interspersion in low, there is fragmentation by development, and low diversity of plant species.		
Buffer Condition	Buffer function is limited. The wetland is bordered by SR 18 to the west and onramps for I-90 to the north and southeast.		

Table 22. Wetland LC-24 Summary

WETLAND LC-24 – INFORMATION SUMMARY	
Location:	East of SR 18 at approximately mileposts 27.6-27.8. Immediately south of the I-90 westbound on-ramp to SR 18.

Delineation Date	July 30, 2019
Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology (2014) Rating	I
King Co. Buffer Width	300 feet
Wetland Size	26.5 acres
Cowardin Classification	PEM/PFO/PSS
HGM Classification	Riverine/ Depressional
Wetland Data Sheet(s)	Sampling Point W51-SP2, W51-SP4, W51-SP6
Upland Data Sheet(s)	Sampling Point W51-SP1, W51-SP3, W51-SP5

Dominant Vegetation	Trees- Western hemlock (*Tsuga heterophylla*), Pacific willow (*Salix lasiandra*), black cottonwood, red alder, and western red cedar. Sapling/shrubs - Pacific ninebark, salmonberry, and yellow skunk-cabbage (*Lysichiton americanus*). Herbaceous- Yellow skunk-cabbage and western red lady-fern, and Herb Robert (*Geranium robertianum*) (1% cover).
Soils	Soils examined to a depth of 15 inches exhibited hydric characteristics. Black 10YR 2/1 soils from 0 to 15 inches. Concentrations present from 0-15 inches (10YR 5/6). Indicator Redox Dark Surface (F6) was met. In other areas soils meet indicator Depleted Matrix (F3) and Loamy Gleyed Matrix (F2).
Hydrology	The main sources of hydrology include overbank flooding from Lake Creek and its unnamed tributary, as well as sheetflow from adjacent impervious surfaces and upland areas. Water outlets through Lake Creek to the southwest. Soils were saturated to the surface at the time of the delineation in most locations, and at some locations a high water table and surface water were present.
Rationale for Delineation	Positive indicators of hydrology. hydrophytic vegetation and hydric soils present. Placement of boundary determined by vegetation and soils, as well as Lidar and topographic data.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-24 is Category I.
Wetland Functions Summary	
Water Quality	High potential for production of organic matter and production of its export due to the Lake Creek outlet. Diversity and interspersion of vegetation is moderate to high.
Hydrologic	High potential to alter flood flow or provide sediment removal due stormwater inputs. Erosion control and shoreline stabilization provided because wetland is associated with a water course (Lake Creek).
Habitat	High potential to provide habitat functions due to moderate to high diversity of plant species, three Cowardin Classes present, permanent inundation, and permanently ponded depressions and a stream present.
Buffer Condition	Buffer function is moderate. The wetland is bordered by upland forest to the east but is 15-150 feet away from moderately used rural roads within the 300 foot buffer.

Table 23. Wetland LC-25 Summary

WETLAND LC-25 – INFORMATION SUMMARY			
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on-ramp		
		**Delineation/Verification Date**	October 22, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King Co. Buffer Width	150 feet
		Wetland Size	0.05 acre
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W6-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W6-SP2
Dominant Vegetation	Trees – none. Sapling/shrubs – red alder, salmonberry, Himalayan blackberry (*Rubus armeniacus*). Herbaceous – soft rush, sedges.		
Soils	Soil to 16 inches had a depleted matrix of 10YR 4/2 with concentrations. Indicator Depleted Matrix (F3).		
Hydrology	Wetland situated on a slope surrounded by an old temporary access road. Water perches on disturbed/compacted soils. Hydrology is mainly precipitation driven with surface run-on from up-slope areas. Water leaves the wetland as sheet flow flowing down old road and into LC-26.		
Rationale for Delineation	Slope wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and wetland hydrology indicators helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-25 is Category III.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to sloping topography with dense herbaceous vegetation; moderate opportunity because wetland receives surface water runoff. Moderate potential to trap nutrients and toxicants due to sloping topography with small depressions and herbaceous vegetation; moderate opportunity because wetland receives surface water runoff.		
Hydrologic	Moderate potential to alter flood flow due to gentle sloping topography with dense woody and herbaceous vegetation; moderate opportunity due to surface water run-on. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Moderate habitat quality due to wetland area with herbaceous vegetation and shrubs and seasonal shallow surface ponding. Buffer connects forested uplands, other wetlands, and a stream. Wetland provides habitat for passerine birds and small mammals.		
Buffer Condition	Buffer function is high for the entire circumference of the wetland. The buffer is a combination of black cottonwood forest with shrubby understory and previously disturbed areas that have red alder and black cottonwood saplings establishing. These areas also include an old abandoned temporary access road. The upslope buffer areas provide hydrologic functions. The buffer provides wildlife habitat functions.		

Table 24. Wetland LC-26 Summary

WETLAND LC-26 – INFORMATION SUMMARY			
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on-ramp		
		**Delineation/Verification Date**	October 22, 2012/2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King Co. Buffer Width	150 feet
		Wetland Size	0.01 acre
		Cowardin Classification	PSS/PEM
		HGM Classification	Depressional
		Wetland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W7-SP1
		Upland Data Sheets	WSDOT 2013 Appendix C; Sampling Point W7-SP2
Dominant Vegetation	Trees – none. Sapling/shrubs – hardhack, red alder, willows. Herbaceous – soft rush, eggbract sedge (*Carex ovalis*), common tansy (*Tanacetum vulgare*), spike bentgrass.		
Soils	Soil to 4 inches was a depleted matrix of 10YR 4/2 with concentrations. Restrictive layer of gravels present at inches. Indicator Depleted Matrix (F3).		
Hydrology	Wetland situated on a slope with small depressions able to impound surface water. Water perches on a compacted/disturbed soil layer on top of an old temporary access road. Hydrology is mainly precipitation driven with surface run-on from up-slope areas and LC-25.		
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and wetland hydrology indicators helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-26 is Category III.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to depressional topography with dense herbaceous vegetation; moderate opportunity because wetland receives surface water runoff. Moderate potential to trap nutrients and toxicants due to sloping topography with small depressions and herbaceous vegetation; moderate opportunity because wetland receives surface water runoff.		
Hydrologic	Moderate potential to alter flood flow due to gentle depressional topography with dense woody and herbaceous vegetation; moderate opportunity due to surface water run-on. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Moderate habitat quality due to wetland area with herbaceous vegetation and seasonal shallow surface ponding. Buffer connects forested uplands, other wetlands, and a stream. Wetland provides habitat for passerine birds and small mammals.		
Buffer Condition	Buffer function is limited for half of the circumference of the wetland. This section of buffer is bordered by SE 104th St. The other half of the buffer is a combination of black cottonwood forest with shrubby understory and previously disturbed areas that have red alder and black cottonwood saplings establishing. These areas also include an old abandoned temporary access road. The upslope buffer areas provide hydrologic and habitat functions.		

Table 25. Wetland LC-27 Summary

WETLAND LC-27 – INFORMATION SUMMARY			
Location:	Southeast of the I-90/SR 18 Interchange and to the south of Lake Creek (Figure 6; Appendix A).		
		**Delineation Date**	August 15, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	>313,500/7.20
		Cowardin Classification	PFO/PSS/PEM
		HGM Classification	Depressional/Riverine
		Wetland Data Sheets	Appendix C; Sampling Point 10 and 20
		Upland Data Sheets	Appendix C; Sampling Point 9, 11, 21, and 22
Dominant Vegetation	Trees—Western red cedar, black cottonwood, and red alder. Sapling/shrubs —salmonberry, vine maple, twinberry honeysuckle, and willows. Herbaceous—Small-fruited bulrush, American skunk-cabbage, creeping buttercup, false lily-of-the-valley *(Maianthemum dilatatum)*, Kentucky (*Poa protensis*) bluegrass, common ladyfern, fowl mannagrass, youth on age, reed canarygrass, giant horsetail, small-fruited bulrush, western swordfern, and fringe cup *(Tellima grandiflora)*.		
Soils	Soils within Wetland LC-27 generally had four layers. The surface layer (0 to 3 inches) was 10YR 2/1 loam. The second layer (3 to 8 inches) was 10YR 3/1 loam. The third layer (8 to 9 inches) was 10YR 5/1 sandy loam with 10YR 5/6 concentrations. The bottom layer (9 to 16 inches) was 10YR 7/1 with 10YR 5/8 and 10YR 2/1 concentrations. These soils met the criteria for hydric soil indicators A11 (depleted below dark surface) and F3 (depleted matrix).		
Hydrology	A high water table is the primary source of hydrology for Wetland LC-27. Additional hydrologic inputs include precipitation and some overbank flooding in areas adjacent to Lake Creek (LC-A) and Stream LC-B.		
Rationale for Delineation	Depressional wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland LC-27 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to seasonal ponding, densely established persistent vegetation, and a highly constricted outlet; low landscape potential due to lack of proximity to stormwater discharges and pollutant sources; high societal value because Wetland LC-27 is located within a basin with a total maximum daily load (TMDL) (Raging River basin).		
Hydrologic	Moderate site potential for slowing flood velocities due to high surface water storage capabilities (marks of ponding between 2 and 3 feet from the bottom of the outlet); Wetland LC-27 does not receive stormwater and is not within proximity to land uses generating excess runoff or pollution; therefore, landscape potential for hydrologic function is low.		
Habitat	Wetland LC-27 has high habitat quality with multiple plant communities, multiple hydroperiods, high plant diversity, and high habitat interspersion. Special features beneficial for wildlife include large downed wood, snags, and thin-stemmed vegetation for amphibian use. Also present is vegetation overhanging a seasonal stream, thus cooling water temperatures and benefitting fish.		
Buffer Condition	Wetland LC-27 buffer is limited to the west by SR 18 and is disrupted to the north by Rattlesnake Road SE. The wetland is part of a relatively undisturbed vegetated corridor and connects to other wetlands and to undisturbed uplands greater than 25 acres in size.		

Table 26. Wetland LC-28 Summary

WETLAND LC-28 – INFORMATION SUMMARY			
Location:	Southeast of the I-90/SR 18 Interchange (Figure 6; Appendix A).		
		**Delineation Date**	August 14, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	I
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	>402,500/9.24
		Cowardin Classification	PFO/PSS/PEM
		HGM Classification	Depressional
		Wetland Data Sheets	Appendix C; Sampling Point 1, 3, and 5
		Upland Data Sheets	Appendix C; Sampling Point 2, 4, and 6
Dominant Vegetation	Trees—Western red cedar, red alder, black cottonwood, and Cascara buckthorn. Sapling/shrubs —salmonberry, Pacific ninebark, hardhack, and trailing blackberry. Herbaceous—common ladyfern, deer fern *(Blechnum spicant)*, coastal hedgenettle *(Stachys chamissonis)*, fowl mannagrass *(Glyceria striata)*, and youth on age.		
Soils	Soils within Wetland LC-28 generally had three layers. The surface layer (0 to 2 inches) was 7.5YR 2.5/1 loam. The middle layer (2 to 8 inches) was 10YR 4/2 loam with 7.5YR 3/4 concentrations and 10YR 6/1 depletions. The bottom layer (8 to 19 inches) was 10YR 5/1 gravelly loam with 10YR 3/6 concentrations throughout the matrix. These soils met the criteria for hydric soil indicators A11 (depleted below dark surface) and F3 (depleted matrix).		
Hydrology	Wetland LC-28 is located within a depression with an intermittently flowing outlet (Stream LC-B). Wetland hydrology is supported by a high groundwater table, precipitation, and runoff from SR 18. Ponded water was observed throughout the dry season.		
Rationale for Delineation	Depressional wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland LC-28 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to seasonal ponding, densely established persistent vegetation, and an intermittently flowing outlet; moderate potential for water quality improvement within the landscape due to reception of stormwater discharges and proximity to roadside pollutants (petroleum oil and garbage).		
Hydrologic	High potential to slow floodwater velocities due to a high storage capacity (marks of ponding are 3 feet or greater above the bottom of the outlet); moderate potential of hydrologic function within the landscape due to reception of stormwater discharges; high societal value because of surface flooding downgradient of wetland.		
Habitat	Multiple vegetation classes and hydroperiods result in high interspersion of habitats. Wetland LC-28 contains high plant diversity and various habitat features such as large downed wood, snags, thin-stemmed persistent plants, beaver use, and overhanging vegetation. With the exception of SR 18, surrounding land use is primarily moderate/low intensity or undisturbed. Four WDFW-listed Priority Habitats are present within 100 meters of Wetland LC-28: Biodiversity Areas and Corridors, Riparian, Instream, and Snags and Logs.		
Buffer Condition	The western extent of Wetland LC-28 abuts the road prism or SR 18. The buffer of Wetland LC-28 extending east is relatively undisturbed forest (previously disturbed by logging). The forest is now a mixed stand of western hemlock, western red cedar, and Douglas-fir and provides wildlife habitat functions.		

Table 27. Wetland LC-29 Summary

WETLAND LC-29 – INFORMATION SUMMARY			
Location:	West of SR 18 at approximately milepost 27.05.		
		Delineation Date	June 13, 2019
		**Local Jurisdiction**	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King Co. Buffer Width	150 feet
		Wetland Size	0.272 acre
		Cowardin Classification	PSS/PEM
		HGM Classification	Depressional
		Wetland Data Sheet(s)	Sampling Point W50-SP3
		Upland Data Sheet (s)	Sampling Point W50-SP1 and W50-SP2
Dominant Vegetation	Trees- Western hemlock. Sapling/shrubs - red huckleberry (1% cover). Herbaceous- Yellow skunk-cabbage, Salal, western red lady-fern, and salmonberry		
Soils	Soils examined to a depth of 20 inches exhibited hydric characteristics. Very dark brown 10YR 2/2 soils from 0 to 4 inches. Depleted matrices of 10YR 4/2 with concentrations present from 0-6 inches (7.5YR 5/8). Very dark brown (10YR 2/2) soils from 6-14 inches with depleted matrices (2.5Y 6/1) and concentrations of 7.5YR 4/6 present. Strong brown (7.5YR 4/6) soils from 14 to 20 inches with depletions (10YR 3/1) located in the matrix. Indicator Redox Dark Surface (F6) was met.		
Hydrology	Precipitation and a high groundwater appear to be the main sources of hydrology. Water does not leave the bowl-shaped wetland. Soils were saturated to the surface at the time of the delineation.		
Rationale for Delineation	Positive indicators of hydrology. hydrophytic vegetation and hydric soils present. Placement of boundary determined by vegetation and soils.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (Hruby 2014). Wetland LC-29 is Category II.		
Wetland Functions Summary			
Water Quality	High potential for production of organic matter but no production of its export due to a lack of an outlet. Diversity and interspersion of vegetation is moderate.		
Hydrologic	Moderate potential to alter flood flow or provide sediment removal due stormwater inputs. Erosion control and shoreline stabilization not provided because wetland is not associated with a water course or shoreline.		
Habitat	Moderate potential to provide habitat functions due to fragmentation by development, moderate diversity of plant species, two Cowardin Classes present, and seasonal inundation.		
Buffer Condition	Buffer function is high. The wetland is bordered by undisturbed upland forest in all directions of the 150 foot buffer.		

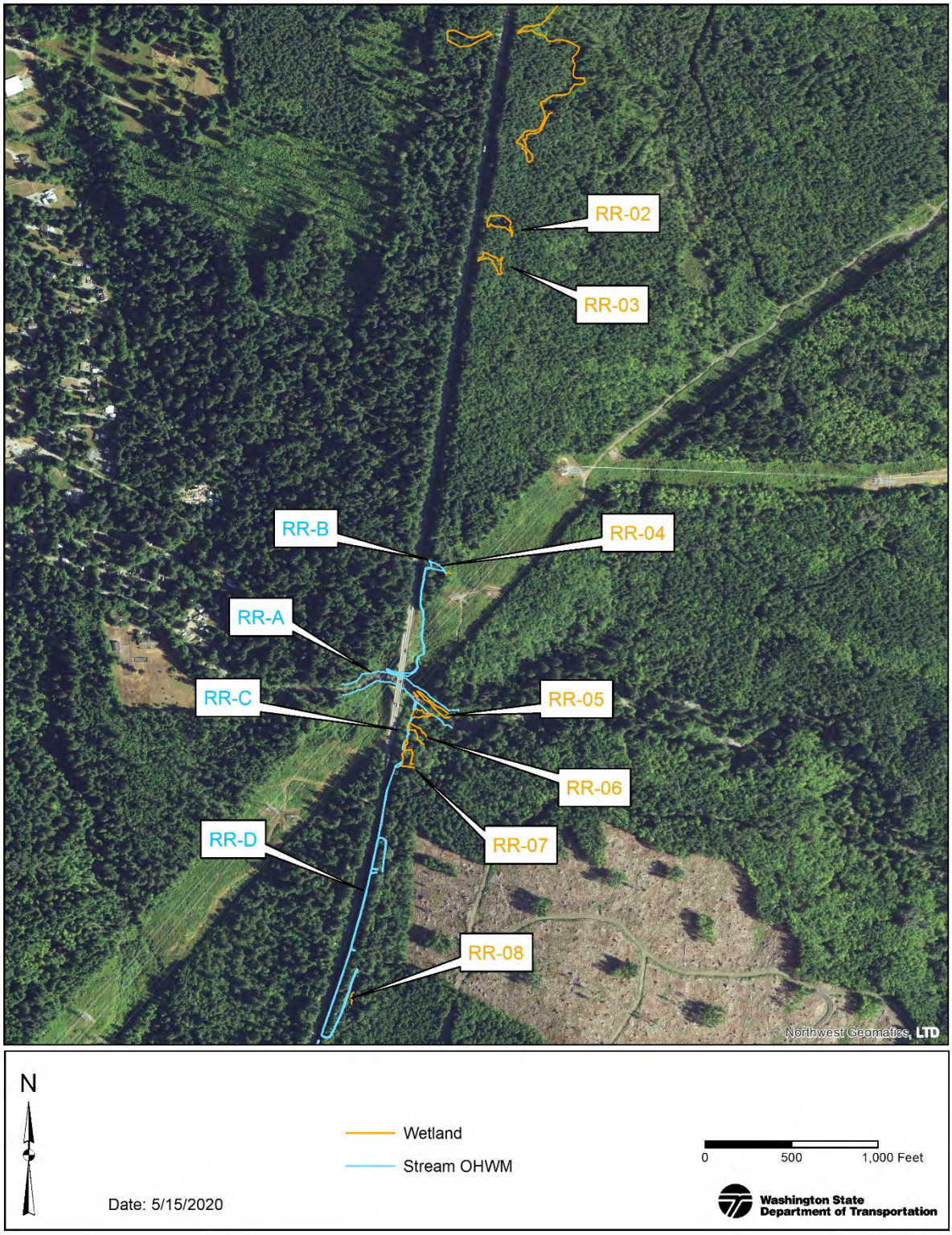


Figure 7. Wetlands and Streams Delineated in the Raging River Subwatershed

Table 28. Wetland RR-02 Summary

WETLAND RR-02 – INFORMATION SUMMARY			
Location:	Middle of the study area to the east of SR 18, north of Raging River, and south of Lake Creek		
			August 15, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	8,000/0.18
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional
		Wetland Data Sheets	Appendix C; Sampling Point 27
		Upland Data Sheets	Appendix C; Sampling Point 28
Dominant Vegetation	Tree Stratum—Sitka spruce, western red cedar, and red alder. Sapling/Shrub Stratum—salmonberry, hardhack, twinberry honeysuckle, Pacific ninebark, and vine maple. Herbaceous Stratum—Slough sedge, water parsley, and reed canarygrass.		
Soils	Soils within Wetland RR-02 generally had six layers. The surface layer (0 to 1 inch) was 10YR 2/2 loam. The second layer (1 to 9 inches) was 10YR 3/1 silty clay loam with 10YR 3/6 and 7.5YR 3/4 concentrations, and 10YR 4/1 depletions. The third layer (9 to 11 inches) was 2.5Y 6/4 silty clay loam with 2.5Y 5/6 and 7.5YR 4/6 concentrations and 2.5Y 6/2 depletions. The fourth layer (11 to 13 inches) was 10YR 3/1 silty clay loam with 10YR 5/1 depletions. The fifth layer (13 to 15 inches) was 10YR 4/1 silty clay loam with 10YR 5/1 depletions. The sixth layer (15 to 17 inches) was 7.5YR 5/8 silty clay loam with 2.5Y 6/1 depletions. These soils met the criteria for hydric soil indicator F6 (redox dark surface).		
Hydrology	A high water table is the primary source of hydrology for Wetland RR-02. Additional hydrologic inputs include precipitation and runoff from SR 18. No outlet was identified while in the field.		
Rationale for Delineation	Depressional wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland RR-02 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to high seasonal ponding area and densely established persistent vegetation cover of over half the wetland. Wetland RR-02 also has no outlet; therefore, surface water remains within the wetland for a longer duration, which allows more time for sediment/pollutant settlement from the water column; low landscape potential due to lack of proximity to stormwater discharges and pollutant sources; high societal value because Wetland RR-02 is located within a basin with a TMDL (Raging River basin).		
Hydrologic	Moderate site potential for slowing flood velocities due to surface water storage capabilities (marks of ponding between 0.5 feet and 2 feet from the bottom of the outlet); Wetland RR-02 does not receive stormwater or is within proximity to land uses generating excess runoff or pollution; therefore, landscape potential for hydrologic function is low.		
Habitat	Moderate habitat quality with scrub-shrub plant communities and multiple hydroperiods and moderate habitat interspersion. Special habitat features include large downed wood, snags, and low presence of invasive plant cover.		
Buffer Condition	Buffer for Wetland RR-02 is limited to the west by SR 18; buffer extending east is relatively undisturbed forest consisting primarily of western hemlock and Douglas-fir. Wetland RR-02 is part of a vegetated corridor at least 50 feet wide and connects to undisturbed uplands at least 25 acres in size.		

Table 29. Wetland RR-03 Summary

WETLAND RR-03 – INFORMATION SUMMARY			
Location:	Middle of the study area to the east of SR 18, north of Raging River, and south of Lake Creek		
		**Delineation Date**	August 15, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	4,900/0.07
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional
		Wetland Data Sheets	Appendix C; Sampling Point 25
		Upland Data Sheets	Appendix C; Sampling Point 26
Dominant Vegetation	Trees—Red alder. Shrubs—salmonberry, red alder, vine maple, and trailing blackberry. Herbaceous—American skunk-cabbage, common ladyfern, western swordfern, and slough sedge.		
Soils	Soils within Wetland RR-03 generally had three layers. The surface layer (0 to 6 inches) was 10YR 4/1 silt loam. The second layer (6 to 11 inches) was 10YR 4/1 silt loam with 10YR 3/6, 10YR 6/6, and 10YR 2/1 concentrations and 10YR 5/1 and 7.5YR 4/1 depletions. The third layer (11 to 18 inches) was 10YR 6/4 silt loam with 10YR 5/6, 10YR 4/6, and 10YR 2/1 concentrations. These soils met the criteria for hydric soil indicator F3 (depleted matrix).		
Hydrology	A high water table is the primary source of hydrology for Wetland RR-03. Additional hydrologic inputs include precipitation. Evidence of ponding was observed. No outlet was identified while the project biologists were in the field.		
Rationale for Delineation	Depressional wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland RR-03 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to seasonal ponding and densely established persistent vegetation cover of over half the wetland. Wetland RR-03 also has no outlet; therefore, surface water remains within the wetland for a longer duration, which allows more time for sediment/pollutants settlement from the water column; low landscape potential due to lack of proximity to stormwater discharges and pollutant sources; high societal value because Wetland RR-03 is located within a basin with a TMDL (Raging River basin).		
Hydrologic	Moderate site potential for slowing flood velocities due to surface water storage capabilities (marks of ponding between 0.5 feet and 2 feet from the bottom of the outlet); Wetland 30 does not receive stormwater or is within proximity to land uses generating excess runoff or pollution; therefore, landscape potential for hydrologic function is low.		
Habitat	Moderate habitat quality with scrub-shrub plant communities and multiple hydroperiods and low habitat interspersion. Special habitat features include large downed wood, snags, and low presence of invasive plant cover.		
Buffer Condition	Buffer for Wetland RR-03 is limited to the west by SR 18; buffer extending east is relatively undisturbed forest consisting primarily of western hemlock and Douglas-fir. Wetland RR-03 is part of a vegetated corridor at least 50 feet wide and connects to undisturbed uplands at least 25 acres in size.		

Table 30. Wetland RR-04 Summary

WETLAND RR-04 – INFORMATION SUMMARY			
Location:	Middle of the study area to the north of the Raging River and to the east of SR 18		
		**Delineation Date**	August 15, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	>5,000/0.12
		Cowardin Classification	PFO
		HGM Classification	Depressional/Riverine/Slope
		Wetland Data Sheets	Appendix C; Sampling Point 23
		Upland Data Sheets	Appendix C; Sampling Point 24
Dominant Vegetation	Trees—Red alder. Shrub—salmonberry, red elderberry *(Sambucus racemose)*, and vine maple. Herbaceous—common ladyfern and giant horsetail.		
Soils	Soils within Wetland RR-04 generally had three layers. The surface layer (0 to 5 inches) was 10YR 2/2 silt loam. The second layer (5 to 9 inches) was 2.5Y 4/2 gravelly sandy loam with 10YR 3/1, 10YR 4/6, and 5Y 5/1 concentrations. The third layer (9 to 16 inches) was 2.5Y 4/2 gravelly sandy loam with 10YR 4/6 concentrations. These soils met the criteria for hydric soil indicators A11 (depleted below dark surface) and F3 (depleted matrix).		
Hydrology	A high water table and overbank flooding from Stream RR-B are the primary sources of hydrology for Wetland RR-04. Additional hydrologic inputs include precipitation. Water moves through Wetland RR-04 from east to west before draining to a roadside ditch adjacent to SR 18 and eventually the Raging River.		
Rationale for Delineation	Depressional/Riverine/Slope wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland RR-04 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments because most of the wetland has densely established trees and shrubs, but lacks seasonal ponding capabilities to allow sediments to settle out of the water column; low landscape potential due to lack of proximity to stormwater discharges and pollutant sources; high societal value because Wetland RR-04 is located within a basin with a TMDL (Raging River basin).		
Hydrologic	Moderate site potential for slowing flood velocities due to high surface water storage capabilities (marks of ponding between 2 and 3 feet from the bottom of the outlet); Wetland RR-04 does not receive stormwater or is within proximity to land uses generating excess runoff or pollution; therefore, landscape potential for hydrologic function is low.		
Habitat	Wetland RR-04 has moderate habitat quality with one forest vegetation community and multiple hydroperiods with low habitat interspersion. Special features beneficial to wildlife include large downed wood, snags, and overhanging vegetation providing shade to a seasonal stream.		
Buffer Condition	Wetland RR-04 is limited to the west by SR 18. A small portion of the buffer extending east is relatively undisturbed until reaching the powerline easement clearing. Wetland RR-04 is part of a vegetated corridor connecting to other wetlands and to relatively undisturbed uplands greater than 25 acres in size.		

Table 31. Wetland RR-05 Summary

WETLAND RR-05 – INFORMATION SUMMARY			
Location:	Middle of the study area within the Raging River and to the east of SR 18		
		**Delineation Date**	August 15, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	4,500/0.10
		Cowardin Classification	PSS
		HGM Classification	Riverine
		Wetland Data Sheets	Appendix C; Sampling Point 7
		Upland Data Sheets	Appendix C; Sampling Point 8
Dominant Vegetation	Trees – none. Shrubs—Sitka willow *(Salix sitchensis)*, shining willow *(Salix lucida)*, and salmonberry. Herbaceous—Smoothstem sedge *(Carex laeviculmis)*, reed canarygrass, stinging nettles, common ladyfern, giant horsetail.		
Soils	Wetland RR-05 was located on a gravel bar below the OHWM of the Raging River. The recently deposited alluvial soils are considered problematic and may not have developed hydric soil indicators yet. The surface layer (0 to 10 inches) had multiple matrix colors and a cobbly sand texture. The bottom layer (10 to 12+) also had multiple matrix colors but had a sandy cobble texture.		
Hydrology	Wetland hydrology within Wetland RR-05 was supported by the Raging River and overbank flooding. Water moves through Wetland 24 from east to west.		
Rationale for Delineation	Riverine wetland with hydrophytic vegetation, fresh alluvium soil, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland RR-05 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments, as topographic depressions are present within the wetland and more than a third of the wetland has trees and shrubs established. Landscape potential is moderate, with dredging as a pollutant source entering Wetland RR-05.		
Hydrologic	Site potential for hydrologic function is moderate as tree and shrub cover is fairly high, but the low ratio of wetland to stream width limits the overbank storage potential. The stream adjacent to the wetland (Raging River) is not down-cut or controlled by dams upgradient, which factors into a moderate landscape potential for Wetland RR-05.		
Habitat	Habitat quality is moderate, with a single scrub-shrub vegetation community and various habitat features including large downed wood, vegetation overhanging the stream, and low invasive species cover. Four WDFW-listed Priority Habitats are present within 100 meters of Wetland RR-05: Biodiversity Areas and Corridors, Riparian, Instream, and Snags and Logs.		
Buffer Condition	The majority of land use surrounding the wetland is of moderate/low intensity with some undisturbed forest. Wetland RR-05 is part of a relatively undisturbed and unbroken corridor at least 50 feet wide that connects to undisturbed upland greater than 25 acres.		

Table 32. Wetland RR-06 Summary

WETLAND RR-06 – INFORMATION SUMMARY			
Location:	East of the SR 18 Bridge and to the south of the Raging River (Figure 7; Appendix A).		
		**Delineation Date**	August 15, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	3,300/0.08
		Cowardin Classification	PFO / PSS
		HGM Classification	Slope
		Wetland Data Sheets	Appendix C; Sampling Point 14
		Upland Data Sheets	Appendix C; Sampling Point 15
Dominant Vegetation	Trees—Sitka spruce and red alder. Shrub—salmonberry. Herbaceous—common ladyfern, giant horsetail, and youth on age.		
Soils	Soils within Wetland RR-06 generally had three layers. The surface layer (0 to 1 inches) was 7.5YR 2.5/1 loam. The middle layer (1 to 11 inches) was 10YR 3/2. The bottom layer (11 to 24 inches) was 2.5Y 5/2 gravelly loam with 10YR 3/2 concentrations throughout the matrix. These soils met the criteria for hydric soil indicator A11 (depleted below dark surface).		
Hydrology	Wetland RR-06 is hydrologically supported by precipitation and surface runoff from SR 18. Water moves through Wetland RR-06 from south to north before ponding in shallow depressions and eventually draining to the Raging River.		
Rationale for Delineation	Slope wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland RR-06 was rated using the Washington State Wetland Rating System for Western Washington – Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to seasonal ponding, densely established persistent vegetation, and a highly constricted outlet; moderate potential for water quality improvement within the landscape due to reception of stormwater discharges.		
Hydrologic	Moderate site potential for slowing floodwater velocities due to surface water storage capabilities (marks of ponding between 0.5 feet and 2 feet from the bottom of the outlet); moderate landscape potential due to reception of stormwater discharges and location within a contributing basin with more than 25% cover of intensive human land uses.		
Habitat	Moderate habitat quality with scrub-shrub plant communities and multiple hydroperiods with moderate habitat interspersion. Habitat features, including large downed wood and snags, provide habitat for small mammals, amphibians, and a variety of birds.		
Buffer Condition	Buffer for Wetland RR-06 is limited to the west by SR 18; buffer extending east is relatively undisturbed forest and Raging River is directly north. Wetland RR-06 is part of a vegetated corridor at least 50 feet wide and connects to undisturbed uplands at least 25 acres in size.		

Table 33. Wetland RR-07 Summary

WETLAND RR-07 – INFORMATION SUMMARY			
Location:	South of Raging River and to the east of SR 18 (Figure 7; Appendix A)		
		**Delineation Date**	November 16, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	>14,000/0.32
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional/Riverine
		Wetland Data Sheets	Appendix C; Sampling Point 54
		Upland Data Sheets	Appendix C; Sampling Point 55
Dominant Vegetation	Trees—Sitka spruce, red alder, western red cedar, and vine maple. Sapling/shrubs—salmonberry, vine maple, western red cedar, and red alder. Herbaceous—youth on age, common ladyfern, and giant horsetail.		
Soils	Soils within Wetland RR-07 generally had three layers. The surface layer (0 to 7 inches) was 10YR 3/2 silt loam with 10YR 4/3 concentrations. The second layer (7 to 11 inches) was 10YR 3/2 silt loam with 2.5Y 5/1 depletions. The third layer (11 to 16 inches) was 10YR 3/2 silt loam with 10YR 3/4 and 10YR 4/3 concentrations. These soils met the criteria for hydric soil indicators F6 (loamy mucky mineral).		
Hydrology	Wetland hydrology within Wetland RR-07 was supported by a high groundwater table and water from Streams RR-C and RR-D, which are supported by road runoff from SR 18 and groundwater expression. Precipitation provides additional hydrology. Water moves through Wetland RR-07 from the south to north before draining to Wetland RR-06 and eventually the Raging River (RR-A) to the east of SR 18.		
Rationale for Delineation	Depressional wetland with sharp topographic breaks, hydrophytic vegetation, hydric soils, and strong evidence of wetland hydrology.		
Rationale for Local Rating	Wetland RR-07 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to seasonal ponding in greater than ¼ of the wetland, densely established persistent vegetation cover for 95% of the wetland, and an intermittently flowing outlet; moderate landscape potential due to reception of stormwater discharges; high societal value because of Wetland RR-07 location within a basin with a TMDL (Snoqualmie basin).		
Hydrologic	Moderate site potential for slowing flood velocities due to surface water storage capabilities (marks of ponding between 0.5 feet and 2 feet from the bottom of the outlet) and reception of stormwater discharges. Wetland RR-07 provides moderate societal value by storing water in a location where surface water is flooding downgradient.		
Habitat	Moderate habitat quality with scrub-shrub and forest plant communities, multiple hydroperiods, and low habitat interspersion. Special habitat features within the wetland include large downed wood, snags, and low invasive vegetation cover. There is also vegetation overhanging the seasonal stream within the wetland.		
Buffer Condition	Wetland RR-07 buffer is partially limited by SR 18 to the west; remaining buffer is relatively undisturbed forest consisting primarily of western hemlock and Douglas-fir. Approximately 200 feet south of the wetland is a large clear cut. Wetland RR-07 is part of a relatively undisturbed vegetated corridor that connects to other wetlands and to undisturbed uplands greater than 25 acres in size.		

Table 34. Wetland RR-08 Summary

WETLAND RR-08 – INFORMATION SUMMARY			
Location:	South end of study area to the north of Deep Creek and east of SR 18 (Figure 7; Appendix A).		
		**Delineation Date**	October 24, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	>6,000/0.14
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional
		Wetland Data Sheets	Appendix C; Sampling Point 45
		Upland Data Sheets	Appendix C; Sampling Point 46
Dominant Vegetation	Trees—Western red cedar. Sapling/shrubs—salmonberry, vine maple, Himalayan blackberry. Herbaceous – none.		
Soils	Soils within Wetland RR-08 contained significant organic material but did not meet the criteria for an organic soil or muck. The surface layer (0 to 8 inches) was 10YR 2/2 silt loam. The middle layer (8 to 11 inches) was 10YR 3/1 silt loam. The bottom layer (11 to 16 inches) was 10YR 4/2 gravelly silt loam with 7.5YR 5/8 concentrations throughout the matrix. These soils met the criteria for hydric soil indicator A11 (depleted below dark surface).		
Hydrology	Wetland EE-08 is located within a depression with an intermittently flowing outlet. Wetland hydrology is supported by a high groundwater table.		
Rationale for Delineation	Depressional wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland RR-08 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Low site potential for water quality improvement due to minor seasonal ponding and lower coverage of persistent vegetation; low landscape potential due to lack of proximity to stormwater discharges and pollutant sources; high societal value because Wetland RR-08 is located within a basin with a TMDL (Raging River basin).		
Hydrologic	Low site potential due to low ponding capabilities; low landscape potential because site does not intercept stormwater discharges. Societal value is moderate due to flooding in the sub-basin downgradient from Wetland RR-08.		
Habitat	Moderate habitat quality with scrub-shrub and forest vegetation communities and large downed wood providing wildlife habitat. Three WDFW-listed Priority Habitats are present within 100 meters of Wetland RR-08: Riparian, Instream, and Snags and Logs.		
Buffer Condition	The majority of land abutting the wetland is undisturbed forest (although historically logged); Wetland RR-08 is part of a relatively undisturbed and unbroken corridor at least 150 feet wide, which connects to undisturbed upland greater than 250 acres.		

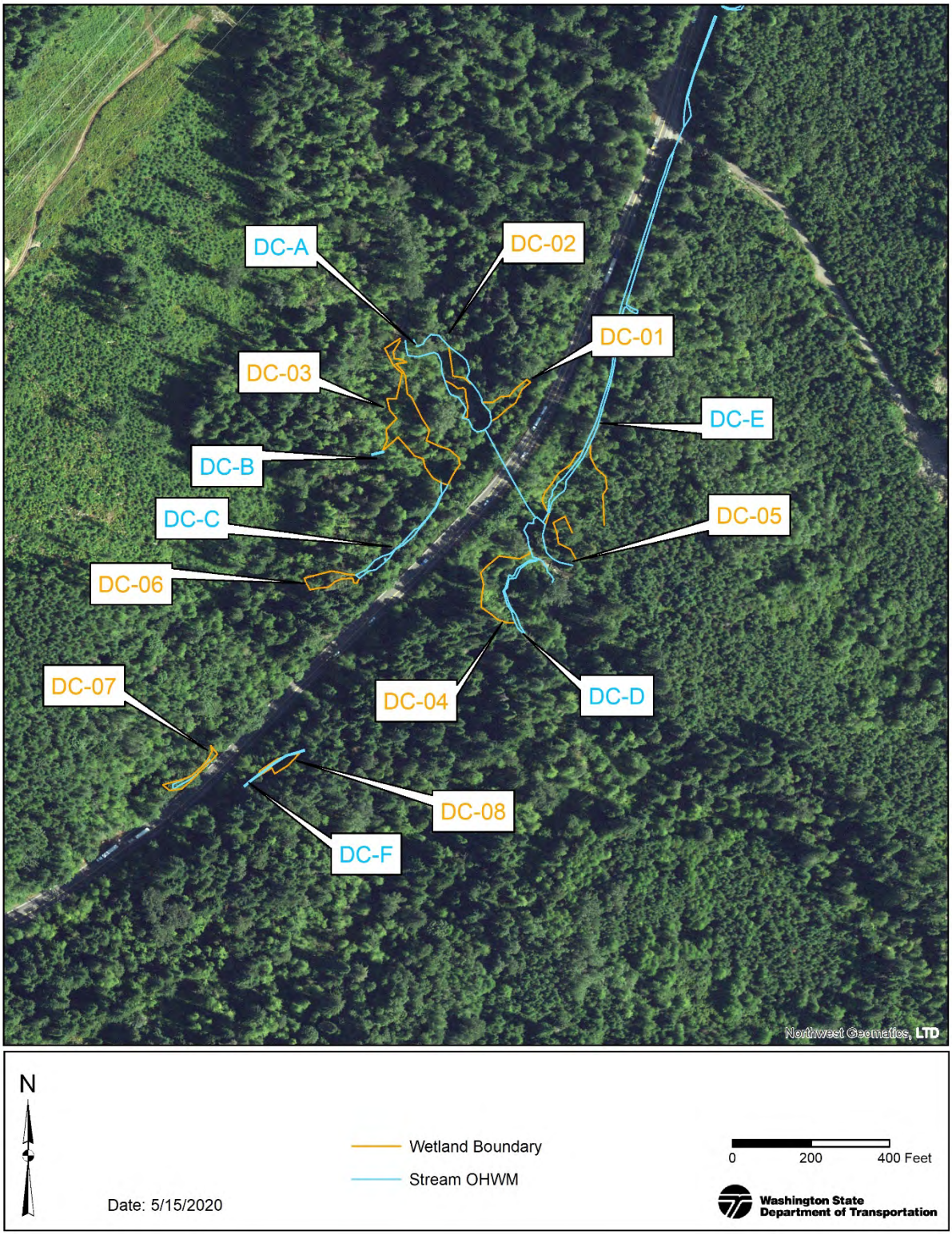


Figure 8. Wetlands and Streams Delineated in the Deep Creek Subwatershed

Table 35. Wetland DC-01 Summary

WETLAND DC-01 – INFORMATION SUMMARY			
Location:	South end of study area to the north of Deep Creek and west of SR 18 (Figure 8; Appendix A).		
		**Delineation Date**	August 25, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	3,500/0.08
		Cowardin Classification	PFO/PSS
		HGM Classification	Slope
		Wetland Data Sheets	Appendix C; Sampling Point 16
		Upland Data Sheets	Appendix C; Sampling Point 17
Dominant Vegetation	Trees—Western red cedar and red alder Sapling/shrubs —salmonberry Herbaceous—Reed canarygrass, youth on age, American skunk-cabbage, common ladyfern, western swordfern, and fowl mannagrass.		
Soils	Soils within Wetland DC-01 generally had two layers. The surface layer (0 to 4 inches) was 10YR 2/2 gravelly loamy sand with 7.5YR 4/6 concentrations. The bottom layer (4 to 16 inches) was 10YR 5/2 with 10YR 4/1 depletions and 7.5YR 4/6 concentrations. These soils met the criteria for hydric soil indicators A11 (depleted below dark surface) and F3 (depleted matrix).		
Hydrology	Wetland DC-01 is a slope wetland located near Deep Creek (DC-A). Wetland hydrology is supported by hillslope seeps and a high groundwater table. Water moves through Wetland DC-01 from north to south before draining to Deep Creek (DC-A). Flowing water was observed within Wetland DC-01 throughout the dry season.		
Rationale for Delineation	Slope wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland DC-01 was rated using the Washington State Wetland Rating System for Western Washington – Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	The moderate slope topography (between 2 and 5%) and low cover of dense woody plants contribute to a low potential for water quality improvements; low landscape potential due to lack of proximity to stormwater discharges and pollutant sources; high societal value because Wetland DC-01 is located within a basin with a TMDL (Raging River basin).		
Hydrologic	Wetland DC-01 has low landscape hydrologic function potential due to lack of surface depressions to hold back portions of flood flow; the wetland provides moderate societal value because surface water flooding is an issue farther downgradient.		
Habitat	Moderate habitat quality with scrub-shrub plant communities and multiple hydroperiods and moderate habitat interspersion. Habitat features including large downed wood, snags, and overhanging vegetation provide habitat for small mammals, amphibians, and birds.		
Buffer Condition	Wetland DC-01 buffer is limited to the east by SR 18; buffer extending west is relatively undisturbed forest consisting primarily of western hemlock and Douglas-fir. Wetland DC-01 is part of a relatively undisturbed vegetated corridor, which connects to other wetlands and to undisturbed uplands greater than 250 acres in size.		

Table 36. Wetland DC-02 Summary

WETLAND DC-02 – INFORMATION SUMMARY			
Location:	South end of study area along the left and right banks of Deep Creek and to the west of SR 18 (Figure 8; Appendix A).		
		**Delineation Date**	August 15, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	4,250/0.10
		Cowardin Classification	PSS/PEM
		HGM Classification	Riverine
		Wetland Data Sheets	Appendix C; Sampling Point 18
		Upland Data Sheets	Appendix C; Sampling Point 19
Dominant Vegetation	Trees—Red alder and Scouler's willow. Sapling/shrubs —Red alder, salmonberry, Scouler's willow, stink currant. Herbaceous—Creeping buttercup, Kentucky bluegrass, fowl mannagrass, youth on age, giant horsetail, small-fruited bulrush, and coastal hedgenettle.		
Soils	The soils generally had one layer (0 to 16 inches) of 10YR 3/2 very gravelly loam with 7.5YR 4/6 concentrations. This soil met the criteria for hydric soil indicator F6 (Redox dark surface).		
Hydrology	Wetland hydrology within Wetland DC-02 was supported by the Deep Creek and overbank flooding. Water moves through Wetland DC-02 from east to west.		
Rationale for Delineation	Riverine wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland DC-02 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments because most of the wetland has densely established trees and shrubs, but topographic depressions that allow sediments to settle out of the water column cover less than half of the wetland. Stormwater and road runoff pollution are received by Wetland DC-02 and factor into a moderate water quality improvement potential within the landscape.		
Hydrologic	Site potential for hydrologic function is moderate because tree and shrub cover is fairly high, but the low ratio of wetland to stream width limits overbank storage potential. The stream adjacent to the wetland (Deep Creek) is not down-cut or controlled by dams upgradient, which factors into a moderate landscape potential for Wetland DC-02.		
Habitat	Moderate habitat quality with emergent and scrub-shrub plant communities and multiple hydroperiods with low habitat interspersion. Special habitat features beneficial to fish and wildlife include large downed wood, snags, overhanging vegetation, signs of beaver use, and low invasive plant cover.		
Buffer Condition	Buffer function is fairly high for the circumference of the wetland with relatively undisturbed forest providing shade and habitat structure. Wetland DC-02 is part of a vegetated corridor connecting to other wetlands and relatively undisturbed uplands greater than 250 acres in size.		

Table 37. Wetland DC-03 Summary

WETLAND DC-03 – INFORMATION SUMMARY			
Location:	South end of study area, west of SR 18, and south of Deep Creek (Figure 8; Appendix A).		
		**Delineation Date**	November 16, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	20,200/0.46
		Cowardin Classification	PFO/PSS
		HGM Classification	Depressional and Riverine
		Wetland Data Sheets	Appendix C; Sampling Points 57 and 59
		Upland Data Sheets	Appendix C; Sampling Points 56, 58, and 60
Dominant Vegetation	Trees—Red alder and western red cedar. Sapling/shrubs —salmonberry, stink currant, vine maple, and devil's club. Herbaceous—common rush, slough sedge, common ladyfern, youth on age, and giant horsetail.		
Soils	Soils within Wetland DC-03 generally had two layers. The top layer (0 to 6 inches) was 10YR 3/1 loam. The second layer (6 to 16 inches) was 10YR 5/2 sandy loam with 10YR 4/6 and 7.5YR 3/4 concentrations. These soils met the criteria for hydric soil indicators A11 (depleted below dark surface) and F3 (depleted matrix).		
Hydrology	Wetland hydrology within Wetland DC-03 was supported by a high groundwater table, water from Streams DC-B and DC-C, and additional hydrologic inputs from precipitation. Water moves through Wetland 35 from the southeast to northwest before draining to Deep Creek (Stream DC-A) to the northwest of SR 18.		
Rationale for Delineation	Depressional wetland with sharp topographic breaks, hydrophytic vegetation, hydric soils, and strong evidence of wetland hydrology.		
Rationale for Local Rating	Wetland DC-03 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to seasonal ponding in greater than ¼ of the wetland, densely established persistent vegetation cover for 95% of the wetland, and an intermittently flowing outlet; moderate landscape potential due to reception of stormwater discharges; high societal value because Wetland DC-03 is located within a basin with a TMDL (Raging River basin).		
Hydrologic	Moderate site potential for slowing flood velocities due to surface water storage capabilities (marks of ponding between 0.5 feet and 2 feet from the bottom of the outlet) and reception of stormwater discharges. Wetland DC-03 provides moderate societal value by storing water in a location where surface water is flooding downgradient.		
Habitat	Moderate habitat quality with forested and scrub-shrub plant communities, multiple hydroperiods, and low habitat interspersion. Special habitat features include large downed wood and snags, thin-stemmed persistent plants beneficial for amphibians, and low invasive vegetation cover.		
Buffer Condition	Wetland DC-03 buffer is partially limited by SR 18 to the east; remaining buffer is relatively undisturbed forest consisting primarily of western hemlock and Douglas-fir. A powerline easement clearing is located approximately 300 feet northwest of the wetland. Wetland DC-03 is part of a relatively undisturbed vegetated corridor that connects to other wetlands and to undisturbed uplands greater than 25 acres in size.		

Table 38. Wetland DC-04 Summary

WETLAND DC-04 – INFORMATION SUMMARY			
Location:	South end of study area along the left bank of Deep Creek to the east of SR 18 (Figure 8; Appendix A).		
		**Delineation Date**	October 24, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	>28,250/0.64
		Cowardin Classification	PFO/PSS
		HGM Classification	Slope
		Wetland Data Sheets	Appendix C; Sampling Point 44
		Upland Data Sheets	Appendix C; Sampling Points 43
Dominant Vegetation	Trees—Western red cedar, red alder, black cottonwood, Sitka spruce. Sapling/shrubs —salmonberry, redosier dogwood, stink currant *(Ribes bracteosum)*, devil's club, and Himalayan blackberry. Herbaceous—giant horsetail, American skunk-cabbage, reed canarygrass, and youth on age.		
Soils	Soils within Wetland DC-04 generally had three layers. The surface layer (0 to 3 inches) was 10YR 3/3 silt loam. The middle layer (3 to 11 inches) was 10YR 3/2 loam with 10YR 3/4 concentrations. The bottom layer (11 to 16 inches) was 10YR 3/1 gravelly loam with 10YR 3/6 concentrations throughout the matrix and pore linings. These soils met the criteria for hydric soil indicator F6 (redox dark surface).		
Hydrology	Wetland DC-04 is a slope wetland located near Deep Creek (DC-A) and DC-D. Wetland hydrology is supported by hillslope seeps and a high groundwater table supported by the local streams. Water moves through Wetland DC-04 before being conveyed off site through DC-D and eventually to Deep Creek (DC-A). Flowing and ponded water within Wetland DC-04 was observed throughout the dry season.		
Rationale for Delineation	Slope wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland DC-04 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Low site potential for water quality functions due to a steeper slope topography (>5%) and lower dense herbaceous coverage. Wetland DC-04 does not have any known pollutant sources in proximity; thus, the landscape potential is also low.		
Hydrologic	Wetland DC-04 site potential and landscape potential for hydrologic functions are low due to a lack of dense vegetation to slow floodwaters and lack of proximity to excess surface water runoff sources. Societal value of the wetland is high due to flooding in the sub-basin immediately downgradient.		
Habitat	Moderate habitat quality with scrub-shrub and forest vegetation communities and special habitat features including large downed wood, snags, and overhanging vegetation. Plant species richness and interspersion of habitats are moderate.		
Buffer Condition	The majority of land abutting the wetland is undisturbed forest (although historically logged); Wetland DC-04 is part of a relatively undisturbed and unbroken corridor at least 150 feet wide, which connects to undisturbed upland greater than 250 acres.		

Table 39. Wetland DC-05 Summary

WETLAND DC-05 – INFORMATION SUMMARY			
Location:	South end of study area, east of SR 18, and north of Deep Creek (Figure 8; Appendix A).		
		**Delineation Date**	October 24, 2018
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	III
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	>26,900/0.61
		Cowardin Classification	PFO/PSS
		HGM Classification	Slope
		Wetland Data Sheets	Appendix C; Sampling Point 41
		Upland Data Sheets	Appendix C; Sampling Point 42
Dominant Vegetation	Trees—Western red cedar. Sapling/shrubs —salmonberry. Herbaceous—common ladyfern, American skunk-cabbage, giant horsetail, and youth on age.		
Soils	Soils within Wetland DC-05 generally had three layers. The top layer (0 to 7 inches) was 10YR 2/2 silt loam. The middle layer (7 to 11 inches) was 10YR 3/2 silt loam. The bottom layer (11 to 16 inches) was 10YR 4/2 silt loam with 10YR 5/6 concentrations. These soils met the criteria for hydric soil indicator A11 (depleted below dark surface).		
Hydrology	Wetland hydrology within Wetland DC-05 was supported by a high groundwater table with additional inputs from precipitation. Water moves through Wetland DC-05 from south to north before being conveyed off site through Stream DC-E and eventually Deep Creek (Stream DC-A).		
Rationale for Delineation	Slope wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland DC-05 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	The moderate slope topography (between 2 and 5% on average) and low cover of dense woody plants contribute to a low potential for water quality improvements; moderate landscape potential due to proximity to stormwater discharges and pollutant sources; high societal value because Wetland DC-05 is located within a basin with a TMDL (Raging River basin).		
Hydrologic	Low site and landscape potential for hydrologic functions due to low cover of dense rigid vegetation to slow floodwater velocities and lack of proximity to land uses generating excess surface runoff; high societal value because flooding occurs in the sub-basin immediately downgradient of Wetland DC-05.		
Habitat	Moderate habitat quality with scrub-shrub plant communities and multiple hydroperiods and moderate habitat interspersion. Special habitat features include large downed wood, snags, low invasive species presence, thin-stemmed vegetation, and overhanging vegetation providing shade to a seasonal stream.		
Buffer Condition	Wetland DC-05 buffer is partially limited by SR 18; remaining buffer is relatively undisturbed forest consisting primarily of western hemlock and Douglas-fir. Wetland DC-05 is part of a relatively undisturbed vegetated corridor which connects to other wetlands and to undisturbed uplands greater than 250 acres in size.		

Table 40. Wetland DC-06 Summary

WETLAND DC-06 – INFORMATION SUMMARY			
Location:	South end of study area, west of SR 18, and south of Deep Creek (Figure 8; Appendix A).		
		**Delineation Date**	March 12, 2020
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King County Buffer Width	150 feet
		Approximate Wetland Size (sf/acres)	3,441/0.08
		Cowardin Classification	PSS
		HGM Classification	Depressional
		Wetland Data Sheets	Appendix C; Sampling Point 64 and 65
		Upland Data Sheets	Appendix C; Sampling Point 62 and 63
Dominant Vegetation	Trees—Red alder and vine maple. Sapling/shrubs —salmonberry. Herbaceous—sword fern and piggyback plant.		
Soils	Soils within Wetland DC-06 generally had two layers. The top layer (0 to 8 inches) was 10YR 2/2 gravelly loam with 10YR 4/6 concentrations. The middle layer (8 to 16 inches) was 10YR 3/2 gravelly loam with 10YR 4/6 concentrations. These soils met the criteria for hydric soil indicator F6 (redox dark surface).		
Hydrology	Wetland hydrology within Wetland DC-06 was supported by a high groundwater table with additional inputs from precipitation. Water moves through Wetland DC-06 from south to north before being conveyed through Stream DC-C and eventually to Deep Creek (Stream DC-A).		
Rationale for Delineation	Depressional wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland DC-06 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	The moderate slope topography (between 2 and 5% on average) and low cover of dense woody plants contribute to a moderate potential for water quality improvements; high landscape potential due to proximity to stormwater discharges and pollutant sources; high societal value because Wetland DC-06 is located within a basin with a TMDL (Raging River basin).		
Hydrologic	Low site and landscape potential for hydrologic functions due to low cover of dense rigid vegetation to slow floodwater velocities and moderate landscape potential due to proximity to land uses generating excess surface runoff; high societal value because flooding occurs in the sub-basin immediately downgradient of Wetland DC-06.		
Habitat	Moderate habitat quality with scrub-shrub plant communities and low habitat interspersion. High percentage of undisturbed or moderate/low intensity land uses surrounding wetland. Special habitat features include large downed wood and low invasive species presence.		
Buffer Condition	Wetland DC-06 buffer is partially limited by SR 18; remaining buffer is relatively undisturbed forest consisting primarily of western hemlock and Douglas-fir. Wetland DC-06 is part of a relatively undisturbed vegetated corridor which connects to other wetlands and to undisturbed uplands greater than 250 acres in size.		

Table 41. Wetland DC-07 Summary

WETLAND DC-07 – INFORMATION SUMMARY			
Location:	South end of study area, west of SR 18, and south of Deep Creek (Figure 8; Appendix A).		
		**Delineation Date**	March 13, 2020
		Local Jurisdiction	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	1,263/0.029
		Cowardin Classification	PSS/PEM
		HGM Classification	Riverine
		Wetland Data Sheets	Appendix C; Sampling Point 68
		Upland Data Sheets	Appendix C; Sampling Point 69
Dominant Vegetation	Trees—Red alder and Western red cedar. Sapling/shrubs —salmonberry. Herbaceous—piggyback plant.		
Soils	Soils within Wetland DC-07 generally had two layers. The top layer (0 to 10 inches) was 2.5Y 3/2 cobbly loam with 2.5Y 4/4 concentrations and 2.5Y 4/2 depletions. The bottom layer (10+ inches) was 2.5Y 4/2 loam with 2.5Y 5/6 concentrations. These soils met the criteria for hydric soil indicators F3 (depleted matrix) and F6 (redox dark surface).		
Hydrology	Wetland hydrology within Wetland DC-07 was supported by precipitation from drainage patterns and geomorphic position, and Stream DC-F. Water flows downslope and moves through Wetland DC-07 from south to north before being conveyed through Stream DC-F and eventually Deep Creek (Stream DC-A).		
Rationale for Delineation	Riverine wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland DC-07 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	The moderate slope topography (between 2 and 5% on average) and cover of dense woody plants contribute to a moderate potential for water quality improvements; moderate landscape potential due to proximity to stormwater discharges and pollutant sources; high societal value because Wetland DC-07 is located within a basin with a TMDL (Raging River basin).		
Hydrologic	Moderate site and landscape potential for hydrologic functions due to cover of dense rigid vegetation to slow floodwater velocities and proximity to land uses generating excess surface runoff; high societal value because flooding occurs in the sub-basin immediately downgradient of Wetland DC-07.		
Habitat	Moderate habitat quality with scrub-shrub plant communities and multiple hydroperiods and low habitat interspersion. Special habitat features include large downed wood, low invasive species presence, and overhanging vegetation providing shade to a seasonal stream.		
Buffer Condition	Wetland DC-07 buffer is partially limited by SR 18; remaining buffer is relatively undisturbed forest consisting primarily of western hemlock and Douglas-fir. Wetland DC-07 is part of a relatively undisturbed vegetated corridor which connects to other wetlands and to undisturbed uplands greater than 250 acres in size.		

Table 42. Wetland DC-08 Summary

WETLAND DC-08 – INFORMATION SUMMARY			
Location:	South end of study area, east of SR 18, and south of Deep Creek (Figure 8; Appendix A).		
		Delineation Date	March 13, 2020
		**Local Jurisdiction**	King County
		WRIA	7 Snohomish
		Ecology (2014) Rating	II
		King County Buffer Width	300 feet
		Approximate Wetland Size (sf/acres)	1,995/0.05
		Cowardin Classification	PSS/PEM
		HGM Classification	Riverine
		Wetland Data Sheets	Appendix C; Sampling Point 70
		Upland Data Sheets	Appendix C; Sampling Point 71
Dominant Vegetation	Trees—None. Sapling/shrubs —salmonberry and Western red cedar. Herbaceous—sword fern and piggyback plant.		
Soils	Soils within Wetland DC-08 generally had three layers. The top layer (0 to 7 inches) was 10YR 2/2 gravelly sand with 10YR 4/6 concentrations. The middle layer (9 to 12 inches) was 10YR 2/2 sandy loam with 10YR 4/6 concentrations. The bottom layer (12+ inches) was 10YR 4/2 sandy loam with 10YR 4/6 concentrations. These soils met the criteria for hydric soil indicator S5 (sandy redox).		
Hydrology	Wetland hydrology within Wetland DC-08 was supported by overbank flooding from stream DC-F and high groundwater table with additional inputs from precipitation. Water moves through Wetland DC-08 from south to north before being conveyed off site through Stream DC-F and eventually Deep Creek (Stream DC-A).		
Rationale for Delineation	Riverine wetland with hydrophytic vegetation, hydric soils, and evidence of wetland hydrology.		
Rationale for Local Rating	Wetland DC-08 was rated using the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014) in accordance with King County Code. The wetland was rated based on functions provided by the wetland because no special wetland characteristics were observed.		
Wetland Functions Summary			
Water Quality	Depressions and cover of dense woody plants contribute to a moderate potential for water quality improvements; moderate landscape potential due to proximity to stormwater discharges and pollutant sources; high societal value because Wetland DC-08 is located within a basin with a TMDL (Raging River basin).		
Hydrologic	High site and landscape potential for hydrologic functions due to cover of dense rigid vegetation to slow floodwater velocities and proximity to land uses generating excess surface runoff; moderate societal value because flooding occurs in the sub-basin immediately downgradient of Wetland DC-08.		
Habitat	Moderate habitat quality with scrub-shrub plant communities and multiple hydroperiods and low habitat interspersion. Special habitat features include large downed wood, snags, low invasive species presence, and overhanging vegetation providing shade to a seasonal stream.		
Buffer Condition	Wetland DC-08 buffer is partially limited by SR 18; remaining buffer is relatively undisturbed forest consisting primarily of western hemlock and Douglas-fir. Wetland DC-08 is part of a relatively undisturbed vegetated corridor which connects to other wetlands and to undisturbed uplands greater than 250 acres in size.		

Ditches

Biologists evaluated stormwater conveyance ditches to determine if they meet Corps criteria for jurisdictional features or are waters of the state and regulated by Ecology. Throughout the project area, these features are generally constructed in uplands, convey water to a downstream traditional navigable water or other water of the U.S., and were determined to have relatively permanent flow based on OHWM indicators. A total of 50 potentially jurisdictional ditches were identified and field forms were completed for all ditches in the project area (Appendix F).

Streams

A total of 20 streams were identified and mapped in the study area. These streams are as follows: Lake Creek (Stream LC-A), the Raging River (Stream RR-A), and Deep Creek (Stream DC-A); eight unnamed tributaries to Lake Creek (Streams LC-B through LC-J); three unnamed tributaries to the Raging River (Streams RR-B through RR-D); and five unnamed tributaries to Deep Creek (Streams DC-B through DC-F). Lake Creek and Deep Creek are major tributaries to the Raging River. Fish presence or absence was assessed by reviewing WDNR water type maps, WDFW fish distribution maps, and using best professional judgement of field observations of obstructions, steep slopes, and other observations. Based on these observations, approximately 14 of the 20 streams are accessible or provide fish habitat for resident or anadromous fish. Table 43 provides a summary of the streams; Tables 44 through 58 describe the streams; and Figures 5-8 above and the figures in Appendix A show all the streams in the study area.

Lake Creek flows west approximately 1 mile from the SR 18 crossing to its confluence with the Raging River. Lake Creek contains documented fish including Chinook and coho salmon and steelhead trout (WDFW 2018a, 2018b).

Streams LC-B through LC-J discharge to Lake Creek. Streams LC-B and LC-C flow north and parallel SR 18 south of Lake Creek. Streams LC-B and LC-C flow through straight, ditched channels below the SR 18 roadway structure. Stream LC-B supports salmonid use and Stream LC-C is assumed to provide fish habitat due to its connection to Lake Creek. These streams generally do not provide adult fish habitat but may provide refugia for juvenile fish during high flow events in Lake Creek.

Stream LC-D discharges to Lake Creek to the southwest of the I-90/SR 18 interchange. Stream LC-E discharges to Lake Creek after flowing from the northwest corner of the I-90/SR 18 interchange to conveying through culverts under the interchange. Stream LC-F flows from the north of the interchange in a southerly direction before reaching its confluence with Stream LC-G at the northeast corner of the interchange. Stream LC-G then flows through straight, ditched channels before being conveyed through culverts toward Lake Creek to the south of the interchange. Both streams LC-G and LC-I are conveyed under SE 104th Street before draining to Lake Creek. Stream LC-H is located northeast of the interchange and flows in an easterly direction before reaching its confluence with Stream LC-G. Stream LC-J is located immediately west of SR 18 and flows in a southwesterly direction for approximately 100 feet before draining to Lake Creek.

The Raging River flows approximately 4.5 miles west to its confluence with the Snoqualmie River from the SR 18 crossing. The Raging River OHWM was delineated within the study area. Raging River tributary streams (Streams RR-B, RR-C, and RR-D) flow through straight, ditched channels below the SR 18 roadway structure for much of their length (Appendix A). Stream RR-B is not anticipated to support fish populations due to the ephemeral and seasonal nature of the stream and the highly disturbed connection to the Raging River. Due to the lack of a gradient barrier, it is assumed that fish may be able to access Stream RR-C from the Raging River. Stream RR-D, upstream of RR-C, has been determined to be non-fish bearing due to the lack of a historic channel, ditch-like feature along a through-cut highway, and steep drop to RR-C.

Deep Creek flows approximately 4,800 feet (0.91 mile) northwest from the SR 18 crossing to its confluence with the Raging River approximately 0.5 mile due west of the study area. Streams DC-B through DC-E drain to Deep Creek. Stream DC-D enters the left bank (LB) of Deep Creek approximately 75 feet upstream of the Deep Creek culvert beneath SR 18. Similarly, Stream DC-E enters the right bank (RB) of Deep Creek approximately 50 feet upstream of the Deep Creek culvert beneath SR 18. Streams DC-B and DC-C are steep and narrow streams that flow into Wetland DC-03 and disperse. Wetland DC-03 lacks a channel with a defined bed and bank and is not anticipated to support fish populations. Wetland DC-03 is connected to Deep Creek. Stream DC-F is a non-fish bearing stream that originates in Wetland DC-07, flows through a culvert beneath SR 18, and through Wetland DC-08 and is assumed to flow into Deep Creek east of the study area.

Table 43. Summary of Streams in the Study Area

Stream[a]	Discharges to	Stream Type (WDNR[b]/KCC[c])	King County[d] /USFS Buffer Width (feet)
Lake Creek(LC)/LC-A	Raging River	F/F	165/300
LC-B	Lake Creek	F/F	165/300
LC-C	Lake Creek	F*/F*	165/300
LC-D	Lake Creek	F*/F*	165
LC-E	Lake Creek	F/F	165
LC-F	Lake Creek	N*/N*	65
LC-G	Lake Creek	F/F	165
LC-H	Lake Creek	F*/F*	165
LC-I	Lake Creek	F*/F*	165
LC-J	Lake Creek	F*/F*	165
Raging River (RR)/RR-A	Snoqualmie River	S/S	165
RR-B	Raging River	N/O	25
RR-C	Raging River	N/F*	165
RR-D	Raging River	N/N	65
Deep Creek (DC)/DC-A	Raging River	S/S	165
DC-B	Deep Creek	N/N	65

DC-C	Deep Creek	N/N	65
DC-D	Deep Creek	F*/F	165
DC-E	Deep Creek	F*/F	165
DC-F	Deep Creek	N/N	65

[a] Stream identifier
[b] WDNR stream types. Type F = waters provide fish habitat (WDNR 2018); Type S = shorelines of the state; Type N = Nonfish habitat streams
[c] KCC 21A.24.355; Type O stream
[d] KCC 21A.24.358(C); King County buffers applied for streams outside the UGA
[e] USDA et al. 1994.
* Assumed (i.e., not mapped and not investigated for fish presence)

Table 44. Lake Creek (Stream LC-A) Summary

LAKE CREEK/STREAM LC-A - INFORMATION SUMMARY			
Stream Name	Lake Creek—Stream LC-A		
		**WRIA ID #**	07-0393
		Jurisdiction for Portion of Stream in Study Area	King County/USFS/WDNR
		WDNR Stream Type	Type F, perennial
		King County/USFS Buffer Width	165 feet/300 feet
Location of Stream Relative to Project	Lake Creek flows east to west crossing SR 18 through a culvert just south of the I-90/SR 18 interchange. It is a tributary to the Raging River.		
Connectivity (where stream flows from/to)	The perennial flows in Lake Creek receive water from Echo Lake, which lies just south of the eastern project limits. The headwaters of this creek flow through riparian corridors and wetlands including large wetlands east of the study area and through Wetland LC-04 (Figure 6; Appendix A). The creek drains to the Raging River approximately 1 linear mile west of the western project limits. The Raging River is a tributary to the Snoqualmie River. The confluence of the two rivers is approximately 4.5 linear miles downstream and northwest of the project.		
Fish Presence	Lake Creek connects to the Raging River and contains documented coho, Chinook, and steelhead (WDFW 2018a, 2018b). However, Chinook use is typically limited to the lower reach closer to the confluence with the Raging River and outside the study area. Bull trout are presumed present within Lake Creek (WDFW 2018a). Other resident fish species may also have access to the fish habitat provided by Lake Creek. Largemouth bass were documented both upstream and downstream of the SR 18 crossing.		
Habitat	Lake Creek generally has a defined channel throughout the study area. Substrate in this area is mainly sand and gravel. Riffle/pool complexes with gravels and cobbles are not present in the portion of the stream in the study area, primarily due to the presence of multiple beaver dams both upstream and downstream of the SR 18 crossing. A scour pool created by the culvert under SR 18 is present within the study area, but it is not representative of a riffle/pool complex. Overhanging vegetation contributes organic matter, shade, and woody debris to the creek.		
Riparian/Buffer Condition	Riparian vegetation is generally intact for the entire length of Lake Creek and consists of mature mixed coniferous and deciduous forest with an understory dominated by native shrubs and herbaceous plants.		

Table 45. Stream LC-B Summary

STREAM LC-B - INFORMATION SUMMARY			
Stream Name	Unnamed stream—Stream LC-B		
		**WRIA ID #**	07-0393
		Jurisdiction for Portion of Stream in Study Area	King County/USFS
		WDNR Stream Type	Type F, seasonal
		King County/USFS Buffer Width	165 feet/300 feet
Location of Stream Relative to Project	Stream LC-B is located directly adjacent to SR 18 eastbound lanes at toe of slope.		
Connectivity (where stream flows from/to)	The creek has seasonal flows originating from two sources. Surface water flows out of the large Wetland LC-28 east of SR 18 and contributes flows to this creek. A second hydrologic input is from a culvert flowing east under SR 18, draining surface water from Wetland LC-02, contributing flows to this creek's headwaters. The creek parallels eastbound SR 18, flowing north, and empties into Lake Creek just upstream of the Lake Creek culvert under SR 18 (Figure 6; Appendix A).		
Fish Presence	Numerous juvenile coho salmon were observed throughout the wetted portion of the channel during field studies conducted in August 2018. The fish were trapped in small shallow pool areas while the majority of the channel was dry.		
Habitat	The creek is generally channelized at the toe of slope of eastbound SR 18. It lacks riffle/pool complexes and channel migration or meanders. Substrates are silty mud with some gravels. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, limited amounts of woody debris, and shade.		
Riparian/Buffer Condition	Riparian vegetation is generally intact on the east side of Stream LC-B and consists of mature forested vegetation in Wetland LC-28 east of SR 18 dominated by red alder and western red cedar. A skinny strip of buffer, averaging approximately 20 feet wide, is present in some locations between the western OHWM of Stream LC-B and toe of slope of eastbound SR 18. In other areas the western OHWM is at or within approximately 5 feet of toe of slope of the SR 18 road prism. Portions of this western creek buffer are dominated by salmonberry, which provides some limited screening function from SR 18. Other western buffer areas are dominated by grasses and maintained by routine highway maintenance activities.		

Table 46. Stream LC-C Summary

STREAM LC-C - INFORMATION SUMMARY			
Stream Name	Unnamed stream—Stream LC-C		
		**WRIA ID #**	07-0393
		Jurisdiction for Portion of Stream in Study Area	King County/USFS
		WDNR Stream Type	Assumed type F, seasonal
		King County/USFS Buffer Width	165 feet/300 feet
Location of Stream Relative to Project	Stream LC-C is entirely within the study area. It parallels the westbound lanes of SR 18 near toe of slope of roadway structure, runs along the eastern boundary of Wetland LC-04, and then converges with the LB of Lake Creek immediately downstream of the Lake Creek culverts beneath SR 18.		
Connectivity (where stream flows from/to)	The creek has seasonal flows originating near the southeastern boundary of Wetland LC-04. A culvert under SR 18 allows flows from Stream LC-B to pass under the highway and enter the headwaters of this creek. The creek parallels westbound SR 18, flowing north, and empties into Lake Creek on the northeastern boundary of Wetland LC-04 (Figure 6; Appendix A).		
Fish Presence	Because of the highly channelized character of this stream and uniform silty substrate, necessary habitat elements required to support fish are not present, despite its connection to Lake Creek. It is possible the creek may provide refugia for juvenile fish during high flows in Lake Creek. Fish presence is not documented in this creek, but is assumed because of its connection to Lake Creek.		
Habitat	The creek is generally channelized at the toe of slope of westbound SR 18. It lacks riffle/pool complexes and channel migration or meanders. Substrates are silty mud. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, small amounts of woody debris, and shade.		
Riparian/Buffer Condition	Riparian vegetation is generally intact on the west side of Stream LC-C and consists of mature forested vegetation in Wetland LC-04 dominated by red alder and black cottonwood. A strip of mature trees with a shrubby understory, generally 50 feet wide, buffers the eastern OHWM of Stream LC-C from SR 18.		

Table 47. Stream LC-D Summary

STREAM LC-D - INFORMATION SUMMARY	
Stream Name	Unnamed stream-Stream LC-D

WRIA ID #	07
Jurisdiction for Portion of Stream in Study area	King County
King County/ WDNR Stream Type	Assumed Type F/ Seasonal
King County Buffer Width	165 feet

Location of Stream Relative to Project	Stream LC-D is located west of SB SR 18. The upstream portion originates north of I-90 and continues downstream to the south of I-90.
Connectivity (where stream flows from/to)	Stream LC-D flows downstream from the median of I-90 on the west side of SB SR-18 before following in a southwesterly direction toward Lake Creek. It is assumed that the stream drains into Lake Creek outside of the project area. The stream has low summer flows originating from precipitation and stormwater runoff. Stormwater runs off both directions of I-90 and the median in the project area.
Fish Presence	Fish use in the stream is assumed due to the stream meeting the physical criteria for fish use and the hydrologic connection to Lake Creek. The stream is flashy with low seasonal flows which can quickly swell to occasional high flows during and following precipitation events due to stormwater inputs off of I-90.
Habitat	The stream is mostly a narrow and moderately channelized waterway that is perpendicular to I-90. It lacks riffle/pool complexes and channel migration or meanders. Substrates are silty with some very small cobble. Overhanging trees and shrubs contribute organic matter and partially shade some sections of the stream. However, minimal stream width and poor water quality input from stormwater contributes to relatively low-quality habitat for passerine birds, small mammals, and aquatic invertebrates.
Riparian/Buffer Condition	Riparian vegetation along the length of the stream but is generally intact. In the northern reaches of the stream, the stream has a moderately well-functioning buffer. The riparian vegetation is dominated by large Douglas firs in the median of I-90, with understory vegetation including salmonberry and vine map. Filtering and water quality improvement from runoff is moderate to high with a dense understory of vegetation. Further downstream (south) the stream is heavily shaded by dense Douglas and then salmonberry surrounded by small pockets of reed canarygrass and Douglas spiraea near the outlet of the corrugated metal pipe culvert under I-90, providing an improved buffer overall. Riparian vegetation south of I-90 is generally intact and consists of mature forested vegetation that includes mixed coniferous and deciduous trees with an understory of vine maple and salmonberry.

Table 48. Stream LC-E Summary

STREAM LC-E - INFORMATION SUMMARY	
Stream Name	Unnamed stream-Stream LC-E
	
WRIA ID #	07
Jurisdiction for Portion of Stream in Study area	King County
King County/ WDNR Stream Type	Assumed Type F/ Perennial
King County Buffer Width	165 feet
Location of Stream Relative to Project	Stream LC-E is located west of SB SR 18 and just south of the easternmost portion of the westbound auxiliary ramp onto WB I-90. The upstream portion originates north of the auxiliary ramp in ditched areas on top of road fill, and flows southward towards the auxiliary ramp prior to reaching its most upstream fish passage culvert barrier. Further upstream the stream is ditch habitat within upland that flows through several small metal pipe culverts.
Connectivity (where stream flows from/to)	Stream LC-E flows downstream to the east toward SB SR 18 through one culvert fish passage barrier prior to turning south and flowing parallel to SB SR 18, where it flows in a southerly direction, flowing through two additional culvert barriers. Water flowing from north to south drains into Stream LC-G, where it then outlets to Stream LC-A (Lake Creek). The stream has low summer flows originating from precipitation and stormwater runoff from the auxiliary ramp and upstream local roads.
Fish Presence	Fish use is anticipated due to the hydrologic connection to Lake Creek, which has known fish use. The stream meets the physical criteria for a fish-bearing stream, though there are downstream barriers blocking fish use currently. The stream is flashy with low seasonal flows which quickly swell to occasional high flows during and following precipitation events. However, due to its potential connection to Lake Creek, fish presence must be assumed.
Habitat	The stream is mostly a narrow, channelized and excavated waterway that parallels the aux ramp and SR 18. It lacks riffle/pool complexes and channel migration or meanders. Substrates are mucky with some cobble and large gravel in some areas. Vegetation is limited to roadside grasses, common rush, and small red alder and cottonwood saplings. The vegetation does not shade the stream efficiently. Minimal stream width and poor water quality input from stormwater contributes to relatively low-quality habitat for passerine birds, small mammals, and aquatic invertebrates. A large portion of the stream flows within metal pipe culverts under the I-90/SR 18 interchange.
Riparian/Buffer Condition	Riparian vegetation is largely not intact and ranges in size and condition along the length of the stream. In the northwestern most reaches of the stream, the stream does not have a well-functioning buffer to the north as the auxiliary ramp is within a few feet of the stream. On the southern side of this portion of the stream lies Wetland LC-7. The riparian vegetation in LC-7 is low and includes mowed and maintained grasses and saplings less than 6 feet in high. Filtering and water quality improvement from runoff is moderate. Further downstream (south) the stream is partly shaded by soft rush (Juncus effusus) and reed canarygrass (Phalaris arundinacea) and Western red cedar (Thuja plicata) before entering piped culvers under the I-90/SR 18, providing an improved buffer. Riparian vegetation within the I-90/SR 18 interchange is non-existient within the piped culverts. Further downstream south of the interchange riparian vegetation improves to moderately sized willow (Salix sp.) and red osier dogwood (Cornus sericia).

Table 49. Stream LC-F Summary

STREAM LC-F - INFORMATION SUMMARY			
Stream Name	Unnamed tributary-Stream LC-F		
 		**WRIA ID #**	07-0393
		Jurisdiction for Portion of Stream in Study area	King County
		King County/ WDNR Stream Type	Assumed Type N
		King County Buffer Width	65 feet
Location of Stream Relative to Project	Stream LC-F is a tributary to Stream LC-G. It is located east of NB SR 18 and north of WB I-90.		
Connectivity (where stream flows from/to)	Stream LC-F flows south from the northern extent of the project area on the east side of NB SR-18, before converging with Stream LC-G and discharging through an outfall conveying stormwater underneath I-90 and continuing to the south. The stream has low summer flows originating from precipitation, stormwater runoff, and possibly ground water.		
Fish Presence	No fish use is anticipated due to the ditched nature of the channel, paired with the culvert under I-90 that is a fish passage barrier. Further, the stream is flashy with low seasonal flows which quickly swell to occasional high flows during and following precipitation events, which is not suitable for supporting fish presence.		
Habitat	The tributary is a narrow, channelized and excavated waterway that parallels SR-18. It lacks riffle/pool complexes and channel migration or meanders. Substrates are silty mud with cobble and large gravel. Overhanging trees and shrubs in the southern extent of the tributary contribute organic matter and partially shade some sections of the stream. However, minimal stream width and poor water quality input from stormwater contributes to relatively low-quality habitat for passerine birds, small mammals, and aquatic invertebrates.		
Riparian/Buffer Condition	In the northern reaches of the tributary, the stream does not have a well-functioning buffer. The riparian vegetation is low and includes mowed and maintained grasses including velvet grass (*Holcus lanatus*) and herbs, including creeping buttercup, less than 12” in height. Filtering and water quality improvement from runoff is minimal. Further downstream (south) the stream is heavily shaded by dense red alder, providing an improved buffer.		

Table 50. Stream LC-G Summary

STREAM LC-G - INFORMATION SUMMARY			
Stream Name	Unnamed stream-Stream LC-G		
		**WRIA ID #**	07-0393
		Jurisdiction for Portion of Stream in Study area	King County
		King County/ WDNR Stream Type	Assumed Type F/ Perennial
		King County Buffer Width	165 feet
Location of Stream Relative to Project	Stream LC-G is located east of NB SR 18. The upstream portion originates north of I-90 and continues downstream to the south of I-90.		
Connectivity (where stream flows from/to)	Stream LC-G appears to originate from a high groundwater table within an excavated and channelized stream channel. The stream flows east to west along the north side of WB I-90 and drains into Wetland LC-12. The stream then continues west and converges with Stream LC-F, a tributary to the north, before discharging through an outfall conveying stormwater underneath I-90 and continuing south along SR 18. The stream then flows through a short forested section and then through a roadside ditch which parallels SE 104th Street, before draining to Lake Creek. The stream has flows originating from precipitation, stormwater runoff, wetland contributions and ground water. Stormwater run-off from I-90 and SR-18, as well as the on- and off-ramps in the interchange, discharge into this creek with additional stormwater inputs from surrounding ditches and culverts likely.		
Fish Presence	The culvert under I-90 and under SE 104th Street appear to be barriers to fish passage. However, due to its constant flow in most areas of the stream, and its connection to Lake Creek, fish presence is assumed.		
Habitat	The stream substrate ranges from silty mud with some small gravels to substrate consisting largely of cobbles and gravels. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, small amounts of woody debris, and shade.		
Riparian/Buffer Condition	Riparian vegetation is generally intact and consists of mature forested vegetation that includes mixed coniferous and deciduous trees (including red alder, black cottonwood, Douglas-fir and western red cedar) with an understory comprising salal, salmonberry, sword fern and cuttleaf blackberry. Near the stormwater conveyance channel under I-90, the riparian buffer is reduced to shorter soft rush surrounded by reed canarygrass. South of I-90, the riparian buffer continues to be generally intact and consists of mature forested vegetation that includes mixed coniferous and deciduous trees with an understory of salal and salmonberry. Further downstream along the strip of ROW along SE 104th Street, the stream loses the functional buffer where maintained and mowed grasses become prevalent.		

Table 51. Stream LC-H Summary

STREAM LC-H - INFORMATION SUMMARY			
Stream Name	Unnamed stream-Stream LC-H		
		**WRIA ID #**	07-0393
		Jurisdiction for Portion of Stream in Study area	King County
		King County/ WDNR Stream Type	Assumed Type F/ Seasonal
		King County Buffer Width	165 feet
Location of Stream Relative to Project	Stream LC-H is located east of NB SR 18. The upstream portion originates north of I-90 and continues downstream before out-letting into Stream LC-G.		
Connectivity (where stream flows from/to)	Stream LC-H is estimated to flow downstream from the northeastern extent of the project area on the east side of NB SR-18 before following the curve of the WB I-90 on-ramp to NB SR 18. Water flowing from east to west is estimated to potentially drain Wetland LC-14 into Stream LC-G, converge with these western flows after discharging through a corrugated metal pipe culvert conveying Stream LC-H in the I-90 ROW and continuing to the south just east of NB SR 18. The stream is then estimated to parallel SE 104th Street before flowing through a culvert and discharging to a large wetland on the east of the project area (Wetland LC-24 complex). The stream has low summer flows originating from precipitation, stormwater runoff, and possibly ground water originating in Wetland LC-14. Stormwater runs off I-90 and the off-ramp in the project area.		
Fish Presence	Fish use in the stream is assumed due to the stream meeting the physical criteria for a fish-bearing stream and the stream's hydrologic connection to Lake Creek, a documented fish-bearing stream. The current access to Lake Creek through the interchange is not currently accessible, but with barriers removed the stream could be potential juvenile rearing habitat.		
Habitat	The stream is mostly a narrow, channelized waterway that parallels the interchange and off-ramp in the area. It lacks riffle/pool complexes and channel migration or meanders. Substrates are silty mud with some cobble. Overhanging trees and shrubs contribute organic matter and partially shade some sections of the stream. Moderate stream width and poor water quality input from stormwater contributes to relatively low-quality habitat for passerine birds, small mammals, and aquatic invertebrates.		
Riparian/Buffer Condition	Riparian vegetation is intact but ranges in size and condition along the length of the stream relative to the proximity to the I-90 off-ramp. In the eastern reaches of the stream, the stream has a well-functioning buffer. The riparian vegetation is high and includes unmowed grasses and herbs over 12" in height, as well as mature scrub/shrub and forested vegetation. Filtering and water quality improvement from runoff is high. Further downstream (west) the stream is heavily shaded by dense red alders and then by reed canarygrass near the corrugated metal pipe conveying Stream LC-H into Stream LC-G, providing a lower-functioning buffer. Riparian vegetation south of I-90 is generally intact and consists of mature forested vegetation that includes mixed coniferous and deciduous trees with an understory of salal and salmonberry. Further downstream along the strip of ROW along SE 104th Street, the stream loses the functional buffer where maintained and mowed grasses become prevalent.		

Table 52. Stream LC-I Summary

STREAM LC-I - INFORMATION SUMMARY			
Stream Name	Unnamed stream—Stream LC-I		
		**WRIA ID #**	07-0393
		Jurisdiction for Portion of Stream in Study Area	King County
		WDNR Stream Type	Assumed type F, seasonal
		King County Buffer Width	165 feet
Location of Stream Relative to Project	Stream LC-I originates in the study area. The southern fork of the creek parallels SR 18 just north of the SE 104th Street and SR 18 intersection. The northern fork begins at a culvert at toe of slope along eastbound SR 18 lanes just before the eastbound I-90 on-ramp.		
Connectivity (where stream flows from/to)	The southern fork appears to originate from a high groundwater table. The northern fork receives stormwater from ditches associated with the transportation infrastructure. A culvert conveys stormwater from the west side of SR 18 and the eastbound I-90 off-ramp. A ditch along the westbound SR 18 lanes also conveys stormwater to the headwaters of the north fork of the stream. Both forks of the stream converge just east of SR 18 and flow east from that point. Both forks flow through straightened and excavated channels before leaving the study area through a culvert running east under SE 104th Street and discharging to a large wetland east of SE 104th Street. It is assumed that this is a seasonal stream with water flowing to Lake Creek through the wetland east of SE 104th Street.		
Fish Presence	It is unknown if the culvert under SE 104th Street is fish passable. It is small and appeared to be partially blocked and clogged, however the stream does provide habitat suitable for fish when seasonal flows are present and has seasonal connection to Lake Creek.		
Habitat	The creek is generally channelized and lacks riffle/pool complexes and channel migration or meanders. Substrates are silty mud with some small gravels. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, small amounts of woody debris, and shade.		
Riparian/Buffer Condition	Riparian vegetation is generally intact surrounding Stream LC-I. Buffer vegetation consists of mature forested vegetation dominated by red alder, black cottonwood, Douglas-fir, and western red cedar with an understory of salmonberry and sword fern.		

Table 53. Stream LC-J Summary

STREAM LC-J - INFORMATION SUMMARY			
Stream Name	Unnamed stream-Stream LC-J		
		**WRIA ID #**	07
		Jurisdiction for Portion of Stream in Study area	King County
		King County/ WDNR Stream Type	Assumed Type F/ Seasonal
		King County Buffer Width	165 feet
Location of Stream Relative to Project	Stream LC-J is entirely within the study area. A channel is formed just west of SB SR 18 and continues for approximately 100 feet to the southwest. It converges with Lake Creek immediately downstream of the Lake Creek culverts beneath SR 18.		
Connectivity (where stream flows from/to)	Stream LC-J flows downstream from immediately west of SB SR 18 to the southwest and drains to Lake Creek. This stream is only approximately 100 feet in length and entirely within the project area. The stream has low summer flows originating from precipitation and stormwater runoff. Stormwater runs off SB SR 18 and SE 104th St and sheet flows until forming a channel.		
Fish Presence	Because of the highly channelized character of this stream and uniform silty substrate, necessary habitat elements required to support fish are not present, despite its connection to Lake Creek. It is possible the creek may provide refugia for juvenile fish during high flows in Lake Creek. Fish presence is not documented in this creek, but is assumed because of its connection to Lake Creek.		
Habitat	The creek is generally channelized at the toe of slope of westbound SR 18. It lacks riffle/pool complexes and channel migration or meanders. Substrates are silty mud. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, small amounts of woody debris, and shade.		
Riparian/Buffer Condition	Riparian vegetation is generally intact along Stream LC-J. Buffer vegetation consists of mature forested vegetation dominated by Douglas-fir and western red cedar with an understory of salmonberry, salal, and sword fern.		

Table 54. Raging River (Stream RR-A) Summary

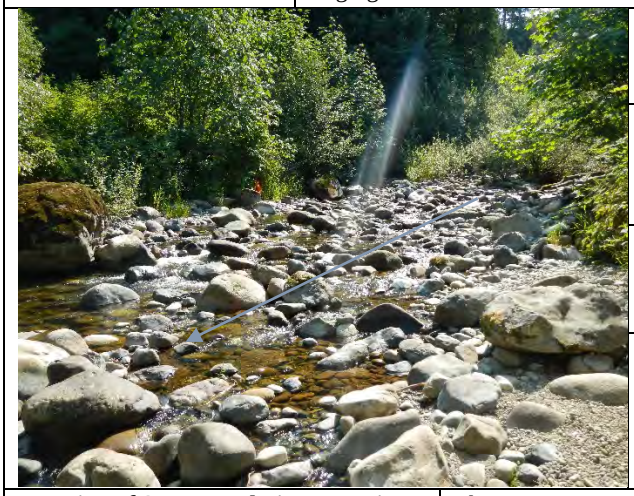
RAGING RIVER/STREAM RR-A - INFORMATION SUMMARY			
Stream Name	Raging River—Stream RR-A		
		**WRIA ID #**	07-0384
		Jurisdiction for Portion of Stream in Study Area	King County/WDNR
		WDNR Stream Type	Type S
		King County Buffer Width	165 feet
Location of Stream Relative to Project	The Raging River, flowing generally east to west, crosses SR 18 approximately 1.5 miles south of the SR 18/I-90 interchange at approximately RM 7.9.		
Connectivity (where stream flows from/to)	The Raging River originates from the west and southwest slopes of Rattlesnake Mountain at an elevation of approximately 3,000 feet. It flows northerly about 5 miles to join the Snoqualmie River at RM 36.2 near Fall City at an elevation of about 100 feet.		
Fish Presence	In the study area, the Raging River supports both resident and anadromous salmonid populations including summer- and winter-run steelhead, fall Chinook salmon, coho salmon, and resident coastal cutthroat trout, and is presumed to be used by bull trout (WDFW 2018a, 2018b).		
Habitat	The Raging River within the study area can be characterized as primarily moderate gradient riffle habitat with some limited pool habitat associated with large boulders. Upstream the channel is slightly wider and contains some braiding and side channel habitat. Substrates are dominated by cobble and boulder with large and small gravels being sub-dominant. Overall good bank stability with some minor scour/undercutting downstream of the bridge. LWM (large woody material) is present in small amounts immediately upstream of the bridge with no key pieces within the channel downstream of the bridge.		
Riparian/Buffer Condition	High voltage power lines are located at the SR 18 crossing of the Raging River crossing at a skew to the bridge. Vegetation beneath the power line corridor is maintained and therefore trees have been removed and have been largely replaced with Himalayan blackberry and other low-growing shrubs and grasses. This is particularly evident on the southwest and northeast sides of the bridge. Areas outside the power line corridor are well vegetated and intact and includes a mixed coniferous/deciduous canopy. Dominant species include black cottonwood, red alder, Sitka spruce, bigleaf maple, western red cedar, willow, and western hemlock.		

Table 55. Stream RR-B Summary

STREAM RR-B - INFORMATION SUMMARY			
Stream Name	Unnamed stream—Stream RR-B		
		**WRIA ID #**	07-0384
		Jurisdiction for Portion of Stream in Study Area	King County/WDNR
		King County/ WDNR Stream Type	Type O/N, ephemeral
		King County Buffer Width	25 feet
Location of Stream Relative to Project	Stream RR-B discharges from Wetland RR-04 and enters a ditch conveyance feature at the base of slope adjacent to SR 18 eastbound lanes just north of the Raging River bridge.		
Connectivity (where stream flows from/to)	Stream RR-B discharges from Wetland RR-04 and enters a ditch conveyance feature at the base of slope adjacent to SR 18 eastbound lanes. The ditch-like conveyance then parallels the roadway flowing south before hitting an unimproved trail system where the stream sheet flows across the trail and diffuses out into a vegetated area before discharging to the RB of the Raging River to the east of the bridge. There is no direct connection via defined channel to the Raging River.		
Fish Presence	No fish use is anticipated due to the lack of a direct connection to the Raging River.		
Habitat	The stream system is isolated from the Raging River and there is a lack of direct hydraulic connection between the two waterbodies. The majority of the channel length paralleling the east side of SR 18 is channelized and steep as it leads down to the Raging River. Vegetative cover and the quality of canopy cover is diminished by the maintenance clearing for the overhead power lines that occurs along much of the lower reach.		
Riparian/Buffer Condition	Buffer width on the west side of the stream is narrow due to presence of SR 18; however, riparian conditions improve for the portion of the channel that flows through Wetland RR-04 and eastward. Dominant buffer species include: mature Sitka spruce and western red cedar with lesser amounts of bigleaf maple, vine maple, and western sword fern. Associated wetland vegetation includes red alder and salmonberry.		

Table 56. Stream RR-C Summary

STREAM RR-C - INFORMATION SUMMARY			
Stream Name	Unnamed stream—Stream RR-C		
		**WRIA ID #**	07-0384
		Jurisdiction for Portion of Stream in Study Area	King County/WDNR
		King County/WDNR Stream Type	Type F/Type N, seasonal
		King County Buffer Width	165 feet
Location of Stream Relative to Project	Stream RR-C is a channelized ditch immediately adjacent to SR 18 eastbound lanes near MP 26. Stream RR-C is located along the east side of SR 18 and discharges to the Raging River on the east side of the Raging River bridge.		
Connectivity (where stream flows from/to)	This stream drains areas adjacent to the roadway and hillslopes to the southeast of the Raging River bridge. It originates out of a hanging culvert on NE side of SR 18. It flows through Wetland RR-06 at the base of the slope and discharging to the LB of the Raging River immediately upstream of the bridge. The channel is lined with erosion control material, so it is assumed that roadway runoff is one of the primary sources of hydrology near the top the system. The stream discharges from the wetland to the Raging River via a steep cut bank.		
Fish Presence	In the study area, the Raging River supports both resident and anadromous salmonid populations including summer- and winter-run steelhead, fall Chinook salmon, Coho salmon, and resident coastal cutthroat trout, and is presumed to be used by bull trout (WDFW 2018a, 2018b). RR-C is accessible from the Raging River until the gradient barrier and long culvert conveying Steam RR-D.		
Habitat	Stream RR-C provides little habitat. The channel is lined with geotextile fabric, is incised at the outlet, and is seasonal in nature.		
Riparian/Buffer Condition	Dominant buffer species include: mature Sitka spruce and western red cedar with lesser amounts of big leaf maple, vine maple, and western swordfern. Associated wetland vegetation includes red alder, Sitka spruce, salmonberry, common ladyfern, and horsetail. Buffer width on the west side of the stream is narrow due to presence of SR 18; however, the east bank buffer is more intact.		

Table 57. Stream RR-D Summary

STREAM RR-D - INFORMATION SUMMARY			
Stream Name	Unnamed stream—Stream RR-D		
		**WRIA ID #**	07-0384
		Jurisdiction for Portion of Stream in Study Area	King County
		King County/ WDNR Stream Type	Type N/N
		King County Buffer Width	65 feet
Location of Stream Relative to Project	Stream RR-D is a channelized ditch immediately adjacent to SR 18 eastbound lanes near MP 26.		
Connectivity (where stream flows from/to)	The stream has intermittant flows originating from wetlands and tributaries uphill and east of SR 18. The stream flows northward to almost the Raging River, where it enters a long culvert. It then discharges onto the hillside and forms Stream RR-C. The ditched channel is 2 to 3 feet wide and was clearly excavated to collect and convey hillside flow. Four short tributaries were identified on the west-facing hillslope above the stream.		
Fish Presence	The stream discharges via a hanging culvert on a slope. No fish access is possible.		
Habitat	The creek is channelized along the roadside of westbound SR 18. It lacks habitat features and the bed is mostly silt. Trash has accumulated in the stream. Overhanging deciduous shrubs provide some organic matter and shade.		
Riparian/Buffer Condition	The east buffer is undisturbed forested upland. The west side is pavement of SR 18.		

Table 58. Deep Creek (Stream DC-A) Summary

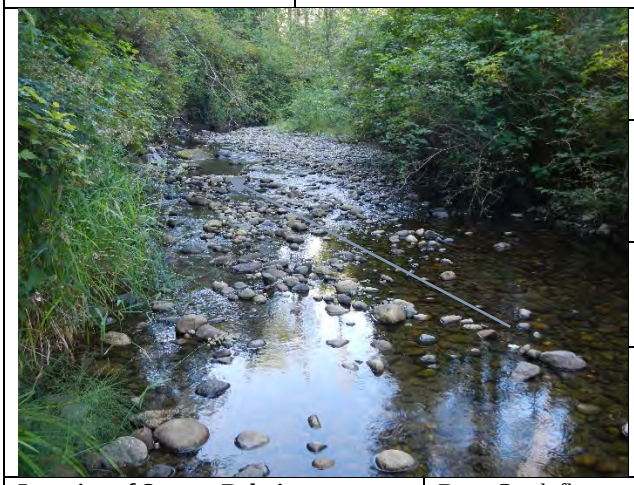
DEEP CREEK/STREAM DC-A - INFORMATION SUMMARY			
Stream Name	Deep Creek—Stream DC-A		
		**WRIA ID #**	07-0396
		Jurisdiction for Portion of Stream in Study Area	King County/WDNR
		WDNR Stream Type	Type S
		King County Buffer Width	165 feet
Location of Stream Relative to Project	Deep Creek flows southeast to northwest through a culvert beneath SR 18 approximately 2.2 miles south of the SR 18/I-90 interchange near the southern terminus of the study area. Deep Creek is a LB tributary to the Raging River.		
Connectivity (where stream flows from/to)	Deep Creek originates on the north slopes of Taylor Mountain and flows north approximately 0.8 mile to the south side of SR 18, and then flows northeasterly for an additional 1.7 miles, where it turns due north flowing beneath SR 18 for an additional 0.9 mile where it joins the left bank of the raging River at RM 7.4. The drainage basin upstream of the SR 18 crossing is approximately 4.5 square miles.		
Fish Presence	Deep Creek is known to support fall Chinook salmon, coho salmon, and both summer-run and winter-run steelhead. Numerous juvenile coho were observed upstream of SR 18 during field studies conducted in August 2018.		
Habitat	Habitat upstream of the culvert under SR 18 can typically be characterized as moderate gradient riffle habitat with large quantities of bedload material built up at the culvert inlet. Substrates are dominated by cobble and large gravel with a high level of embeddedness with sand and silt. Several LWM jams are present upstream, contributing to habitat complexity. Downstream of the culvert a large scour/plunge pool has formed, with an approximate 2-foot to 3-foot drop from the culvert outlet to the water surface elevation during low flow condition. Downstream of the scour pool, the stream is characterized by riffle/pool complexes. Substrates are dominated by cobble and large gravel with some interspersion of boulders. LWM is present; however, the majority of key pieces are old with little or no recent LWM recruitment. Moderate amounts of bank undercutting and erosion are present.		
Riparian/Buffer Condition	Riparian vegetation is generally intact. Buffer vegetation consists of mature forested vegetation dominated by red alder, black cottonwood, western hemlock, Douglas-fir, Sitka spruce, bigleaf maple, and western red cedar with an understory of salmonberry, osoberry *(Oemleria cerasiformis)*, vine maple, stink currant, red elderberry, red osier dogwood, and western swordfern.		

Table 59. Stream DC-B Summary

STREAM DC-B - INFORMATION SUMMARY			
Stream Name	Unnamed stream—Stream DC-B		
		**WRIA ID #**	07-0396
		Jurisdiction for Portion of Stream in Study Area	King County/WDNR
		King County/ WDNR Stream Type	Type N/N
		King County Buffer Width	65 feet
Location of Stream Relative to Project	Stream DC-B is located to the west of SR 18 near Deep Creek. Stream DC-B directly abuts the south slope of Wetland DC-03.		
Connectivity (where stream flows from/to)	The stream originates from hillside seepage that is assumed to flow seasonally. The channel is approximately 3 feet wide and flows from south to north down a steep slope before discharging into Wetland DC-03 at the toe of the hillslope. Wetland DC-03, a sloped wetland, drains to Deep Creek just outside of the study area.		
Fish Presence	Stream DC-B is a steep stream that discharges into Wetland DC-03. Within Wetland DC-03, there is no defined or continuous channel, which is assumed to limit fish access from Deep Creek into Stream DC-B.		
Habitat	The stream channel is eroded and steep. Substrates include small and large cobbles. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, limited amounts of woody debris, and shade.		
Riparian/Buffer Condition	The buffer is undisturbed forested upland. Vegetation includes red alder, western red cedar, salmonberry, stink currant, sword fern, and common ladyfern.		

Table 60. Stream DC-C Summary

DC-C - INFORMATION SUMMARY			
Stream Name	Unnamed stream—DC-C		
		**WRIA ID #**	07-0396
		Jurisdiction for Portion of Stream in Study Area	King County
		King County/ WDNR Stream Type	Type N/seasonal
		King County Buffer Width	65 feet
Location of Stream Relative to Project	The stream is located directly below and adjacent to SR 18 westbound lanes at the toe of slope. Stream DC-C flows from Wetland DC-06 to Wetland DC-03.		
Connectivity (where stream flows from/to)	Stream DC-C has seasonal flows originating from hillside seeps and roadway runoff from SR 18. The channel is approximately 4 to 8 feet wide and appears to have been excavated, possibly for an old road. The channel has a sorted gravel bottom and has not been maintained for a very long time. The creek flows subsurface from Wetland DC-06, parallels westbound SR 18, flowing north down a moderate and then steep slope before discharging into Wetland DC-03 at the base of road fill prism, and eventually discharges to Deep Creek. Stream DC-C extends uphill to the south and out of the study area.		
Fish Presence	Stream DC-C is a steep stream that discharges into Wetland DC-03. Within Wetland DC-03 there is no defined or continuous channel, which is assumed to limit fish access from Deep Creek into Stream DC-C.		
Habitat	The creek is channelized along the toe of slope of westbound SR 18. It lacks riffle/pool complexes and channel migration or meanders. Substrates are small and large cobble and gravel. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, limited amounts of woody debris, and shade.		
Riparian/Buffer Condition	The west buffer is undisturbed forested upland. The east side is the road prism of SR 18, where the lower slope is forested and the upper portions are mowed and disturbed by road maintenance activities.		

Table 61. Stream DC-D Summary

STREAM DC-D - INFORMATION SUMMARY			
Stream Name	Unnamed stream—Stream DC-D		
		**WRIA ID #**	07-0396
		Jurisdiction for Portion of Stream in Study Area	King County/WDNR
		WDNR Stream Type	Assumed type F, perennial
		King County Buffer Width	165 feet
Location of Stream Relative to Project	Stream DC-D enters the LB of Deep Creek approximately 75 feet upstream of the SR 18 crossing of Deep Creek.		
Connectivity (where stream flows from/to)	Stream DC-D originates in wetland areas (Wetland DC-01) at the base of the slope on the south side of SR 18 between the main stem of Deep Creek and SR 18.		
Fish Presence	No salmonids are documented in this small unnamed tributary to Deep Creek, and habitat conditions likely limit use by salmonids; however, due to its connection to Deep Creek and lack of barriers, fish presence is assumed.		
Habitat	The stream is low gradient and largely fed by groundwater inputs from adjacent wetlands. Flow is likely perennial; however, the volume of flow appears to be fairly low. It lacks riffle/pool complexes and slow glide habitat is dominant. Overhanging shrubs contribute organic matter, small amounts of woody debris, and shade on both sides of the creek. Substrates are dominated by fines, including sand and silt with sporadic patches of small gravel.		
Riparian/Buffer Condition	Riparian width on the north side of the stream is approximately 75 to 100 feet wide and transitions from wetland vegetation in proximity to the stream (salmonberry, American skunk-cabbage, common lady fern, fringe cup, and horsetail) to mixed coniferous/deciduous forest on the slope leading up to SR 18. Forest vegetation consists of Sitka spruce, western red cedar, red alder and bigleaf maple with an understory of vine maple, western swordfern, salmonberry, and cascara buckthorn. The riparian habitat is similar on the south side of the stream; however, the riparian habitat is uninterrupted.		

Table 62. Stream DC-E Summary

STREAM DC-E - INFORMATION SUMMARY			
Stream Name	Unnamed stream—Stream DC-E		
		**WRIA ID #**	07-0396
		Jurisdiction for Portion of Stream in Study Area	King County
		WDNR Stream Type	Type F assumed, seasonal
		King County Buffer Width	165 feet
Location of Stream Relative to Project	The stream is located directly adjacent to SR 18 eastbound lanes at toe of slope. Stream DC-E is a tributary to Deep Creek and enters the RB of Deep Creek approximately 50 feet upstream of the Deep Creek Crossing of SR 18.		
Connectivity (where stream flows from/to)	The creek has seasonal flows originating from two sources. Surface water flows out of a wetland east of SR 18 and contributes flows to this creek. A second hydrologic input is roadway runoff from SR 18 that discharges to Stream DC-E. The creek parallels eastbound SR 18 flowing south and empties into Deep Creek just upstream of the Deep Creek culvert under SR 18 (Figure 8; Appendix A). The lower 35 to 40 feet of stream is contained within an approximate 18-inch diameter corrugated metal pipe culvert.		
Fish Presence	No fish were observed within the fairly short section of stream that contained perennial flow above the confluence with Deep Creek; however, given that Deep Creek does support salmonid use and the fact that the culvert does not appear to be a complete blockage, it is likely that under some flow conditions, salmonids may have access to Stream DC-E.		
Habitat	The creek is generally channelized at the toe of slope of eastbound SR 18. It lacks riffle/pool complexes and channel migration or meanders. Substrates are small cobble and gravel in the lower reach that transitions into patchy areas of small/large gravel and areas of bare soil. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, limited amounts of woody debris, and shade.		
Riparian/Buffer Condition	Riparian vegetation is generally intact on the east side of Stream DC-E and consists of mature forested vegetation in wetlands east of SR 18.		

Table 63. Stream DC-F Summary

STREAM DC-F - INFORMATION SUMMARY			
Stream Name	Unnamed stream—Stream DC-F		
		**WRIA ID #**	07-0396
		Jurisdiction for Portion of Stream in Study Area	King County
		WDNR Stream Type	Type N, seasonal
		King County Buffer Width	65 feet
Location of Stream Relative to Project	The stream originates directly adjacent to SR 18 westbound lanes at toe of slope in Wetland DC-07. Stream DC-F is a tributary to Deep Creek and enters Deep Creek off site.		
Connectivity (where stream flows from/to)	The creek has seasonal flows originating from two sources. Surface water flows out of Wetland DC-07 west of SR 18 contributes flows to this creek. A second hydrologic input is roadway runoff from SR 18 that discharges to Stream DC-F. The creek parallels westbound SR 18 flowing north, through a culvert under SR 18, through Wetland DC-08 and is assumed to empty into Deep Creek outside of the project area (Figure 8; Appendix A).		
Fish Presence	WDFW habitat survey upstream and downstream of culvert conveying Stream DC-F notes non fish bearing due to physical barrier of scour both upstream and downstream of the culvert (2019). No signs of fish presence during field visit.		
Habitat	The creek is 3-feet wide and generally channelized at the toe of slope of eastbound SR 18. It lacks riffle/pool complexes and channel migration or meanders. Substrates are small cobble and gravel in the lower reach that transitions into patchy areas of small/large gravel and areas of bare soil. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, limited amounts of woody debris, and shade.		
Riparian/Buffer Condition	Riparian vegetation is generally intact on the east side of Stream DC-F and consists of mature forested vegetation and wetland vegetation east and west of SR 18.		

Chapter 5. Sensitive Plants, Fish and Wildlife

An individual Biological Assessment (BA), *I-90/SR 18 Interchange to Deep Creek – Widening and Interchange Improvements Biological Assessment (2019)*, has been completed as part of this project to address project area Endangered Species Act (ESA)-listed species and species protected by Essential Fish Habitat (EFH) under the Magnuson-Stevens Fisheries Conservation and Management Act.

Plants

The WDNR Natural Heritage Information System has no record of any rare plants or high quality ecosystems in the study area (2019). State or federally listed plant species were not identified in the field during the wetland study.

Wildlife and Priority Habitat Species

Three species of fish that are listed under the ESA have been documented in the study area (Table 64). Chinook salmon from the Puget Sound evolutionarily significant unit (ESU) and steelhead from the Puget Sound distinct population segment (DPS) have been documented in the study area in Lake Creek, Raging River, and Deep Creek (WDFW 2018a, 2018b). Bull trout are known to occur in the Snoqualmie River watershed and are presumed to occur within Deep Creek, the Raging River, and Lake Creek (WDFW 2018a). Critical habitat for Puget Sound Chinook salmon has been designated in both the Raging River and Deep Creek within the study area. Critical habitat for Puget Sound steelhead has been designated in Deep Creek, the Raging River, and Lake Creek within the study area. The study area does not include any critical habitat for bull trout.

ESA-listed terrestrial wildlife species potentially occurring within the project vicinity include marbled murrelet, northern spotted owl, and yellow-billed cuckoo.

Table 64. Federally Listed Species Documented or Potentially Occurring within the Project Area.

Common Name	Scientific Name	ESA Status[a]	Occurrence	Critical Habitat
Bull trout	*Salvelinus confluentus*	Threatened	Documented	Designated
Marbled murrelet	*Brachyramphus marmoratus*	Threatened	Potential	Designated
Northern spotted owl	*Strix occidentalis caurina*	Threatened	Potential	Designated
Puget Sound ESU Chinook salmon	*Oncorhynchus tshawytscha*	Threatened	Documented	Designated
Puget Sound DPS steelhead	*Oncorhynchus mykiss*	Threatened	Documented	Designated
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened	Potential	Designated

[a] USFWS 2018 and NOAA 2020

Western toad, a Washington state candidate species, was observed during wetland and stream investigations along Stream LC-B and within Wetlands LC-27 and LC-28. They are also documented beyond the study area in Echo Lake (WDFW 2018b, 2018c).

The WDFW Priority Habitats and Species Information shows that Green/Cedar River winter elk range is documented within the southeast quadrant of the project and that wetlands are present adjacent to and near the study area (WDFW 2018b).

None of the wetlands in the project occur in a section, township, and range identified by the WDNR Natural Heritage Program to contain Natural Heritage Features associated with wetlands (WDNR 2018b); however, Wetland LC-04 contains mature forested habitat according to the Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014).

Priority Habitats

All wetlands, by definition, are Priority aquatic habitats. Several wetlands meet the definition of riparian habitat and portions of some wetlands meet the definition of instream habitat, as described by WDFW PHS Program (WDFW 2008).

Special aquatic sites

Pool and riffle development is present throughout the study area of Raging River and the wetlands provide fine sediment that may be suitable for spawning. Both upstream and downstream sections of Deep Creek include several large logjams with multiple pieces of large woody material (LWM), which increases habitat complexity. The Raging River has several boulders but no LWM present. LWM is absent in Lake Creek within the study area, largely due to the presence of two well-established beaver dams. Small woody debris is present in some of the tributaries to Lake Creek, the Raging River, and Deep Creek.

References

BLM (Bureau of Land Management). 2012. Watershed Boundaries Washington HUC 5th Level. Portland (OR). [Accessed from WSDOT Environmental Workbench 2012 Nov 7].

Brinson, M. 1993. A Hydrogeomorphic Classification for Wetlands. Wetlands Research Program Technical Report WRP-DE-4. United States Army Corps of Engineers Waterways Experiment Station.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Publication #FWS/OBS-79/31. United States Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

Ecology (Washington State Department of Ecology). 2000. Water Resource Inventory Areas. Olympia (WA). [Accessed from WSDOT Environmental Workbench September 2019].

Ecology. 2019. Washington State Water Quality Atlas. Accessed September 2019. https://fortress.wa.gov/ecy/waterqualityatlas/map.aspx

Environmental Laboratory. 1987. Environmental Laboratory, Department of the Army, Waterways Experiment Station. Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1. Vicksburg, Mississippi.

FGDC. 2013. Federal Geographic Data Committee. Classification of Wetlands and Deepwater Habitats of the United States. Adapted from Cowardin, Carter, Gotlet and LaRoe (1979). Wetlands Subcommittee FGDC. August 2013. http://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States-2013.pdf

Franklin JT, Dyrness CT. 1988. Natural Vegetation of Oregon and Washington. Corvallis (OR): Oregon State University Press.

Hruby, T. 2014. Washington State Wetland Rating System for Western Washington. 2014 Update. Washington State Department of Ecology Publication # 04-06-15. Available online at: http://www.ecy.wa.gov/pubs/0406025.pdf.

KCC. 2020. King County Code. Chapter 21A.24 Critical Areas. Available May 2020 at: http://aqua.kingcounty.gov/council/clerk/code/24-30_Title_21A.htm#_Toc397073376

Corps. 2018. National Wetland Plant List, version 3.4. U.S. Army Corps of Engineers Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover, NH Available at: http://wetland-plants.usace.army.mil/

NOAA. 2020. National Oceanic and Atmospheric Administration Fisheries, Species Directory ESA Threatened and Endangered Status of West Coast Salmon and Steelhead. Accessed June 2020 at: https://www.fisheries.noaa.gov/species-directory/threatened-endangered l

NOAA. 2012. National Oceanic and Atmospheric Administration. NOAA Satellite and Information Center. National Climatic Data Center. COOP Select From. Station: Landsburg 454486. [cited 2012 Nov 13]. Available from: https://www.ncdc.noaa.gov/data-access/land-based-station-data/land-based-datasets/cooperative-observer-network-coop

Stockdale, E., P. Anderson, S. Meyer, and P. Olson. 2016. Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State. Washington Department of Ecology Publication No: 16-06-029. Olympia, Washington.

Corps. 2010. United States Army Corps of Engineers. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountain, Valley, and Coast Region (Version 2.0), ed. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-13. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USDA, NRCS. 2002. Natural Resources Conservation Service. National Water and Climate Center [updated 2002 Sep 10]. WETS Station: Landsburg, WA4486. [cited 2012 Nov 13]. Available from: http://www.wcc.nrcs.usda.gov/ftpref/support/climate/wetlands/wa/53033.txt

USDA, NRCS. 2019a. Web Soil Survey. Custom Soil Report for Snoqualmie, Washington. Created September 2019.

USDA, NRCS. 2019b. WETS Landsburg weather station in Snoqualmie, WA. Latitude: 47.3766 Longitude: -121.9613. Located in FIPS/County: 53033. Accessed September 2019 at: http://agacis.rccacis.org/53061/wets

USDA, NRCS. 2018. Field Indicators of Hydric Soils in the United States. A Guide for Identifying and Delineating Hydric Soils, Version 8.2. L.M. Vasilas, G.W. Hurt and J.F. Berkowitz (eds.) USDA, NCRS in cooperation with the National Technical Committee for Hydric Soils. Available at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/

USDA, NRCS. 2012. Field Book for Describing and Sampling Soils, Version 3.0. National Soil Survey Center. Accessed May 14, 2018 at: http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052523.pdf

USDA, USFS, USDI, BLM (U.S. Department of Agriculture, U.S. Forest Service, U.S. Department of the Interior, Bureau of Land Management). 1994. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl. Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species

Within the Range of the Northern Spotted Owl. Attachment A, Section C, Standards and Guidelines, Riparian Reserves. p. C-30–C-31. Available at: http://www.reo.gov/library/reports/newsandga.pdf.

USFWS. 2014. National Wetlands Inventory. Accessed September 2019 with ESRI ArcMap 10.6.1

WAC 77.55.011. Definitions. Accessed June 2020 at: https://app.leg.wa.gov/RCW/default.aspx?cite=77.55.011

WAC 220-660. Hydraulic Code Rules. Accessed June 2020 at: https://app.leg.wa.gov/WAC/default.aspx?cite=220-660

WDFW (Washington Department of Fish and Wildlife). 2018a. SalmonScape fish database and mapping application. Available at: http://apps.wdfw.wa.gov/salmonscape/

WDFW. 2018b. PHS on the Web: An interactive map of WDFW priority habitats and species information for project review. Available at: http://wdfw.wa.gov/mapping/phs/.

WDFW. 2016. Fish Passage and Diversion Screening Inventory Database. Accessed September 2019 at: https://geodataservices.wdfw.wa.gov/hp/fishpassage/index.html

WDFW. 2013. Barnard, R. J., J. Johnson, P. Brooks, K.M. Bates, B. Heiner, J.P. Klavas, D.C. Ponder, P.D. Smith, and P. D. Powers. Water Crossing Design Guidelines. Available at: http://wdfw.wa.gov/hab/ahg/culverts.htm

WDFW. 2008. Priority Habitat and Species List. State of Washington. August 2008, updated January 2019. Accessed September 2019 at: http://wdfw.wa.gov/publications/00165/wdfw00165.pdf

WDNR. 2013. Washington Department of Natural Resources. Chapter 222-16 WAC Definitions: Water typing system (WAC 222-16-030) and Riparian Management Zone. Accessed June 2020 at: https://www.dnr.wa.gov/publications/fp_rules_ch222-16wac.pdf?ko7ffe

WDNR (Washington State Department of Natural Resources). 2018. Forest Practices Application Mapping Tool. Available at: https://fpamt.dnr.wa.gov/default.aspx.

WSDOT. 2019. Washington State Department of Transportation. Environmental Manual. Publication Number M 31-11.21.

WSDOT. 2013. I-90/SR 18 Interchange – Westbound Flyover Ramp Wetland and Stream Assessment Report. Olympia, WA.

WSDOT. 2008. WSDOT Guidance on Wetland Buffers Across Roadways. May 16, 2008. http://www.wsdot.wa.gov/NR/rdonlyres/83C22B1F-8102-4087-8568-7D82C4DE3C95/0/Wet_BufferAcrossRdway.pdf

Appendix A. Wetland and Stream Locations

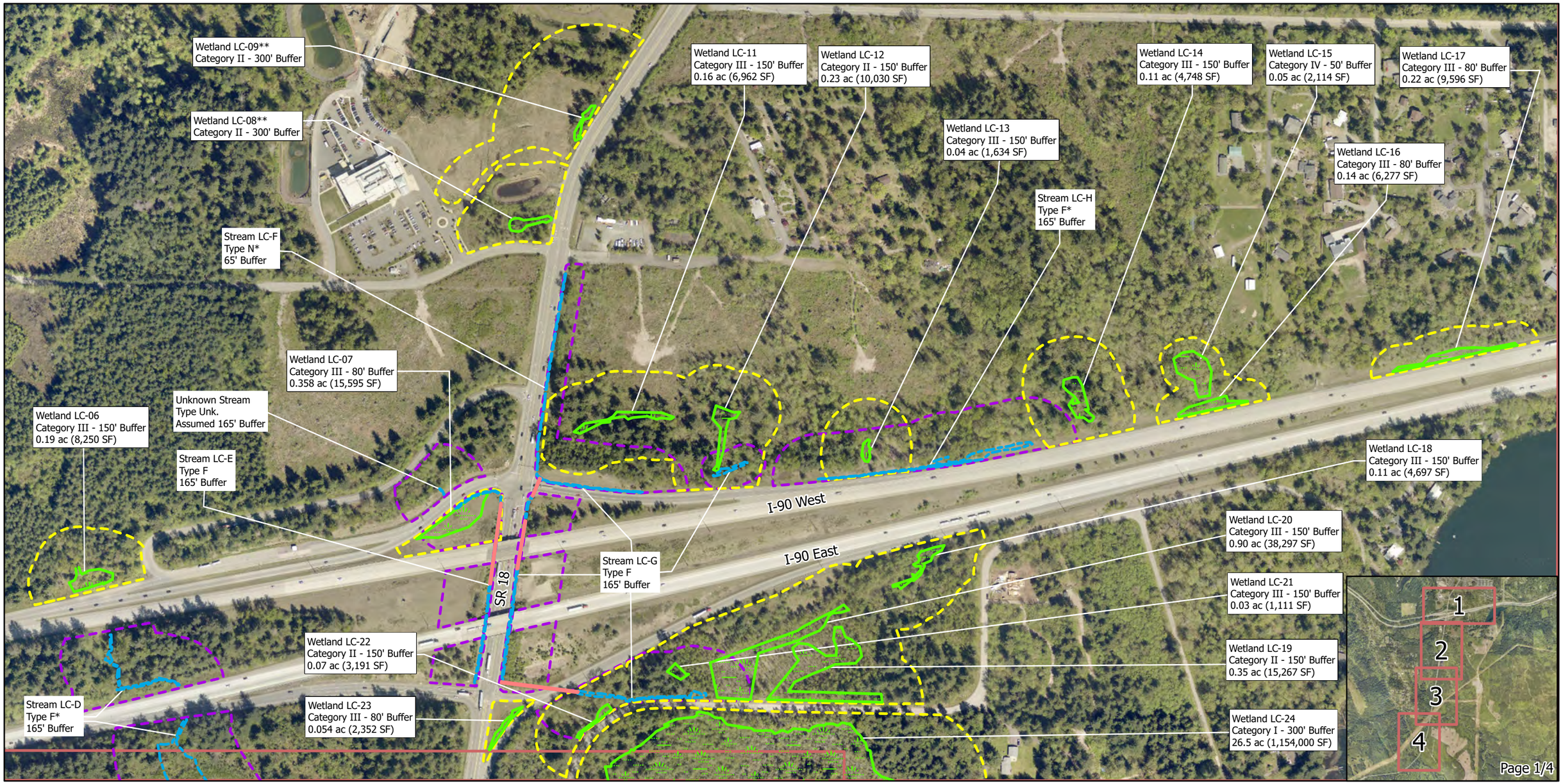


FIGURE 1 - EXISTING CONDITIONS MAP

I-90 / SR 18 INTERCHANGE TO DEEP CREEK

[INTERCHANGE IMPROVEMENTS & WIDENING PROJECT]

KING COUNTY, WA

LEGEND

- Wetland Boundary
- Wetland Area
- Wetland Buffer
- OHWM
- King County Stream Buffer
- Piped Stream
- Page Boundaries

0 250 500 1,000 Feet

Note:
ac = acres
SF = square feet
* Assumed (i.e., not mapped and not investigated for fish presence)
** Ratings based on King County Critical Areas Map information. Wetlands were not delineated due to access restrictions. Buffer width assumed based on the listed rating.

Data Sources:
Date: 1/17/2022

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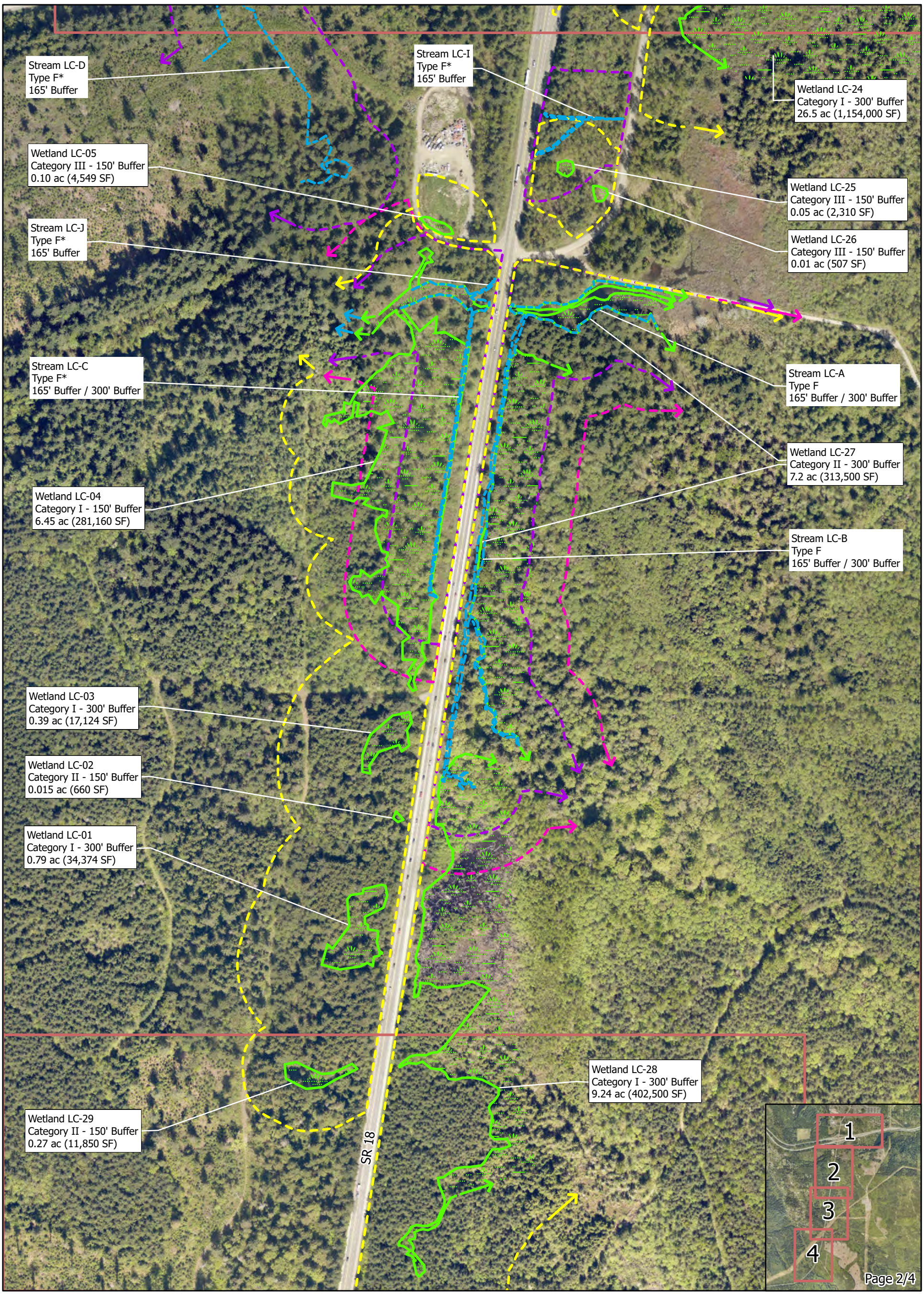

FIGURE 1 - EXISTING CONDITIONS MAP

I-90 / SR 18 INTERCHANGE TO DEEP CREEK

[INTERCHANGE IMPROVEMENTS & WIDENING PROJECT]

KING COUNTY, WA

0 250 500 1,000 Feet

LEGEND

- Wetland Boundary
- Wetland Area
- Wetland Buffer
- OHWM
- King County Stream Buffer
- USFS Stream Buffer
- OHWM Continues Off-Site
- King County Stream Buffer Continues Off-Site
- USFS Stream Buffer Continues Off-Site
- Wetland Continues Off-Site
- Wetland Buffer Continues Off-Site
- Page Boundaries

Note:
ac = acres
SF = square feet
* Assumed (i.e., not mapped and not investigated for fish presence)

Data Sources:
Date: 1/17/2022
Disclaimer: This data is not to survey accuracy and is meant for planning purposes only.

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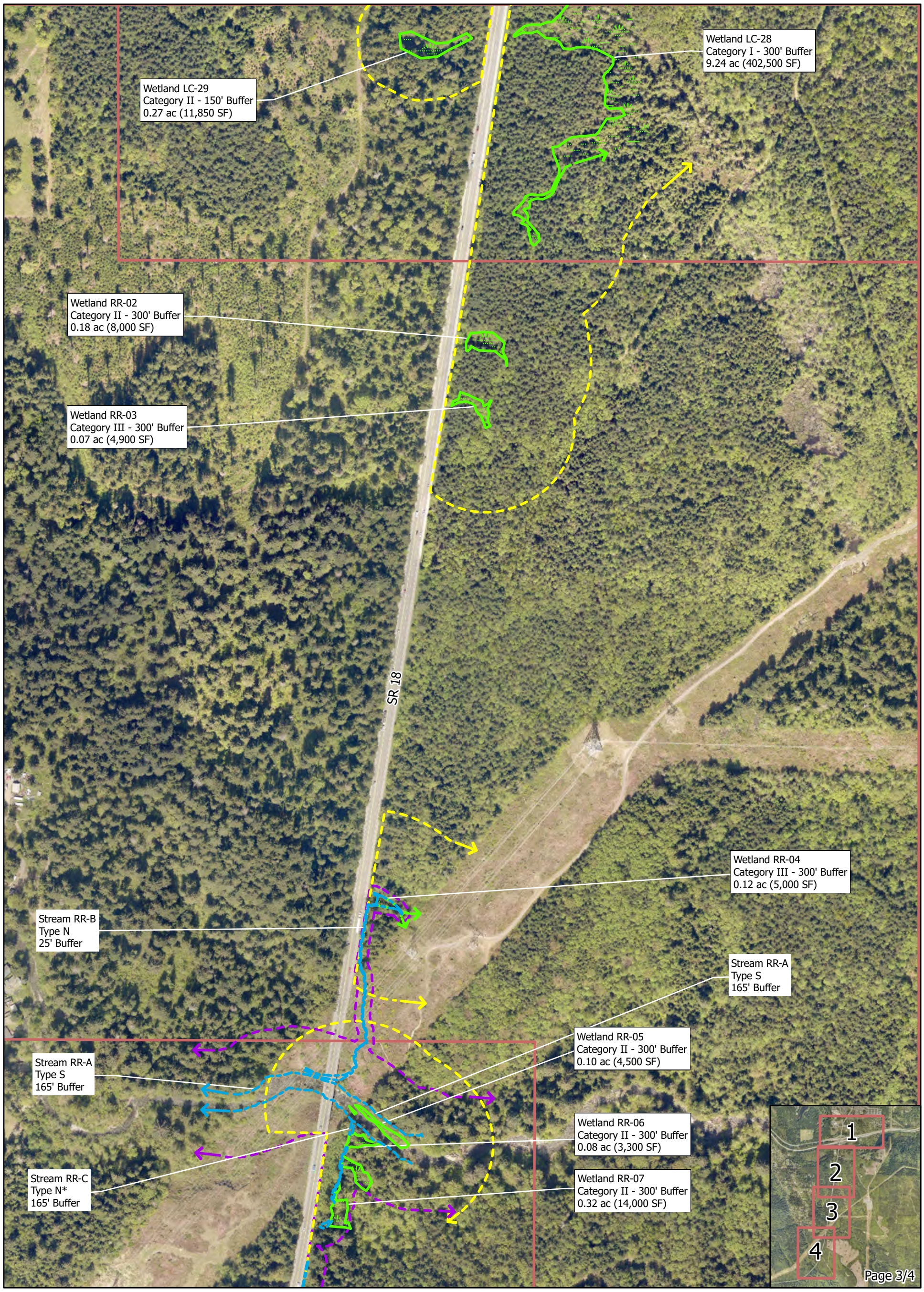

FIGURE 1 - EXISTING CONDITIONS MAP

I-90 / SR 18 INTERCHANGE TO DEEP CREEK

[INTERCHANGE IMPROVEMENTS & WIDENING PROJECT]

KING COUNTY, WA

LEGEND

- Wetland Boundary
- Wetland Area
- Wetland Buffer
- OHWM
- King County Stream Buffer
- OHWM Continues Off-Site
- King County Stream Buffer Continues Off-Site
- Wetland Continues Off-Site
- Wetland Buffer Continues Off-Site
- Page Boundaries

0 250 500 1,000 Feet

N

Note:
ac = acres
SF = square feet
* Assumed (i.e., not mapped and not investigated for fish presence)

Data Sources:
Date: 1/17/2022
Disclaimer: This data is not to survey accuracy and is meant for planning purposes only.

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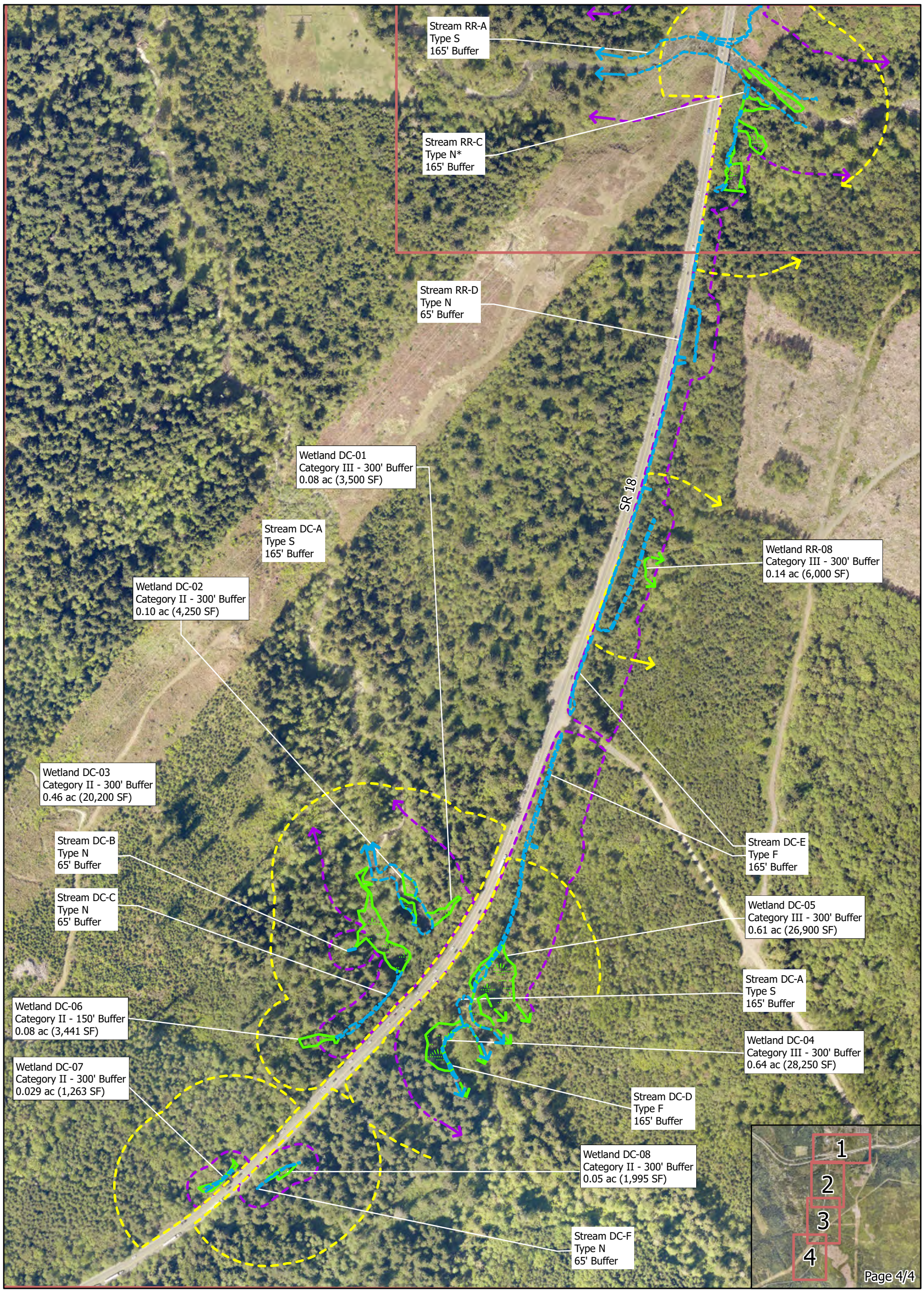

FIGURE 1 - EXISTING CONDITIONS MAP

I-90 / SR 18 INTERCHANGE TO DEEP CREEK

[INTERCHANGE IMPROVEMENTS & WIDENING PROJECT]

KING COUNTY, WA

LEGEND

- Wetland Boundary
- Wetland Area
- Wetland Buffer
- OHWM
- King County Stream Buffer
- OHWM Continues Off-Site
- King County Stream Buffer Continues Off-Site
- Wetland Continues Off-Site
- Wetland Buffer Continues Off-Site
- Page Boundaries

0 250 500 1,000 Feet

N

Note:
ac = acres
SF = square feet
* Assumed (i.e., not mapped and not investigated for fish presence)

Data Sources:
Date: 1/17/2022
Disclaimer: This data is not to survey accuracy and is meant for planning purposes only.

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Appendix B. Precipitation Data

Monthly Precipitation data prior to October 31, 2011 at the Landsburg Weather Station

Long-term rainfall records[a]				**Recent rainfall records[b]**				
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value	Product of Condition*Weight
Oct	2.95	4.79	5.73	6.81	Wet	3	3	9
Sept	1.08	2.70	3.28	2.00	Normal	2	2	4
Aug	0.89	1.63	1.98	0.64	Dry	1	1	1
							Sum	**14**

a. NRCS 2002.

b. NOAA 2012.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2
15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Normal* precipitation conditions were present prior to the field visits in October, 2011.

Precipitation for October, 2011

Date (2011)	Daily Precipitation (inches)[a]
Oct 30	0.53
Oct 29	0.00
Oct 28	0.62
Oct 27	0.00
Oct 26	0.04
Oct 25	0.00
Oct 24	0.29
Oct 23	0.00
Oct 22	0.87
Oct 21	0.23

[a]NOAA 2012

Monthly Precipitation data prior to September 18, 2012 at the Landsburg Weather Station

Long-term rainfall records[a]				Recent rainfall records[b]				
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value	Product of Condition*Weight
Aug	0.89	1.63	1.98	0.06	Dry	1	3	3
Jul	0.81	1.62	1.99	1.22	Normal	2	2	4
Jun	1.99	3.11	3.75	5.85	Wet	3	1	3
							Sum	**10**

a. NRCS 2002.

b. NOAA 2012.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2
15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Normal* precipitation conditions were present prior to the field visits in September, 2012.

Precipitation for September, 2012

Date (2012)	Daily Precipitation (inches)[a]
Sept 17	0.00
Sept 16	0.00
Sept 15	0.00
Sept 14	0.00
Sept 13	0.00
Sept 12	0.00
Sept 11	0.00
Sept 10	0.17
Sept 9	0.06
Sept 8	0.00

[a]NOAA 2012

Monthly Precipitation data prior to October 1 and 3, 2012 at the Landsburg Weather Station

Long-term rainfall records[a]				Recent rainfall records[b]			
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value
Sept	1.08	2.70	3.28	0.35	Dry	1	3
Aug	0.89	1.63	1.98	0.06	Dry	1	2
July	0.81	1.62	1.99	1.22	Normal	2	1
							Sum

a. NRCS 2002.

b. NOAA 2012.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2
15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Drier than Normal* precipitation conditions were present prior to the field visits in October 1 and 3, 2012.

Precipitation for October and September, 2012

Date (2012)	Daily Precipitation (inches)[a]
Oct 2	0.00
Oct 1	0.00
Sept 30	0.00
Sept 29	0.00
Sept 28	0.00
Sept 27	0.00
Sept 26	0.00
Sept 25	0.00
Sept 24	0.00
Sept 23	0.00
Sept 22	0.03
Sept 21	0.04

[a]NOAA 2012

Monthly Precipitation data prior to October 22 and November 19, 2012 at the Landsburg Weather Station

Long-term rainfall records[a]				Recent rainfall records[b]			
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value
Oct	2.95	4.79	5.73	6.72	Wet	3	3
Sept	1.08	2.70	3.28	0.16	Dry	1	2
Aug	0.89	1.63	1.98	0.02	Dry	1	1
						Sum	

a. NRCS 2002.

b. NOAA 2012.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2
15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Normal* precipitation conditions were present prior to the field visits in October 22 and November 19, 2012.

Precipitation for October, 2012

Date (2012)	Daily Precipitation (inches)[a]
Oct 21	0.04
Oct 20	0.05
Oct 19	0.42
Oct 18	0.63
Oct 17	0.00
Oct 16	0.00
Oct 15	0.39
Oct 14	0.51
Oct 13	0.24
Oct 12	0.14

[a]NOAA 2012

Precipitation for November, 2012

Date (2012)	Daily Precipitation (inches)[a]
Nov 18	0.20
Nov 17	0.37
Nov 16	0.06
Nov 15	0.01
Nov 14	0.10
Nov 13	0.21
Nov 12	0.22
Nov 11	0.62
Nov 10	0.00
Nov 9	0.00

[a]NOAA 2012

Monthly Precipitation data prior to August, 2018 at the Landsburg Weather Station

Long-term rainfall records[a]				**Recent rainfall records[b]**				
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value	Product of Condition*Weight
July	0.63	1.37	1.65	0.38	Dry	1	3	3
June	1.97	3.10	3.74	0.93	Dry	1	2	2
May	2.38	3.77	4.46	1.03	Dry	1	1	1
							Sum	**6**

a. NRCS 1971-2018.

b. NRCS 2019b.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2
15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Drier than Normal* precipitation conditions were present prior to the field visits in August, 2018.

Precipitation for August 2018

Date (2018)	Daily Precipitation (inches)
1-Aug	0
2-Aug	0.3
3-Aug	0.12
4-Aug	0
5-Aug	0
6-Aug	0
7-Aug	0
8-Aug	0
9-Aug	0
10-Aug	0
11-Aug	0.26
12-Aug	0.03
13-Aug*	0
14-Aug*	0
15-Aug*	0
16-Aug	0
17-Aug	0
18-Aug	0
19-Aug	0
20-Aug	0
21-Aug	0
22-Aug*	0
23-Aug	0
24-Aug	0.04
25-Aug	0
26-Aug	0.24
27-Aug*	0.07
28-Aug*	0
29-Aug	0
30-Aug	0.04
31-Aug	0.03

*Date of Site Visit

Conclusions: The period prior to the August 2018 delineations has been normal.

Monthly Precipitation data prior to September 1, 2018 at the Landsburg Weather Station

Long-term rainfall records[a]				Recent rainfall records[b]				
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value	Product of Condition*Weight
August	0.92	1.76	2.15	0.86	Dry	1	3	3
July	0.63	1.37	1.65	0.38	Dry	1	2	2
June	1.97	3.10	3.74	0.93	Dry	1	1	1
							Sum	**6**

a. NRCS 1971-2018.

b. NRCS 2019b.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2
15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Drier than Normal* precipitation conditions were present prior to the field visits in September, 2018.

Precipitation for September 2018

Date (2018)	**Daily Precipitation (inches)**
1-Sep	0
2-Sep	0
3-Sep	0
4-Sep*	0
5-Sep	0
6-Sep	0
7-Sep	0.06
8-Sep	0
9-Sep	0.06
10-Sep	0.86
11-Sep*	0.36
12-Sep	0.26
13-Sep	0.24
14-Sep	0.11
15-Sep	0.08
16-Sep	0.81
17-Sep	0

18-Sep	0
19-Sep	0.16
20-Sep	0.16
21-Sep	0.1
22-Sep	0.51
23-Sep	0.06
24-Sep	0
25-Sep	0
26-Sep	0
27-Sep	0
28-Sep	0
29-Sep	0
30-Sep	0.02

*Date of Site Visit

Conclusions: The period prior to the September 4 and 11, 2018 delineations have been drier normal.

Monthly Precipitation data prior to October 1, 2018 at the Landsburg Weather Station

Long-term rainfall records[a]				**Recent rainfall records[b]**				
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value	Product of Condition*Weight
September	1.32	2.83	3.46	3.85	Wet	3	3	9
August	0.92	1.76	2.15	0.86	Dry	1	2	2
July	0.63	1.37	1.65	0.38	Dry	1	1	1
							Sum	**12**

a. NRCS 1971-2018.

b. NRCS 2019b.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2
15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Normal* precipitation conditions were present prior to the field visits in early October, 2018.

Precipitation for October 2018

Date (2018)	Daily Precipitation (inches)
1-Oct	0.3
2-Oct	0.4
3-Oct	0
4-Oct*	0
5-Oct	0.7
6-Oct	M
7-Oct	0.03
8-Oct	0.35
9-Oct	0.58
10-Oct	0
11-Oct	0
12-Oct	0
13-Oct	0
14-Oct	0
15-Oct	0
16-Oct	0
17-Oct	0
18-Oct	0
19-Oct	0
20-Oct	0
21-Oct	0
22-Oct	0
23-Oct*	0
24-Oct*	0
25-Oct	0.48
26-Oct	0.98
27-Oct	0.7
28-Oct	M
29-Oct	M
30-Oct	M
31-Oct	M

*Date of Site Visit

Conclusions: The period prior to the October 4 2018 delineations has been normal. Note, the WETS analysis was conducted while missing precipitation data for October 29, 30, and 31, 2018; however, the missing precipitation for these dates is unlikely to change the condition and final conclusion.

Monthly Precipitation data prior to October 29, 2018 at the Landsburg Weather Station

Long-term rainfall records[a]				Recent rainfall records[b]				
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value	Product of Condition*Weight
October	3.41	5.25	6.32	4.52	Normal	2	3	6
September	1.32	2.83	3.46	3.85	Wet	2	2	4
August	0.92	1.76	2.15	0.86	Dry	1	1	1
							Sum	**11**

a. NRCS 1971-2018.

b. NRCS 2019b.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2
15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Normal* precipitation conditions were present prior to the field visits in late October, 2018.

Precipitation for October 2018

Date (2018)	**Daily Precipitation (inches)**
1-Oct	0.3
2-Oct	0.4
3-Oct	0
4-Oct*	0
5-Oct	0.7
6-Oct	M
7-Oct	0.03
8-Oct	0.35
9-Oct	0.58
10-Oct	0
11-Oct	0
12-Oct	0
13-Oct	0
14-Oct	0
15-Oct	0
16-Oct	0

17-Oct	0
18-Oct	0
19-Oct	0
20-Oct	0
21-Oct	0
22-Oct	0
23-Oct*	0
24-Oct*	0
25-Oct	0.48
26-Oct	0.98
27-Oct	0.7
28-Oct	M
29-Oct	M
30-Oct	M
31-Oct	M

*Date of Site Visit

Conclusions: The period prior to the October 23 and 24, 2018 site visits have been normal. Note, the WETS analysis was conducted while missing precipitation data for October 29, 30, and 31, 2018; however, the missing precipitation for these dates is unlikely to change the condition and final conclusion.

Monthly Precipitation data prior to June, 2019 at the Landsburg Weather Station

Long-term rainfall records[a]				**Recent rainfall records[b]**				
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value	Product of Condition*Weight
May	2.68	3.77	4.46	1.94	Dry	1	3	3
April	3.70	5	5.87	7.81	Wet	2	2	4
March	4.68	6.11	7.10	2.17	Dry	1	1	1
							Sum	**8**

a. NRCS 1971-2018.

b. NRCS 2019b.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2
15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Drier than Normal* precipitation conditions were present prior to the field visits in late June, 2019.

Precipitation for June 2019

Date (2019)	Daily Precipitation (inches)
1-Jun	0
2-Jun	0
3-Jun	0
4-Jun	0
5-Jun	0.02
6-Jun	0.13
7-Jun	0.47
8-Jun	0
9-Jun	0
10-Jun	0
11-Jun	0
12-Jun	0
13-Jun*	0
14-Jun	0
15-Jun	0
16-Jun	0
17-Jun	0
18-Jun	0.30
19-Jun	0.48
20-Jun*	0.25
21-Jun*	0
22-Jun	0
23-Jun	0.13
24-Jun	0.08
25-Jun	0.00
26-Jun	0.17
27-Jun	0.67
28-Jun	0

29-Jun	0
30-Jun	0

*Date of Site Visit

Conclusions: The period prior to the June 2019 site visits has been drier than normal.

Monthly Precipitation data prior to July, 2019 at the Landsburg Weather Station

Long-term rainfall records[a]				Recent rainfall records[b]				
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value	Product of Condition*Weight
June	1.97	3.10	3.74	2.70	Normal	2	3	6
May	2.68	3.77	4.46	1.94	Dry	1	2	2
April	3.70	5.00	5.87	7.81	Wet	3	1	3
							Sum	**11**

a. NRCS 1971-2018.

b. NRCS 2019b.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2
15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Normal* precipitation conditions were present prior to the field visits in late June, 2019.

Precipitation for July 2019

Date (2019)	**Daily Precipitation (inches)**
1-Jul	0
2-Jul	0.17
3-Jul	0.21
4-Jul	0
5-Jul	0
6-Jul	0
7-Jul	0
8-Jul	0.03
9-Jul	0.19
10-Jul	0.55
11-Jul	0.03

12-Jul	0
13-Jul	0
14-Jul	0
15-Jul	0.15
16-Jul	0.02
17-Jul	0.38
18-Jul	0.29
19-Jul*	0.07
20-Jul	0
21-Jul	0
22-Jul*	0
23-Jul	0
24-Jul	0
25-Jul	0
26-Jul	0
27-Jul	0.04
28-Jul	0
29-Jul	0
30-Jul*	0
31-Jul	0

*Date of Site Visit

Conclusions: The period prior to the July 2019 site visits has been normal.

Monthly Precipitation data prior to August, 2019 at the Landsburg Weather Station

Long-term rainfall records[a]				**Recent rainfall records[b]**				
Month	3 yrs in 10 less than	Average	3 yrs in 10 more than	Rainfall	Conditions (Dry Wet Normal)	Condition Value	Month Weight Value	Product of Condition*Weight
July	0.63	1.37	1.65	2.13	Wet	3	3	9
June	1.97	3.10	3.74	2.70	Normal	2	2	4
May	2.68	3.77	4.46	1.94	Dry	1	1	1
							Sum	**14**

a. NRCS 1971-2018.

b. NRCS 2019b.

c. Conditions are considered normal if they fall within the low and high range around the average

Note: if the sum is	Condition value:
6-9 then period has been drier than normal	Dry (D) = 1
10-14 then period has been normal	Normal (N) = 2

15-18 then period has been wetter than normal	Wet (W) = 3

Conclusions: *Normal* precipitation conditions were present prior to the field visit in August, 2019.

Precipitation for August 2019

Date (2019)	Daily Precipitation (inches)
1-Aug	0
2-Aug	0.26
3-Aug	0
4-Aug	0
5-Aug	0
6-Aug	0
7-Aug	0
8-Aug	T
9-Aug	T
10-Aug	0.36
11-Aug	0.12
12-Aug	0
13-Aug	0
14-Aug	0
15-Aug	0
16-Aug	0
17-Aug	0
18-Aug	0
19-Aug	0
20-Aug	0
21-Aug	0.51
22-Aug	0.06
23-Aug	0
24-Aug	0
25-Aug	0
26-Aug	0
27-Aug	0
28-Aug	0
29-Aug	0.04

30-Aug	0.12
31-Aug	0

*Date of Site Visit
T = Trace

Conclusions: The period prior to the August 2019 site visit has been normal.

Appendix C. Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W1-SP1
Investigator(s): D.littauer, A. Gross Section, Township, Range: S11, T23N, R7E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): A Lat: 47.498 Long: -121.886 Datum: NAD 83 Harn
Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes**	☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐				
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	30	yes	FAC
2.			
3.			
4.			
50% = _____, 20% = _____	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	10	yes	FAC
2. *Vaccinium parvifolium*	15	yes	FACU
3.			
4.			
5.			
50% = 12.5, 20% = 5	25	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Lysichiton americanus*	10	yes	OBL
2. *Polystichum munitum*	4	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 7, 20% = 2.8	14	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 86

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Sphagnum moss present in some areas of the wetland.

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W1-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	90	5Y 6/8	10	C	M	Loam	concentration is prominent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Some other areas in the wetland has soils with high organic content and would meet indicator F1 Loamy Mucky Mineral. Some of the soil is likely muck.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches): 12
Water Table Present?	Yes	☒	No	☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W1-SP2

Investigator(s): D.Iittauer, A. Gross Section, Township, Range: S11, T23N, R7E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): A Lat: 47.498 Long: -121.886 Datum: NAD 83 Harn

Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	15	no	FAC
2. *Tsuga heterophylla*	80	yes	FACU
3.			
4.			
50% = 47.5, 20% = 19	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Vaccinium parvifolium*	10	yes	FACU
2. *Gaultheria shallon*	20	yes	FACU
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Pteridium aquilinum*	5	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 95

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W1-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-19	5Y 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W2-SP1
Investigator(s): D.Littauer, A. Gross Section, Township, Range: S11, T23N, R7E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): A Lat: 47.499 Long: -121.886 Datum: NAD 83 Harn
Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Hydric Soil Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	25	yes	FAC
2.			
3.			
4.			
50% = 12.5, 20% = 5	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	20	yes	FAC
2.			
3.			
4.			
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Carex obnupta*	85	yes	OBL
2. *Athyrium filix-femina*	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W2-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5Y 6/1	60	10YR 5/8	40	C	M	clay loam	concentration is prominent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	6
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	2

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W2-SP2

Investigator(s): D.Littauer, A. Gross Section, Township, Range: S11, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 15

Subregion (LRR): A Lat: 47.499 Long: -121.886 Datum: NAD 83 Harn

Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: This upland data point was taken very near the wetland boundary to document the difference between upland and wetland conditions and show how the wetland determination was made. See remarks in the vegetation and soils sections for further explanation of why those factors are present but that this point is in an upland area.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	35	yes	FAC
2. *Thuja plicata*	20	yes	FAC
3.			
4.			
50% = 27.5, 20% = 11	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	25	yes	FAC
2. *Frangula purshiana*	5	no	FAC
3. *Thuja plicata*	20	yes	FAC
4. *Spiraea douglasii*	3	no	FACW
5.			
50% = 26.5, 20% = 10.6	53	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Polystichum munitum*	40	yes	FACU
2. *Equisetum telmateia*	5	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 22.5, 20% = 9	45	= Total Cover	
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 55

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: This data point was taken very near the wetland boundary. Though the plant community meets a hydrophytic vegetation indicator, all of the dominant plants are either FAC or FACU, indicating a transitional area near the wetland boundary.

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W2-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100					Loam	organic matter present
1-16	2.5Y 5/2	98	10YR 6/4	2	C	M	Loam	concentration is distinct

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: There are just barely enough concentrations to meet the F3 indicator for hydric soil. This data point is very near the wetland boundary and describes a transitional area near the wetland boundary.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W3-SP1

Investigator(s): D.littauer, A. Gross Section, Township, Range: S11, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): A Lat: 47.5 Long: -121.886 Datum: NAD 83 Harn

Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☒, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes** ☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐			
Wetland Hydrology Present?	Yes	☒	No	☐			

Remarks: The naturally problematic box for hydrology is checked because wetland hydrology indicators were not present during time of fieldwork, but are likely present during the early part of the growing season. Due to the presence of the other two factors, the landscape position, topography, and the field work occurring at the end of the growing season, wetland hydrology is assumed present.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	60	yes	FAC
2.			
3.			
4.			
50% = 30, 20% = 12	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Oplopanax horridus*	5	no	FAC
2. *Rubus spectabilis*	25	yes	FAC
3. *Thuja plicata*	5	no	FAC
4.			
5.			
50% = 17.5, 20% = 7	35	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Athyrium filix-femina*	60	yes	FAC
2. *Trillium ovatum*	2	no	FACU
3. *Polystichum munitum*	25	yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 43.5, 20% = 17.4	87	= Total Cover	
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 13

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W3 -SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	95	7.5YR 4/4	5	C	M	Loam	concentration is prominent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Late growing seanon conditions present. Wetland hydrology indicators are not present at this time but are assumed to be present during the early growing season. Due to the presence of the other two factors, the landscape position, topography, and the field work occurring at the end of the growing season, wetland hydrology is assumed present. So the yes box is checked for wetland hydrology even though indicators were not oservable at this late date in the growing season.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W3-SP2

Investigator(s): D.littauer, A. Gross Section, Township, Range: S11, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): A Lat: 47.5 Long: -121.886 Datum: NAD 83 Harn

Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes	☐	No	☒	
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	30	yes	FACU
2. *Thuja plicata*	60	yes	FAC
3. *Acer circinatum*	5	no	FAC
4.			
50% = 47.5, 20% = 19	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Acer circinatum*	5	yes	FAC
2. *Rubus spectabilis*	10	yes	FAC
3. *Frangula purshiana*	5	yes	FAC
4.			
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Polystichum munitum*	75	yes	FACU
2. *Athyrium filix-femina*	5	no	FAC
3. *Vaccinium parvifolium*	3	no	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 41.5, 20% = 16.6	83	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 13

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W3-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 2.5/1	100					Loam	
8-16	10YR 3/3	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W4--SP1
Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): A Lat: 47.504 Long: -121.886 Datum: NAD 83 HARN
Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Hydric Soil Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	50	yes	FAC
2.			
3.			
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20' x 20')			
1. *Physocarpus capitatus*	40	yes	FACW
2. *Rubus spectabilis*	30	yes	FAC
3.			
4.			
5.			
50% = 35, 20% = 14	70	= Total Cover	
Herb Stratum (Plot size: 5' x 5')			
1. *Tolmiea menziesii*	20	yes	FAC
2. *Carex sp.*	5	no	-
3. *Athyrium filix-femina*	5	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 15, 20% = 6	30	= Total Cover	
Woody Vine Stratum (Plot size: 5' x 5')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 70

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: - in the Indicator status column indicates that the species is unknown. The inflorescence on the Carex species was not present making identification to species impossible.

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W4-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					loam	
5-13+	10 YR 5/2	75	10YR 5/8	10	C	M	loam	concentration is prominent
			2.5Y 7/3	15	D	M		

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	6
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	2

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W4-SP2
Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 10
Subregion (LRR): A Lat: 47.504 Long: -121.886 Datum: NAD 83 HARN
Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	30	yes	FAC
2. *Pseudotsuga menziesii*	10	yes	FACU
3. *Tsuga heterophylla*	10	yes	FACU
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20' x 20')			
1. *Rubus spectabilis*	60	yes	FAC
2.			
3.			
4.			
5.			
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size: 5' x 5')			
1. *Polystichum munitum*	5	yes	FACU
2. *Polypodium glycyrrhiza*	2	yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 3.5, 20% = 1.4	7	= Total Cover	
Woody Vine Stratum (Plot size: 5' x 5')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 93

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33.3	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W4-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15+	10YR 3/2	100					loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W4-SP3

Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A Lat: 47.501 Long: -121.886 Datum: NAD 83 HARN

Soil Map Unit Name: Tokul gravely loam, 6 to 15 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes**	☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐				
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20' x 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	30	yes	FAC
2. *Frangula purshiana*	20	yes	FAC
3. *Acer circinatum*	10	no	FAC
4. _____	_____	____	____
50% = 30, 20% = 12	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' x 15')			
1. *Rubus spectabilis*	60	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size: 5' x 5')			
1. *Tolmiea menziesii*	40	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size: 5' x 5')			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: II-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W4-SP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					loam	
5-16+	10YR 5/2	75	7.5YR 5/4	25	C	M	loam	concentration is prominent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	5

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W4-SP4

Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): A Lat: 47.501 Long: -121.886 Datum: NAD 83 HARN

Soil Map Unit Name: Tokul gravely loam, 6 to 15 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20' x 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	30	yes	FAC
2. *Tsuga heterophylla*	10	yes	FACU
3. *Acer circinatum*	5	no	FAC
4.			
50% = 22.5, 20% = 9	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' x 15')			
1. *Rubus spectabilis*	40	yes	FAC
2.			
3.			
4.			
5.			
50% = 20, 20% = 8	40	= Total Cover	
Herb Stratum (Plot size: 5' x 5')			
1. *Athyrium filix-femina*	3	yes	FAC
2. *Tolmiea menziesii*	2	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 5' x 5')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 95

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W4-SP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					loam	
5-16+	7.5 YR 4/4	85					loam	
	2.5Y 6/4	15						

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w5-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): depression **Local relief (concave, convex, none):** concave **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.886 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: This wetland area is forming in excavated/disturbed WSDOT maintenance yard. Soils have been excavated and vegtetetion cleared and these factors are considered significantly disturbed. Excavation of soils may have inadvertently resulted in the establishment of this newly forming wetland. It is adjacent to W4. It may have been excavated in upland or maybe historic wetland given close proximity to W4.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Spiraea douglasii	30	☑ 37.5%	FACW
2. Populus balsamifera	30	☑ 37.5%	FAC
3. Salix sp.	10	☐ 12.5%	-
4. Rubus laciniatus	10	☐ 12.5%	FACU
5.	0	☐ 0.0%	
	80	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Juncus tenuis	10	☑ 41.7%	FAC
2. Juncus acuminatus	5	☑ 20.8%	OBL
3. Agrostis exarata	2	☐ 8.3%	FACW
4. Holcus lanatus	2	☐ 8.3%	FAC
5. Carex sp.	5	☑ 20.8%	-
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	24	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 76

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	32	x 2 =	64
FAC species	42	x 3 =	126
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	89 (A)		235 (B)

Prevalence Index = B/A = 2.640

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on both the Carex species and Salix species were not present and therefore the plants were not identifiable to species. Given that all of the species in this location except one are wetland species and that the soils and hydrology meet wetland criteria, the Carex and Salix species are likely a wetland species. The Salix species is not a dominant so its indicator status does not affect the dominance test calculation. The Carex species is included in the dominance calculation as a FAC or wetter plant. If the Carex was counted as an upland plant, the dominance text would still be met.

Soil

Sampling Point: w5-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	2/2	100						gravelly loam	
7-13	10YR	3/3	65	5YR	4/6	5	C	PL		
				5YR	4/4	20	C	PL		
				5YR	4/4	10	C	M		

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: This wetland is in a disturbed area on a WSDOT maintenance yard. The area appears to have been relatively recently excavated and is a newly forming wetland. Soils are bright and don't meet an indicator, however, they are still hydric soils and this is why the "other" box is checked. Soils meet the definition of hydric soils: ponding and saturation for long periods during the growing season. The presence of wetland hydrology and a hydrophytic plant community also indicate that the soils are wetland soils.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☑ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	9
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w5-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 1 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.886 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Upland is in actively used WSDOT maintenance yard. Soilsand vegetation are significantly disturbed by activities in the maintnence yard. Excivation of soils may have inadvertenly resulted in the establishment of this newly forming wetland. Upland is in actively used WSDOT maintenance yard. Soils are significantly disturbed by activities in the maintenance yard. Excavation of soils may have inadvertently resulted in this newly forming wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Festuca arundinacea	50	☑ 31.3%	FAC
2. Alopecurus pratensis	15	☑ 9.4%	FAC
3. Cirsium arvense	25	☑ 15.6%	FAC
4. Plantago lanceolata	5	☐ 3.1%	FACU
5. Geranium molle	10	☐ 6.3%	UPL
6. Rumex crispus	15	☑ 9.4%	FAC
7. Vicia americana	10	☐ 6.3%	FAC
8. Poa annua	15	☑ 9.4%	FAC
9. Festuca rubra	15	☑ 9.4%	FAC
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	160	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	145	x 3 =	435
FACU species	5	x 4 =	20
UPL species	10	x 5 =	50
Column Totals:	160 (A)		505 (B)

Prevalence Index = B/A = 3.156

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w5-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	2/2	100						Sandy Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Disturbed soils.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 04-Dec-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w5-sp3

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope just above ditch **Local relief (concave, convex, none):** concave **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.885 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 5 x 10 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 x 10 feet)				
1. Spiraea douglasii	3	☑	60.0%	FACW
2. Populus balsamifera	2	☑	40.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	5	= Total Cover		
Herb Stratum (Plot size: 5 x 5 feet)				
1. Scirpus cyperinus	50	☑	50.5%	OBL
2. Juncus effusus	15	☐	15.2%	FACW
3. Juncus articulatus	5	☐	5.1%	FACW
4. Holcus lanatus	15	☐	15.2%	FAC
5. Veronica americana	5	☐	5.1%	OBL
6. Phalaris arundinacea	5	☐	5.1%	FACW
7. Epilobium ciliatum	2	☐	2.0%	FACW
8. Carex stipata	2	☐	2.0%	OBL
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	99	= Total Cover		
Woody Vine Stratum (Plot size: 5 x 5)				
1.		☐	0.0%	
2.		☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 1

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	57	x 1 =	57
FACW species	30	x 2 =	60
FAC species	17	x 3 =	51
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	104 (A)		168 (B)

Prevalence Index = B/A = 1.615

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w5-sp3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soils are saturated with small pockets of shallow inundation. See hydrology remarks. Solis were to wet to ovserve the soil profile but they meet the defiinition of a hydric soil due to long periods of inundation or saturation.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	3
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w6-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** undulating **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.884 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Soil pit in middle of old abandon gravel driveway circle. Wetland appears to have formed on disturbed/compacted soils. Hydrology mainly driven by precipitation and run-on which perches on the compacted soils. Vegetation recetnly cleared andvolunteer saplings appear to be five to ten years old.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Alnus rubra	50	☑ 83.3%	FAC
2. Rubus spectabilis	5	☐ 8.3%	FAC
3. Rubus armeniacus	5	☐ 8.3%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	60	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Carex sp.	25	☑ 55.6%	-
2. Juncus effusus	20	☑ 44.4%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	45	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 55

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	80	x 3 =	240
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	105 (A)		300 (B)

Prevalence Index = B/A = 2.813

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Carex species was not present and therefore the plant was not identifiable to species. Given that all except one of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Carex species is likely a wetland species. The Carex species is included as a FAC or wetter species in the dominance test calculation. If it were excluded from the dominance calculation it would not be met but the prevalence index would still be met if the Carex species is counted as a FAC plant.

Soil

Sampling Point: w6-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	4/2	80	5YR	4/6	20	C	M/PL	Sandy Loam	gravels in profile concentration is prominent

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	8

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Standing water to 2 inces in portions of wetland. Very compactedsoils from previous disturbance, perch water. Hydrology mainly precipitation driven.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w6-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** undulating **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.884 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Soils have been significantly disturbed by past land use activities. There is an old abandon gravel access road and past vegetation clearing.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	45	☑ 45.0%	FAC
2. Pseudotsuga menziesii	40	☑ 40.0%	FACU
3. Alnus rubra	15	☐ 15.0%	FAC
4.	0	☐ 0.0%	
	100	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 x15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Rubus armeniacus	75	☑ 51.7%	FACU
2. Spiraea douglasii	20	☐ 13.8%	FACW
3. Gaultheria shallon	20	☐ 13.8%	FACU
4. Rubus ursinus	20	☐ 13.8%	FACU
5. Lonicera involucrata	10	☐ 6.9%	FAC
	145	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Agrostis exarata	15	☑ 60.0%	FACW
2. Holcus lanatus	10	☑ 40.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	25	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 75

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	80	x 3 =	240
FACU species	155	x 4 =	620
UPL species	0	x 5 =	0
Column Totals:	270 (A)		930 (B)

Prevalence Index = B/A = 3.444

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Vegetation in this area had been cleared in the recent past. Volunteer saplings in both the wetland and some surrounding upland areas appear to be five to ten years old.

Soil

Sampling Point: w6-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	2/1	100						gravelly sandy loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w7-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope on old roadbed **Local relief (concave, convex, none):** undulating **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.883 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 6% to 15% slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Wetland is perched on old compacted/impacted area with compacted/disturbed soils and previously cleared vegetation.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 x10 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Alnus rubra	2	☑ 33.3%	FAC
2. Salix sp.	2	☑ 33.3%	-
3. Spiraea douglasii	2	☑ 33.3%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	6	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Juncus effusus	65	☑ 65.7%	FACW
2. Hypericum perforatum	2	☐ 2.0%	FACU
3. Carex ovalis	20	☑ 20.2%	FACW
4. Vicia americana	2	☐ 2.0%	FAC
5. Tanacetum vulgare	5	☐ 5.1%	FACU
6. Agrostis exarata	5	☐ 5.1%	FACW
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	99	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 1

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	92	x 2 =	184
FAC species	4	x 3 =	12
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals:	103 (A)		224 (B)

Prevalence Index = B/A = 2.175

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Salix species was not present and therefore the plant was not identifiable to species. Given that all but two of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Salix species is likely a wetland species. The Salix species is included in the dominance calculation as a FAC or wetter plant. If the Salix species was excluded from the dominance calculation, the dominance text would still be met.

Soil

Sampling Point: w7-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	4/2	85	7.5YR	4/6	15	C	PL	gravelly sandy Loam	concentration is prominent
4+										gravel hardpan/compacted soils

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel hardpan/compacted soils from old gravel access road

Depth (inches): 4

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	2
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w7-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** undulating **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.883 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 6% to 15% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Compacted/impacted areas are present in upland areas surrounding W7. Compacted/disturbed soils and previously cleared vegetation are present as a result of past land use activities and an abandon access road.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	45	☑ 81.8%	FAC
2. Alnus rubra	10	☐ 18.2%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	55	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 x10 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Spiraea douglasii	25	☑ 42.4%	FACW
2. Populus balsamifera	7	☐ 11.9%	FAC
3. Alnus rubra	7	☐ 11.9%	FAC
4. Cytisus scoparius	15	☑ 25.4%	UPL
5. Frangula purshiana	5	☐ 8.5%	FAC
	59	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Agrostis capillaris	60	☑ 57.1%	FAC
2. Festuca rubra	25	☑ 23.8%	FAC
3. Hypochaeris radicata	15	☐ 14.3%	FACU
4. Juncus effusus	5	☐ 4.8%	FACW
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	105	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	80.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	159	x 3 =	477
FACU species	15	x 4 =	60
UPL species	15	x 5 =	75
Column Totals:	219 (A)		672 (B)

Prevalence Index = B/A = 3.068

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☐ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w7-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/2	100						Gravelly sandy Loam	
2+										hard pan

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan/compacted soils form past disturbance

Depth (inches): 2

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 19-Nov-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w8-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** rolling **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.507 **Long.:** -121.882 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Wetland is both in and adjacent to a roadside ditch along SW 104th St. The eastern portion of the wetland is regularly mowed as part of roadside maintenance. Vegetation in this portion of the wetland is significantly disturbed. Hydrology is naturally problematic during this field visit due to heavy rains in past 24 hours.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	30	☑ 54.5%	FAC
2. Alnus rubra	25	☑ 45.5%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	55	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 x15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Cornus alba	50	☑ 50.0%	FACW
2. Physocarpus capitatus	40	☑ 40.0%	FACW
3. Spiraea douglasii	10	☐ 10.0%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	100	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Phalaris arundinacea	35	☑ 77.8%	FACW
2. Rubus ursinus	10	☑ 22.2%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	45	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 55

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	135	x 2 =	270
FAC species	55	x 3 =	165
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	200 (A)		475 (B)

Prevalence Index = B/A = 2.375

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Understory herb and shrub layer is mowed in ditch/eastern portion of wetland.

Soil

Sampling Point: w8-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/2						Sandy Loam	soil is inundated so color and redox distorted
7+								hard pan/fill

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: fill/hardpan

Depth (inches): 7

Hydric Soil Present? Yes ◉ No ○

Remarks: The soil was inundated so an accurate description of the soil profile was unobtainable. The "other" box is checked because the soil meets the definition of a hydric soil: saturated or ponded for long periods during the growing season.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	18
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Weather is heavy rain for 2 hours prior to delineation. Wetland drains to constricted culvert outlet to roaside ditch draining to Stream 4.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 19-Nov-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w8-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** undulating **Slope:** 7.0 % / 4.0 °

Subregion (LRR): LRR A **Lat.:** 47.507 **Long.:** -121.882 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Hydrology is naturally problematic during this field visit due to heavy rains in past 24 hours. Sample point area is roadfill.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 15 x 15 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5x5)			
1. Rubus spectabilis	5	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	5	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Poa pratensis	40	☑ 32.8%	FAC
2. Festuca rubra	40	☑ 32.8%	FAC
3. Geum macrophyllum	20	☐ 16.4%	FAC
4. Verbascum thapsus	7	☐ 5.7%	FACU
5. Geranium robertianum	5	☐ 4.1%	UPL
6. Polystichum munitum	5	☐ 4.1%	FACU
7. Phalaris arundinacea	5	☐ 4.1%	FACW
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	122	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	105	x 3 =	315
FACU species	12	x 4 =	48
UPL species	5	x 5 =	25
Column Totals:	127 (A)		398 (B)

Prevalence Index = B/A = 3.134

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w8-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	2/2	100						Sandy Loam	
4+										hard pan/fill

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan/fill

Depth (inches): 4

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	2
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

heavy rain for two hours prior to delineation.

Remarks:

This upland sample point is 12 inches higher in elevation than the wetland sample point W8-SP1. This area has direct observation of water on this field visit due to heavy rains occurring in the past 24 hours. Due to landscape position and upland soils this area is assumed to not have wetland hydrology present, despite the presence of water in the upland plot during heavy precipitation event.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 19-Nov-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w9-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** hummocky **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.508 **Long.:** -121.881 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Hydrology is naturally problematic during this field visit due to heavy rains in past 24 hours.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Rubus spectabilis	35	☑ 36.8%	FAC
2. Lonicera involucrata	20	☑ 21.1%	FAC
3. Spiraea douglasii	15	☐ 15.8%	FACW
4. Thuja plicata	20	☑ 21.1%	FAC
5. Alnus rubra	5	☐ 5.3%	FAC
	95	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Ranunculus repens	60	☑ 80.0%	FAC
2. Rubus ursinus	10	☐ 13.3%	FACU
3. Polystichum munitum	5	☐ 6.7%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	75	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 25

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	140	x 3 =	420
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	170 (A)		510 (B)

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Polystichum munitum present on hummocks.

Soil

Sampling Point: w9-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	2/1	100%						sandy loam	lots of organic matter present
4+										hard pan

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan

Depth (inches): 4

Hydric Soil Present? Yes ◉ No ○

Remarks: The soil was inundated so an accurate description of the soil profile was unobtainable. The "other" box is checked because the soil meets the definition of a hydric soil: saturated or ponded for long periods during the growing season.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Heavy rains in past 24 hours. Vegetation and landscape position indicate that wetland hydrology is present in this location despite the heavy precipitation event occurring at the time of the field visit.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 19-Nov-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w9-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** undulating **Slope:** 15.0 % / 8.5 °

Subregion (LRR): LRR A **Lat.:** 47.508 **Long.:** -121.881 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Hydrology is naturally problematic during this field visit due to heavy rains in past 24 hours.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	40	☑	50.0%	FAC
2. Pseudotsuga menziesii	25	☑	31.3%	FACU
3. Thuja plicata	15	☐	18.8%	FAC
4.	0	☐	0.0%	
	80		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x15 feet)				
1. Gaultheria shallon	80	☑	79.2%	FACU
2. Rubus spectabilis	15	☐	14.9%	FAC
3. Tsuga heterophylla	2	☐	2.0%	FACU
4. Vaccinium parvifolium	2	☐	2.0%	FACU
5. Acer circinatum	2	☐	2.0%	FAC
	101		= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)				
1. Polystichum munitum	15	☑	42.9%	FACU
2. Pteridium aquilinum	10	☑	28.6%	FACU
3. Rubus ursinus	10	☑	28.6%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	35		= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)				
1.		☐	0.0%	
2.		☐	0.0%	
	0		= Total Cover	

% Bare Ground in Herb Stratum: 65

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	16.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	72	x 3 =	216
FACU species	144	x 4 =	576
UPL species	0	x 5 =	0
Column Totals:	216 (A)		792 (B)

Prevalence Index = B/A = 3.667

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Soil

Sampling Point: w9-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/2						Sandy Loam	with gravels

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Direct observations of water are not representative of wetland hydrology. Heavy rains in past 24 hrs. Due to landscape position, upland vegetation, and upland soils this area is assumed to not have wetland hydrology present, despite the presence of water in the upland plot during heavy precipitation event.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 03-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w10-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope with depressions **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.508 **Long.:** -121.879 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit. Wetland hydrology is assumed to be present during periods with normal precipitation. Wetland formed on top of restricted soil layer of that perches water during the growing season.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 15 x 15 feet)			
1. Populus balsamifera	80	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Spiraea douglasii	30	☑ 71.4%	FACW
2. Thuja plicata	10	☑ 23.8%	FAC
3. Rubus armeniacus	1	☐ 2.4%	FACU
4. Malus fusca	1	☐ 2.4%	FACW
5.	0	☐ 0.0%	
	42	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Agrostis capillaris	40	☑ 100.0%	FAC
2. Juncus effusus	0	☐ 0.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	40	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 60

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	31	x 2 =	62
FAC species	130	x 3 =	390
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	162 (A)		456 (B)

Prevalence Index = B/A = 2.815

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w10-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/1	80	10YR	3/4	10	C	M	loamy sand	concentration is distinct
				10YR	4/4	10	C	M		concentration is distinct
6+										hard pan restrictive layer

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1). Wetland hydrology is presumed present during periods with normal precipitation in this location given the vegetation community dominated by hydrophytic plants and the presence of hydric soils. Precipitation likely driven by precipitation and run-on which perches on the restrictive layer. Wetland is in MLRA 2 so water-stained leaves are a secondary indicator.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 03-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w10-sp2 & w11-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.508 **Long.:** -121.879 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	40	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Pseudotsuga menziesii	15	☑ 46.9%	FACU
2. Thuja plicata	10	☑ 31.3%	FAC
3. Spiraea douglasii	5	☐ 15.6%	FACW
4. Acer circinatum	1	☐ 3.1%	FAC
5. Cytisus scoparius	1	☐ 3.1%	UPL
	32	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Agrostis capillaris	60	☑ 73.2%	FAC
2. Plantago lanceolata	20	☑ 24.4%	FACU
3. Polystichum munitum	2	☐ 2.4%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	82	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 18

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	60.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	111	x 3 =	333
FACU species	37	x 4 =	148
UPL species	1	x 5 =	5
Column Totals:	154 (A)		496 (B)

Prevalence Index = B/A = 3.221

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☐ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Upland areas surrounding W10 and W11 have an overstory of Populus balsamifera with mixed understory of wetland and upland plants including Pseudotsuga menziesii, Spiraea douglasii, Cytisus scoparius, Thuja plicata saplings, and Acer circinatum.

Soil

Sampling Point: w10-sp2 & w11-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/1	100						Sandy Loam	
2+										hardpan/compaction

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan/compacted soilspossibly from past land use activities

Depth (inches): 2

Hydric Soil Present? Yes ○ No ◉

Remarks: Area appears to have been disturbed by past land use activities. It may have been logged or cleared which may have compacted these coarse mineral soils creating a shallow restrictive layer.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1), however, upland soils in this location likely indicate that wetland hydrology is not likely present in this location in periods with normal precipitation.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 03-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w11-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope with depressions **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.508 **Long.:** -121.879 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 6% to 15% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ◉	No ○
Wetland Hydrology Present?	Yes ◉	No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)				
1. Populus balsamifera	35	☑	56.5%	FAC
2. Spiraea douglasii	25	☑	40.3%	FACW
3. Thuja plicata	2	☐	3.2%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	62	= Total Cover		
Herb Stratum (Plot size: 5 x 5 feet)				
1. Juncus effusus	40	☑	66.7%	FACW
2. Agrostis exarata	10	☐	16.7%	FACW
3. Juncus articulatus	5	☐	8.3%	OBL
4. Prunella vulgaris	5	☐	8.3%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	60	= Total Cover		
Woody Vine Stratum (Plot size: 5 x 5 feet)				
1.		☐	0.0%	
2.		☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	75	x 2 =	150
FAC species	37	x 3 =	111
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	122 (A)		286 (B)

Prevalence Index = B/A = 2.344

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w11-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	4/1	70	10YR	4/4	10	C	M	Sandy Loam	concentration is distinct
				10YR	4/3	20	C	M		
4										hardpan

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan/compacted soils

Depth (inches): 4

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1). Wetland hydrology is presumed present during periods with normal precipitation in this location given the vegetation community dominated by hydrophytic plants and the presence of hydric soils and surface soil cracks. Precipitation likely driven by precipitation and run-on which perches on the restrictive layer. Wetland is in MLRA 2 so water-stained leaves are a secondary indicator.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W12-SP1
Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): A Lat: 47.509 Long: -122.877 Datum: NAD 83 HARN
Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Hydric Soil Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20' x 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	40	yes	FAC
2. *Alnus rubra*	20	yes	FAC
3. *Acer circinatum*	5	no	FAC
4.			
50% = 32.5, 20% = 13	65	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' x 15')			
1. *Rubus spectabilis*	30	yes	FAC
2. *Lonicera involucrata*	5	no	FAC
3.			
4.			
5.			
50% = 17.5, 20% = 7	35	= Total Cover	
Herb Stratum (Plot size: 10' x 10')			
1. *Lysichiton americanus*	10	yes	OBL
2. *Polystichum munitum*	5	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 7.5, 20% = 3	15	= Total Cover	
Woody Vine Stratum (Plot size: 10' x 10')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 85

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W12-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16+	10YR 4/2	65	2.5Y 5/3	30	D	M	sandy loam	
			10YR 5/6	5	C	M		concentration is promonent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	6

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W12-SP2
Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E
Landform (hillslope, terrace, etc.): slope on road prism Local relief (concave, convex, none): concave Slope (%): 30
Subregion (LRR): A Lat: 47.509 Long: -121.877 Datum: NAD 83 HARN
Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	20	yes	FAC
2. *Picea sitchensis*	10	yes	FAC
3. *Acer circinatum*	10	yes	FAC
4. *Alnus rubra*	10	yes	FAC
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' x 20')			
1. *Rubus spectabilis*	25	yes	FAC
2.			
3.			
4.			
5.			
50% = 12.5, 20% = 5	25	= Total Cover	
Herb Stratum (Plot size: 5' x 5')			
1. *Equisetum sp.*	20	yes	-
2. *Rubus ursinus*	20	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size: 10' x 10 ')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	85.7	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: - in the Indicator status column indicates that the species is unknown. For the dominance worksheet the Equisetum species is counted as FAC or wetter because the common Equisetum species in this area are FAC or wetter.

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W12-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	100					sandy loam	
12+							fill	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: road fill

Depth (inches): 12

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W13-SP1
Investigator(s): D.littauer, A. Gross Section, Township, Range: S2, T23N, R7E
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): A Lat: 47.51 Long: -121.881 Datum: NAD 83 Harn
Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	40	yes	FAC
2. *Frangula purshiana*	5	no	FAC
3. *Acer circinatum*	7	no	FAC
4. _____	_____	____	____
50% = 26, 20% = 10.4	52	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	20	yes	FAC
2. *Oplopanax horridus*	2	no	FAC
3. *Acer circinatum*	5	no	FAC
4. _____	_____	____	____
5. _____	_____	____	____
50% = 13.5, 20% = 5.4	27	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Polystichum munitum*	10	yes	FACU
2. *Blechnum spicant*	1	no	FAC
3. *Athyrium filix-femina*	5	yes	FAC
4. *Rubus ursinus*	5	yes	FACU
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 10.5, 20% = 4.2	21	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 79			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W13-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	95	7.5YR 5/6	5	C	M	silt loam	concentration is prominent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 9

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W13-SP2

Investigator(s): D.littauer, A. Gross Section, Township, Range: S2, T23N, R7E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): A Lat: 47.51 Long: -121.881 Datum: NAD 83 Harn

Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	20	yes	FACU
2. *Frangula purshiana*	7	no	FAC
3. *Acer macrophyllum*	15	no	FACU
4. *Alnus rubra*	40	yes	FAC
50% = 41, 20% = 16.4	82	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Vaccinium parvifolium*	10	yes	FACU
2. *Acer circinatum*	5	no	FAC
3. *Rubus spectabilis*	25	yes	FAC
4.			
5.			
50% = 20, 20% = 8	40	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Polystichum munitum*	50	yes	FACU
2. *Rubus ursinus*	3	no	FACU
3. *Athyrium filix-femina*	5	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 29, 20% = 11.6	58	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 42

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W13-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/3	100					Loam	
9-16	7.5YR 4/4	100						

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 18-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w14-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): depression **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.88 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Two ditches drain to the wetland. One ditch drains from W13, the other drains from the east. Both ditches parallel I-90. Both ditches meet in a closed depressional area at the lowest point of this wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Alnus rubra	40	☑ 50.0%	FAC
2. Populus balsamifera	40	☑ 50.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Rubus spectabilis	30	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	30	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Equisetum hyemale	30	☑ 81.1%	FACW
2. Phalaris arundinacea	5	☐ 13.5%	FACW
3. Carex sp.	2	☐ 5.4%	-
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	37	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 63

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	110	x 3 =	330
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	145 (A)		400 (B)

Prevalence Index = B/A = 2.759

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Carex species was not present and therefore the plant was not identifiable to species. Given that all of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Carex species is likely a wetland species. The Carex species is not a dominant so its indicator status does not affect the dominance test calculation.

Soil

Sampling Point: w14-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	2/1	97	10YR	4/2	3	D	M	Silt Loam	
7-16	10YR	3/2	85	2.5Y	4/2	10	D	M	Sandy Clay Loam	
				10YR	5/8	5	C	M/PL	Sandy Clay Loam	concentration is prominent
16+	2.5Y	5/2	90	7.5YR	5/8	10	C	M	Sandy Clay Loam	concentration is prominent

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Standing water to 6 inches in depression approximately 10 feet east of sample point. Wetland is in MLRA 2 so water-stained leaves are a secondary indicator.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 18-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w14-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Footslope **Local relief (concave, convex, none):** concave **Slope:** 30.0 % / 16.6 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.88 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	55	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	55	= Total Cover		

Sapling/Shrub Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	35	☑	35.0%	FAC
2. Acer circinatum	5	☐	5.0%	FAC
3. Rubus armeniacus	25	☑	25.0%	FACU
4. Rubus spectabilis	25	☑	25.0%	FAC
5. Lonicera involucrata	10	☐	10.0%	FAC
	100	= Total Cover		

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Polystichum munitum	45	☑	64.3%	FACU
2. Equisetum hyemale	25	☑	35.7%	FACW
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	70	= Total Cover		

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.		☐	0.0%	
2.		☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 30

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	130	x 3 =	390
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	225 (A)		720 (B)

Prevalence Index = B/A = 3.200

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☐ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w14-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y	4/2	100						Sandy Loam	
7+										cobbles

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobbles

Depth (inches): 7

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Soils dry to bottom of pit.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 01-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w14-sp3

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully/Hillslope **Local relief (concave, convex, none):** hummocky **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.881 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ◉	No ○
Wetland Hydrology Present?	Yes ◉	No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Drier than normal precipitation conditions were present prior to the October 1, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit, however, saturated soils were observed in the wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Alnus rubra	10	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x15 feet)			
1. Rubus spectabilis	50	☑ 58.8%	FAC
2. Acer circinatum	30	☑ 35.3%	FAC
3. Frangula purshiana	5	☐ 5.9%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	85	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Tolmiea menziesii	40	☑ 65.6%	FAC
2. Athyrium filix-femina	10	☐ 16.4%	FAC
3. Carex sp.	2	☐ 3.3%	-
4. Maianthemum dilatatum	2	☐ 3.3%	FAC
5. Cardamine oligosperma	2	☐ 3.3%	FAC
6. Rubus ursinus	5	☐ 8.2%	FACU
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	61	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 39

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	149	x 3 =	447
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	154	(A)	467 (B)

Prevalence Index = B/A = 3.032

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Carex species was not present and therefore the plant was not identifiable to species. Given that all but one of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Carex species is likely a wetland species. The Carex species is not a dominant so its indicator status does not affect the dominance test calculation.

Soil

Sampling Point: w14-sp3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	2/1	100						mucky modified mineral	
10-16	10YR	2/1	80	10YR	4/3	20	C	M	sandy loam	organic matter

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks: The project is within LRR A/MLRA 2 (so the execption for indicator F1 of LRR- A/MLRA 1 does not apply).

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the October 1, 2012 field work (Appendix A-1), however, saturated soils and surface soil cracks were still observed.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 01-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w14-sp4

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** hummocky **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.881 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Drier than normal precipitation conditions were present prior to the October 1, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Tsuga heterophylla	75	☑ 78.9%	FACU
2. Alnus rubra	20	☑ 21.1%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Rubus spectabilis	40	☑ 57.1%	FAC
2. Acer circinatum	30	☑ 42.9%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	70	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Rubus ursinus	70	☑ 66.7%	FACU
2. Polystichum munitum	30	☑ 28.6%	FACU
3. Dryopteris expansa	5	☐ 4.8%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	105	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	90	x 3 =	270
FACU species	175	x 4 =	700
UPL species	0	x 5 =	0
Column Totals:	270 (A)		980 (B)

Prevalence Index = B/A = 3.630

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Soil

Sampling Point: w14-sp4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	2/2	100						Silt Loam	3 inches of duff on top of soil surface

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w15-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): depression **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.878 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)				
1. Spiraea douglasii	80	☑	84.2%	FACW
2. Frangula purshiana	5	☐	5.3%	FAC
3. Salix scouleriana	10	☐	10.5%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	95	= Total Cover		
Herb Stratum (Plot size: 5 x 5 feet)				
1. Juncus effusus	20	☑	33.3%	FACW
2. Agrostis exarata	15	☑	25.0%	FACW
3. Carex sp.	10	☐	16.7%	-
4. Festuca rubra	15	☑	25.0%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	60	= Total Cover		
Woody Vine Stratum (Plot size: 5 x 5 feet)				
1.		☐	0.0%	
2.		☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	115	x 2 =	230
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	145 (A)		320 (B)

Prevalence Index = B/A = 2.207

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Carex species was not present and therefore the plant was not identifiable to species. Given that all of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Carex species is likely a wetland species. The Carex species is not a dominant so its indicator status does not affect the dominance test calculation.

Soil

Sampling Point: w15-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y	5/1	85	10YR	4/6	5	C	M/PL	Sandy gravelly Loam	concentration is prominent
				7.5YR	4/6	10	C	PL		concentration is prominent
6+										hard pan

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Though drier than normal conditions were present during the time of the field visit, and direct observation of water was not present, other wetland hydrology indicators were present indicating wetland hydrology is present. Wetland is in MLRA 2 so water-stained leaves are a secondary indicator.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w15-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.878 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit. This upland data point is characteristic of some other upland areas in the project which are dominated by Spiraea douglasii. These upland areas at a glance may look like possible wetlands, however they are usually on slopes and do not retain water for long enough periods to support wetland hydrology. They also have upland and FAC species in the understory such as Rubus ursinus and Holcus lanatus and lack hydric soils.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	15	☑ 75.0%	FAC
2. Pseudotsuga menziesii	5	☑ 25.0%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x15 feet)			
1. Spiraea douglasii	10	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	10	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Rubus ursinus	30	☑ 19.6%	FACU
2. Agrostis capillaris	20	☐ 13.1%	FAC
3. Agrostis exarata	25	☑ 16.3%	FACW
4. Festuca rubra	40	☑ 26.1%	FAC
5. Dactylis glomerata	5	☐ 3.3%	FACU
6. Holcus lanatus	5	☐ 3.3%	FAC
7. Plantago lanceolata	20	☐ 13.1%	FACU
8. Solidago canadensis	5	☐ 3.3%	FACU
9. Tanacetum vulgare	1	☐ 0.7%	FACU
10. Populus balsamifera	1	☐ 0.7%	FAC
11. Prunella vulgaris	1	☐ 0.7%	FACU
	153	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	81	x 3 =	243
FACU species	67	x 4 =	268
UPL species	0	x 5 =	0
Column Totals:	183 (A)		581 (B)

Prevalence Index = B/A = 3.175

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w15-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/2	100						Gravelly Sandy Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 18-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w16-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): depression **Local relief (concave, convex, none):** concave **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.877 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 x 10 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Rubus spectabilis	60	☑ 92.3%	FAC
2. Spiraea douglasii	5	☐ 7.7%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	65	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Juncus effusus	30	☑ 58.8%	FACW
2. Scirpus microcarpus	15	☑ 29.4%	OBL
3. Agrostis capillaris	2	☐ 3.9%	FAC
4. Equisetum telmateia	2	☐ 3.9%	FACW
5. Athyrium filix-femina	2	☐ 3.9%	FAC
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	51	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 49

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	37	x 2 =	74
FAC species	64	x 3 =	192
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	116 (A)		281 (B)

Prevalence Index = B/A = 2.422

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w16-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	2/2	100						Sandy Loam	
3-10	10YR	4/2	85	10YR	3/6	15	C	PL	Loamy Sand	concentration is prominent
10+										cobbles/hard pan at 10 inches

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan/cobbles

Depth (inches): 10 inches

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Wetland is an open depression with constricted outlet with drainage patterns draining to jurisdictional ditch. Wetland is in MLRA 2 so water-stained leaves are a secondary indicator.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 18-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w16-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.877 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	25	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	25	= Total Cover		

Sapling/Shrub Stratum (Plot size: 10 x 10 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Rubus spectabilis	15	☑	75.0%	FAC
2. Populus balsamifera	5	☑	25.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	20	= Total Cover		

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Agrostis gigantea	60	☑	46.2%	FAC
2. Verbascum thapsus	5	☐	3.8%	FACU
3. Rubus ursinus	65	☑	50.0%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	130	= Total Cover		

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.		☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	105	x 3 =	315
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	175 (A)		595 (B)

Prevalence Index = B/A = 3.400

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☐ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w16-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/3	100%						gravelly loam	
6+										shovel refusal/hardpan at 6 inches

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 6 inches

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 04-Dec-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w16-sp3

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.877 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 10 x 10 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 x 10 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
5.		☐ 0.0%	
	0	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)			
1. Juncus effusus	90	☑ 77.6%	FACW
2. Equisetum arvense	1	☐ 0.9%	FAC
3. Rubus ursinus	10	☐ 8.6%	FACU
4. Agrostis capillaris	15	☐ 12.9%	FAC
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	116	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	16	x 3 =	48
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	116 (A)		268 (B)

Prevalence Index = B/A = 2.310

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w16-sp3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/2	100						Gravelly Sandy Loam	
6-9	10YR	2/2	85	10YR	5/6	15	C	M	gravelly loam	concentration is prominent
9+									cobbles	restrictive layer

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobbles

Depth (inches): 9

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

surface water runing off the slope and ponded to 1 inch in smakk depressions.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w17-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.875 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Wetland has a constricted outlet through a a culvert running south under I-90. Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 x10 feet)			
1. Spiraea douglasii	40	☑ 76.9%	FACW
2. Rubus spectabilis	10	☐ 19.2%	FAC
3. Athyrium filix-femina	2	☐ 3.8%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	52	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	0	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 100

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	12	x 3 =	36
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	52 (A)		116 (B)

Prevalence Index = B/A = 2.231

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w17-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8 1/2	10YR	2/1							Silt Loam	high organic content
8 1/2-12	10YR	3/2	80	7.5YR	2.5/3	15	C	PL		concentration is faint
				7.5YR	3/4	5%	C	M	gravelly sandy loam	concentration is distinct

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the September 24, 2012 field work, however, soil saturation and other hydrology indicators were still present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w17-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.875 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Picea sitchensis	15	☑ 60.0%	FAC
2. Alnus rubra	10	☑ 40.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	25	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 x15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Rubus spectabilis	70	☑ 97.2%	FAC
2. Acer circinatum	2	☐ 2.8%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	72	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Rubus ursinus	80	☑ 96.4%	FACU
2. Polystichum munitum	2	☐ 2.4%	FACU
3. Maianthemum dilatatum	1	☐ 1.2%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	83	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 17

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	75.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	98	x 3 =	294
FACU species	82	x 4 =	328
UPL species	0	x 5 =	0
Column Totals:	180 (A)		622 (B)

Prevalence Index = B/A = 3.456

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w17-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	2/1	100						gravelly loam	
4-11	7.5YR	2.5/2	95						gravelly loam	
	5YR	4/6	5							

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w17-sp3

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** hummocky **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.875 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Thuja plicata	60	☑ 85.7%	FAC
2. Equisetum telmateia	10	☐ 14.3%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.		☐ 0.0%	
5.		☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
5.		☐ 0.0%	
6.		☐ 0.0%	
7.		☐ 0.0%	
8.		☐ 0.0%	
9.		☐ 0.0%	
10.		☐ 0.0%	
11.		☐ 0.0%	
	0	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 100

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		200 (B)

Prevalence Index = B/A = 2.857

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w17-sp3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR	2/1							mucky gravelly loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: tree roots

Depth (inches): 15

Hydric Soil Present? Yes ◉ No ○

Remarks: Organic content likely masks other redoximorphic features.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the September 24, 2012 field work, however, soil saturation and other hydrology indicators were still present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w17-sp4

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** hummocky **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.875 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Pseudotsuga menziesii	50	☑	45.5%	FACU
2. Populus balsamifera	35	☑	31.8%	FAC
3. Acer circinatum	20	☐	18.2%	FAC
4. Ilex aquifolium	5	☐	4.5%	UPL
	110		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Acer circinatum	20	☑	23.5%	FAC
2. Oplopanax horridus	15	☐	17.6%	FAC
3. Rubus spectabilis	40	☑	47.1%	FAC
4. Mahonia aquifolium	10	☐	11.8%	FACU
5.	0	☐	0.0%	
	85		= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Rubus ursinus	50	☑	60.2%	FACU
2. Polystichum munitum	30	☑	36.1%	FACU
3. Athyrium filix-femina	3	☐	3.6%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	83		= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.		☐	0.0%	
2.		☐	0.0%	
	0		= Total Cover	

% Bare Ground in Herb Stratum: 17

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	133	x 3 =	399
FACU species	140	x 4 =	560
UPL species	5	x 5 =	25
Column Totals:	278 (A)		984 (B)

Prevalence Index = B/A = 3.540

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Soil

Sampling Point: w17-sp4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	2/2	100						gravelly sandy loam	
3-16	10YR	3/3	100						gravelly sandy loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w18-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 30.0 % / 16.6 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.873 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	**= Total Cover**		
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	**= Total Cover**		
Herb Stratum (Plot size: 5 x 5 feet)				
1. Equisetum telmateia	65	☑	54.2%	FACW
2. Holcus lanatus	35	☑	29.2%	FAC
3. Festuca rubra	20	☐	16.7%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	120	**= Total Cover**		
Woody Vine Stratum (Plot size: 5 x 5 feet)				
1.		☐	0.0%	
2.		☐	0.0%	
	0	**= Total Cover**		

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	65	**x 2 =**	130
FAC species	55	**x 3 =**	165
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	120	**(A)**	295 **(B)**

Prevalence Index = B/A = 2.458

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w18-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	3/2	70	2.5Y	5/2	25	D	M	Sandy Loam	
				7.5YR	4/6	5	C	M/PL		concentration is prominent

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☑ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

soil moist 0-12 in. oxidized rhizospheres throughout top layer.

Remarks:

Though drier than normal conditions were present during the time of the field visit, and direct observation of water was not present, other wetland hydrology indicators were present indicating wetland hydrology is present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w18-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.873 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Alnus rubra	30	☑ 50.0%	FAC
2. Acer macrophyllum	30	☑ 50.0%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Rubus armeniacus	15	☑ 50.0%	FACU
2. Rubus spectabilis	10	☑ 33.3%	FAC
3. Fallopia japonica	5	☐ 16.7%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	30	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Agrostis exarata	60	☑ 80.0%	FACW
2. Rubus ursinus	10	☐ 13.3%	FACU
3. Equisetum arvense	5	☐ 6.7%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	75	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 25

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	60.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	45	x 3 =	135
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	165 (A)		495 (B)

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w18-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	3/2	100						Sandy Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w19-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** concave **Slope:** 15.0 % / 8.5 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.873 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ◉	No ○
Wetland Hydrology Present?	Yes ◉	No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 x 10 feet)			
1. Rubus spectabilis	40	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	40	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Tolmiea menziesii	60	☑ 90.9%	FAC
2. Athyrium filix-femina	5	☐ 7.6%	FAC
3. Carex sp.	1	☐ 1.5%	-
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	66	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 34

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	105	x 3 =	315
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		315 (B)

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Carex species was not present and therefore the plant was not identifiable to species. Given that all of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Carex species is likely a wetland species. The Carex species is not a dominant so its indicator status does not affect the dominance test calculation.

Soil

Sampling Point: w19-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	2/1	85	2.5YR	4/6	15	C	PL	mucky modified mineral	concentration is prominent
10-23	10YR	4/1	85	2.5YR	4/6	10	C	M	mucky modified mineral	concentration is prominent
				2.5YR	6/4	5	D	M		

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Though drier than normal conditions were present during the time of the field visit, and direct observation of water was not present, other wetland hydrology indicators were present indicating wetland hydrology is present. Soils moist throughout soil profile to 23 inches at tne end of the dry season. Wetland is in a forested gulley and likely has a highwater table and may convey surface water durring and following precipitation events.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w19-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** concave **Slope:** 15.0 % / 8.5 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.873 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Acer macrophyllum	50	☑	62.5%	FACU
2. Acer circinatum	20	☑	25.0%	FAC
3. Alnus rubra	5	☐	6.3%	FAC
4. Thuja plicata	5	☐	6.3%	FAC
	80	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Rubus spectabilis	80	☑	97.6%	FAC
2. Polystichum munitum	2	☐	2.4%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	82	= Total Cover		

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	0	= Total Cover		

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 100

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	110	x 3 =	330
FACU species	52	x 4 =	208
UPL species	0	x 5 =	0
Column Totals:	162 (A)		538 (B)

Prevalence Index = B/A = 3.321

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w19-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	3/2	100						Silt Loam with gravels	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1), however, upland soils in this location indicate that wetland hydrology is not likely present in this location in periods with normal precipitation.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w20-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** concave **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.869 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit. This is a cutslope wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 15 x 15 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
5.		☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Typha latifolia	30	☑ 28.6%	OBL
2. Carex stipata	20	☑ 19.0%	OBL
3. Juncus effusus	15	☐ 14.3%	FACW
4. Holcus lanatus	20	☑ 19.0%	FAC
5. Festuca rubra	10	☐ 9.5%	FAC
6. Elymus repens	10	☐ 9.5%	FAC
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	105	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	15	x 2 =	30
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		200 (B)

Prevalence Index = B/A = 1.905

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w20-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	2/1	92	7.5YR	4/4	8	C	M/PL	Silt Loam	high organic content concentration is prominent

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the September 24, 2012 field work. Although direct observation of water was not observed other hydrology indicators were still present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w20-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** concave **Slope:** 15.0 % / 8.5 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.869 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Alnus rubra	30	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 x 10 feet)			
1. Rubus armeniacus	40	☑ 88.9%	FACU
2. Frangula purshiana	5	☐ 11.1%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	45	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Holcus lanatus	60	☑ 66.7%	FAC
2. Rubus ursinus	30	☑ 33.3%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	165 (A)		565 (B)

Prevalence Index = B/A = 3.424

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Soil

Sampling Point: w20-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	3/3	87	7.5YR	5/8	5	C	M	Sandy Loam	
				2.5YR	6/3	8	D	M		

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 1(WET)

Investigator(s): Josh Wozniak, Kaylee Moser Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): A Lat: 47.49494 Long: -121.885778 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-1 (WET) is associated with Wetland 21. SP-1 (WET) is located within a deciduous forest stand in a larger hemlock/Douglas fir forest with salmonberry/deer fern understory and sphagnum moss groundcover. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	50	Yes	FAC
2. Populus balsamifera	40	Yes	FAC
3.			
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	30	Yes	FAC
2. Rubus ursinus	10	Yes	FACU
3. Spiraea douglasii	5	No	FACW
4.			
5.			
	45	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Stachys cooleyae	15	Yes	FACW
2. Blechnum spicant	2	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	17	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Sphagnum moss groundcover

SOIL

Sampling Point: 1(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					peat	
5-12	10YR 4/1	82	10YR 2/1	10	C	M	L	
			10YR 7/1	5	D	M		
			7.5YR 4/6	3	C	M/PL		
12-20	10YR 4/1	85	10YR 6/1	10	D	M	SL	
			10YR 5/4	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: 5-12" layer had charcoal and other indications of fire and timber harvest. Oxidized rhizospheres observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Oxidized rhizospheres observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 2(UPL)

Investigator(s): Josh Wozniak, Kaylee Moser Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): A Lat: 47.49496 Long: -121.885856 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: SP-2 (UPL) is the paired upland plot for SP-1(WET) and the assocaited upland plot of Wetland 21. SP-2 (UPL) is located within the hemlock/Douglas fir forest. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	40	Yes	FACU
2. Pseudotsuga menziesii	30	Yes	FACU
3. Populus balsamifera	20	Yes	FAC
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	45	Yes	FAC
2. Sambucus racemosa	15	Yes	FACU
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Polystichum munitum	10	Yes	FACU
2. Blechnum spicant	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 28.5 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 2(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/2	100					L	
3-12	7.5YR 3/3	90	5YR 5/8	10	C	M	L	
12-24	7.5YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 3(WET)

Investigator(s): Josh Wozniak, Kaylee Moser Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): A Lat: 47.496625 Long: -121.885456 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-3 SP-3 (WET) is associated with Wetland 21. It is located approximately 70 feet east of SR-18 in an alder thicket with a salmonberry understory. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	80	Yes	FAC
2. Frangula purshiana	20	Yes	FAC
3.			
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	80	Yes	FAC
2. Physocarpus capitatus	10	No	FACW
3.			
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Athyrium cyclosorum	7	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	7	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 3(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 2.5/1	100					L	
2-8	10YR 4/2	93	7.5YR 3/4	5	C	M/PL	L	
			10YR 6/1	2	D	M		
8-19	10YR 5/1	85	10YR 3/6	15	C	M/PL	Gr L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Oxidized rhizospheres observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Oxidized rhizospheres observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 4(UPL)

Investigator(s): Josh Wozniak, Kaylee Moser Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR): A Lat: 47.49662 Long: -121.885598 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-4 (UPL) is the paired upland plot for SP-3 (WET) and the associated upland plot of Wetland 21. SP-4 (UPL) is located approximately 10 feet south of SP-3 (WET) within an area dominated by hemlock, sword fern, and salal vegetation. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	75	Yes	FACU
2.			
3.			
4.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	30	Yes	FAC
2. Sambucus racemosa	10	Yes	FACU
3. Tsuga heterophylla	10	Yes	FACU
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: r=1m)			
1. Polystichum munitum	45	Yes	FACU
2. Blechnum spicant	10	No	FAC
3. Lactuca muralis	5	No	NL
4. Gaultheria shallon	3	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	63 = Total Cover		
Woody Vine Stratum (Plot size: r=2m)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

SOIL

Sampling Point: 4(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 3/4	100					L	
6-11	10YR 4/4	100					L	
11-18	10YR 4/4	80	10YR 4/2	15	D	M	L	
			7.5YR 4/6	5	C	M,PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No saturation or water table observed within the excavated depth of 18 inches. In addition, no other indicators were observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 5(WET)

Investigator(s): Josh Wozniak, Kaylee Moser Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.499409 Long: -121.885338 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-5 (WET) is associated with Wetland 21. SP-5 (WET) is along a stream near a beaver dam which marks the intermittently flowing outlet. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Cornus alba	55	Yes	FACW
2. Rubus spectabilis	40	Yes	FAC
3.			
4.			
5.			
	95	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Tolmiea menziesii	45	Yes	FAC
2. Oenathe sarmentosa	5	No	OBL
3. Glyceria striata	5	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 5(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5Y 4/1	88	10YR 3/4	10	C	M/PL	Gr CL	
			10YR 2/1	2	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 1"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0; surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 6(UPL)

Investigator(s): Josh Wozniak, Kaylee Moser Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 50

Subregion (LRR): A Lat: 47.499409 Long: -121.885338 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-6 (UPL) is the paired upland plot for SP-5 (WET) and the associated upland plot of Wetland 21. SP-6 (UPL) is located upslope of SP-5 (WET) on the road fill prism of SR 18. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	5	Yes	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Poa pratensis	40	Yes	FAC
2. Holcus lanatus	30	Yes	FAC
3. Equisetum telmateia	30	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 6(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					Gr LS	
12-16	10YR 4/3	100					Gr SL	
16-24	10YR 6/2	90	10YR 5/8	10	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 7(WET)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S10 R7E T23N

Landform (hillslope, terrace, etc.): river channel Local relief (concave, convex, none): none Slope (%): 3

Subregion (LRR): A Lat: 47.486053 Long: -121.887811 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: R3UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-7 (WET) is located on a vegetated gravel bar in Raging River. There is no associated upland SP due to the surrounding unvegetated river channel. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Salix sitchensis	90	Yes	FACW
2. Salix lucida	10	No	FACW
3. Rubus spectabilis	5	No	FAC
4.			
5.			
	105	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Carex laeviculmis	10	Yes	FACW
2. Phalaris arundinacea	10	Yes	FACW
3. Urdica dioica	3	No	FAC
4. Athyrium cyclosorum	2	No	FAC
5. Equisetum telmateia	2	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	27	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Vegetated gravel bar with large cobble, boulders, and large woody debris.

SOIL

Sampling Point: 7(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	Multiple						Cb S	fresh alluvium
10-12+	Multiple						S Cb	fresh alluvium

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: SP-7(WET) meets for wetland criteria due the presence of wetland hydrology and vegetation and the presence of problematic hydric soils (freshly deposited alluvium lacks time to develop color characteristics of indicators) found on site. Refer to USACE Regional Supplement page 102 section C, "Soils may lack hydric soil indicators in recently deposited materials (i.e., Entisols) even when indicators of hydrophytic vegetation and wetland hydrology are present….." At this SP, hydrophytic vegetation meets wetland criteria as well as wetland hydrology with a water table present at 11 inches and saturation within the upper 10 inches. This observation was made at flows well below (1-2 feet) ordinary high water elevations.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☒ Water Marks (B1)
- ☒ Sediment Deposits (B2)
- ☒ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 11"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 10"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: SP-7(WET) is located on a vegetated gravel bar within Raging River.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 8(UPL)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S10 R7E T23N

Landform (hillslope, terrace, etc.): river channel Local relief (concave, convex, none): none Slope (%): 3

Subregion (LRR): A Lat: 47.486387 Long: -121.888118 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: R31UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: SP-8 (UPL) is located to the east of the Raging River bridge and northwest of Wetland 24 in what is assumed to be the wettest area above the OHWM of the river. The soil is disturbed and compacted, possibly due to bridge construction. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Cornus alba	60	Yes	FACW
2. Symphoricarpus albus	40	Yes	FACU
3. Salix sitchensis	35	Yes	FACW
4. Rubus spectabilis	10	No	FAC
5. Rubus ursinus	10	No	FACU
	155	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Tolmiea menziesii	2	No	FAC
2. Equisetum telmateia	2	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	4	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 8(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Cb L	
5-10	10YR 3/2	98	10YR 3/6	2	C	M	L	
10-17+	10YR 3/2	82	10YR 3/6	5	C	M	L	
			10YR 5/8	3	C	M		
			10YR 3/3	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/22/18

Applicant/Owner: WSDOT State: WA Sampling Point: 9(UPL)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): A Lat: 47.500092 Long: -121.885000 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial laom NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-9 (UPL) the associated upland plot of Wetland 28. SP-9 (UPL) is located in forest with legacy large downed wood, resulting in diverse microtopography such as hummucks, supporting sword fern, etc. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Acer circinatum	5	Yes	FAC
2. Rhamnus purshiana	5	Yes	FACU
3. Rubus spectabilis	5	Yes	FAC
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Polystichum munitum	35	Yes	FACU
2. Equisetum telmateia	25	Yes	FACW
3. Maianthemum dilatatum	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 9(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	97	7.5YR 3/4	3	C	M	L	
3-16	10YR 3/3	98	7.5YR 3/4	2	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 10(WET)

Investigator(s): Trey Parry, Steve Krueger Section, Township, Range: S02 R7E T23N

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): A Lat: 47.503988 Long: -121.884403 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: R3UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-10 (WET) is associated with Wetland 28. SP-10 (WET) is positioned adjacent to the defined channel of Lake Creek and below the OHWM. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	40	Yes	FAC
2. Picea sitchensis	30	Yes	FAC
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	40	Yes	FAC
2.			
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Glyceria striata	25	Yes	FACW
2. Equisetum telmateia	15	Yes	FACW
3. Ranunculus repens	10	No	FAC
4. Tellima grandiflora	5	No	FACU
5. Athyrium cyclosorum	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. Solanum dulcamara	20	Yes	FAC
2.			
	20	= Total Cover	

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 10(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	95	7.5YR 4/6	5	C	M,PL	SiL	oxidized rhizospheres
4-8	10YR 3/2	93	7.5YR 4/6	7	C	M,PL	SiL	
8-16	10YR 4/2	85	7.5YR 3/4	15	C	M,PL	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☒ Sediment Deposits (B2)
- ☒ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Positioned below OHWM and on a terrace approximately 2.5 vertical feet bove Lake Creek. Saturated pore linings observed below 12 inches.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 11(UPL)

Investigator(s): Trey Parry, Steve Krueger Section, Township, Range: S02 R7E T23N

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): A Lat: 47.503958 Long: -121.884403 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-11 (UPL) is the paired upland plot of SP-10 (WET) and the associated upland plot of Wetland 28. SP-11 (UPL) is positioned on a terrace above the OHWM of Lake Creek. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	50	Yes	FAC
2. Picea sitchensis	30	Yes	FAC
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	60	Yes	FAC
2. Cornus alba	10	No	FACW
3. Rubus ursinus	10	No	FACU
4.			
5.			
	80	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Tellima grandiflora	40	Yes	FACU
2. Polystichum munitum	30	Yes	FACU
3. Equisetum telmateia	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Leaf litter on ground.

SOIL

Sampling Point: 11(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR 4/3	100					Cb L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No saturation or groundwater table was observed within the excavated depth of 24 inches.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/22/18

Applicant/Owner: WSDOT State: WA Sampling Point: 12(WET)

Investigator(s): Trey Parry, Steve Krueger Section, Township, Range: S02 R7E T23N

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): A Lat: 47.504016 Long: -121.884885 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: R3UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-12 (WET) is associated with Wetland 4. SP-12 (WET) is positioned below the OHWM of Lake Creek near the scour pool of the culverts downstream of SR-18. A lot of beaver activity was observed in this location. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea sitchensis	20	Yes	FAC
2. Thuja plicata	10	Yes	FAC
3.			
4.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	4	Yes	FAC
2. Spiraea douglasii	3	Yes	FACW
3.			
4.			
5.			
	7	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Myosostis sylvatica	80	Yes	FAC
2. Oenanthe sarmentosa	5	No	OBL
3. Equisetum telmateia	5	No	FACW
4. Ludwigia palustris	5	No	OBL
5. Leersia oryzoides	2	No	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	97	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 12(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y 3/1	73	10YR 3/2	20	C	M	SiL	
			7.5YR 4/6	7	C	M		
2-11	10YR 4/1	80	10YR 3/3	10	C	M	SiCL	
			7.5YR 4/6	10	C	M/PL		
11-18	5GY 4/1	85	5YR 4/6	15	C	M/PL	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☒ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☒ Water Marks (B1)
- ☒ Sediment Deposits (B2)
- ☒ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☒ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 15"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 13(UPL)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S02 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 25

Subregion (LRR): A Lat: 47.503967 Long: -121.884913 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-13 (UPL) is the paired upland plot for SP-12 (WET) and the associated upland plot of Wetland 4.The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea sitchensis	70	Yes	FAC
2. Pseudotsuga menziesii	20	Yes	FACU
3.			
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus ursinus	30	Yes	FACU
2.			
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Polystichum munitum	45	Yes	FACU
2. Equisetum arvense	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 13(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					L	
2-18	10YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 14(WET)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S10 R7E T23N

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): A Lat: 47.485843 Long: -121.887985 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-14 (WET) is associated with Wetland 25. SP-14 (WET) is located on a terrace-like depression. Hydrology is this area is supported by ephemeral flow and groundwater. The wetland has a direct connection to Raging River. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea sitchensis	70	Yes	FAC
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	55	Yes	FAC
2.			
3.			
4.			
5.			
	55	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Athyrium cyclosorum	3	No	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	3	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 75

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Extensive annual sediment deposits present.

SOIL

Sampling Point: 14(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/1	100					SiL	
1-11	10YR 3/2	100					SiL	
11-24	2.5Y 5/2	70	10YR 3/2	30	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☒ Sediment Deposits (B2)
- ☒ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Multiple primary and secondary indicators are present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 15(UPL)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S10 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 40

Subregion (LRR): A Lat: 47.48587 Long: -121.887986 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-15 (UPL) is the paired upland plot for SP-14 (WET) and the associated upland plot of Wetland 25. SP-15 (UPL) is positioned on a hillslope above SP-14 (WET). This area appears to be a hillslope terrace to Raging River and is upland. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Acer circinatum	5	Yes	FAC
2. Rubus spectabilis	3	Yes	FAC
3.			
4.			
5.			
	8	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Polystichum munitum	80	Yes	FACU
2. Pteridium aquilinum	5	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 75

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 15(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					SL	
2-16+	10YR 2/2	100					Gr L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Positioned approximately 1.5 vertical feet above SP-14(WET).

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 16(WET)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 7

Subregion (LRR): A Lat: 47.477899 Long: -121.892204 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-16 (WET) is associated with Wetland 26. SP-16 (WET) is positioned where a seep emerges/expresses from the hillslope. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	90	Yes	FAC
2.			
3.			
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Tolmiea menziesii	60	Yes	FAC
2. Phalaris arundinacea	10	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 16(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	95	7.5YR 4/6	5	C	CS	Gr LS	
4-16+	10YR 5/2	70	10YR 4/1	20	C	M	Gr SL	
			7.5YR 4/6	10	C	M,CS		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☒ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☒ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☒	No ☐	Depth (inches): 1
Water Table Present?	Yes ☒	No ☐	Depth (inches): 0; surface
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0; surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hillslope groundwater expression present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 17(UPL)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 3

Subregion (LRR): A Lat: 47.477911 Long: -121.892346 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: SP-17 (UPL) is the paried upland plot for SP-16 (WET) and the associated upland plot of Wetland 26. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	80	Yes	FACU
2.			
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	20	Yes	FAC
2. Oemleria cerasiformis	5	Yes	FACU
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: r=1 m)			
1. Polystichum munitum	60	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 17(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100					Gr SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No saturation or groundwater present within excavated depth of 16 inches.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 18(WET)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): A Lat: 47.478115 Long: -121.892811 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-18 (WET) is associated with Wetland 27. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	35	Yes	FAC
2.			
3.			
4.			
	35 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Alnus rubra	30	Yes	FAC
2. Rubus spectabilis	30	Yes	FAC
3. Salix scouleriana	30	Yes	FAC
4. Ribes bracteosum	10	No	FAC
5.			
	100 = Total Cover		
Herb Stratum (Plot size: r=1 m)			
1. Tolmiea menziesii	40	Yes	FAC
2. Ranunculus repens	25	Yes	FAC
3. Poa pratensis	10	No	FAC
4. Glyceria striata	5	No	OBL
5. Equisetum telmateia	5	No	FAC
6. Scirpus microcarpus	5	No	OBL
7. Stachys cooleyae	5	No	FACW
8.			
9.			
10.			
11.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 18(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	90	7.5YR 4/6	10	C	M,CS	V,Gr LS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☒ Sediment Deposits (B2)
- ☒ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☒ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches):
Water Table Present?	Yes ☒	No ☐	Depth (inches): 14
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 11

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 19(UPL)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): A Lat: 47.478055 Long: -121.892826 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-19 is the paried upland plot for SP-18 (WET) and the associated upland plot of Wetland 27. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	65	Yes	FAC
2. Frangula purshiana	5	No	FAC
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	50	Yes	FAC
2. Frangula purshiana	10	No	FAC
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Carex obnupta	60	Yes	OBL
2. Maianthemum dilatatum	15	No	FAC
3. Polystichum munitum	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 19(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Gr SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 20(WET)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A Lat: 47.503602 Long: -121.884345 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-20 (WET) is associated with Wetland 28. SP-20 (WET) is positioned in a finger-like extension of Wetland 28 where it connects to Stream 3 at flag St 3.8. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	40	Yes	FAC
2.			
3.			
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	25	Yes	FAC
2. Lonicera involucrata	10	Yes	FAC
3. Thuja plicata	5	No	FAC
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Lysichiton americanus	12	Yes	OBL
2. Athyrium cyclosorum	8	Yes	FAC
3. Maianthemum canadense	2	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	22	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 20(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					L	
3-8	10YR 3/1	100					L	
8-9	10YR 5/1	90	10YR 5/6	10	C	M	SL	
9-17	10YR 7/1	83	10YR 5/8	15	C	M	CL	
			10YR 2/1	2	C	M		Manganese

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Soils were moist despite drought/dry season conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1)
- ☒ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 21(UPL)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S02 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 4

Subregion (LRR): A Lat: 47.503645 Long: -121.884364 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: R5UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: SP-21 (UPL) is the paired upland plot for SP-20 (WET) and the associated upland plot of Wetland 28. SP-21 (UPL) is positioned in uplands adjacent to Stream 3 and Wetland 28. This area has been logged in the past and has mature trees (approximately 60-80 years) overhead. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	80	Yes	FAC
2.			
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	40	Yes	FAC
2. Thuja plicata	10	No	FAC
3. Rubus ursinus	10	No	FACU
4. Physocarpus capitatus	5	No	FACW
5.			
	65 = Total Cover		
Herb Stratum (Plot size: r=1 m)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 21(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	7.5YR 2.5/2	100					L	
7-10	10YR 3/4	90	7.5YR 4/6	10	C	M	Cb L	
10-16	10YR 5/3	87	7.5YR 4/6	7	C	M	Cb SiL	
			10YR 6/2	3	D	M		
			10YR 5/8	3	C	M		
16-19+	10YR 3/2	93	7.5YR 3/3	5	C	M	SiL	
			10YR 6/2	2	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: SP-21(UPL) is positioned approximately 6 vertical feet above Stream 3 and 2 vertical feet above the boundary of Wetland 28.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 22(WET)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S02 R7E T23N

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1

Subregion (LRR): A Lat: 47.500565 Long: -121.884598 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: R5UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-22 (WET) is associated with Wetland 28. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	70	Yes	FAC
2. Alnus rubra	10	No	FAC
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	40	Yes	FAC
2. Acer circinatum	10	Yes	FAC
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Tolmiea menziesii	5	Yes	FAC
2. Polystichum munitum	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 22(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					L	
2-7	10YR 3/1	88	7.5YR 3/4	7	C	M/PL	SiL	
			7.5YR 4/6	3	C	M		
			10YR 5/2	2	D	M		
7-14	10YR 4/1	88	5YR 4/6	5	C	PL	SiL	
			10YR 5/2	7	D	M		
14-18	10YR 4/1	88	5YR 3/4	10	C	M/PL	SiL	
			10YR 5/2	2	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Oxidized rhizospheres starting at 2 inches below the soil surface and in all layers beneath.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Oxidized rhizospheres starting at 2 inches below the soil surface and in all layers beneath.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 23(WET)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S10 R7E T23N

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): A Lat: 47.48813 Long: -121.887627 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-23 (WET) is associated with Wetland 29. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	20	Yes	FAC
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	75	Yes	FAC
2. Sambucus racemosa	20	Yes	FACU
3.			
4.			
5.			
	95 = Total Cover		
Herb Stratum (Plot size: r=1 m)			
1. Tolmiea menziesii	40	Yes	FAC
2. Athyrium cyclosorum	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 23(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					SiL	
5-9	2.5Y 4/2	62	10Y 3/1	20	D	M	Gr SL	
			10YR 4/6	15	C	M		
			5Y 5/1	3	D	M		
9-16+	2.5Y 4/2	95	10YR 4/6	5	C	M	Gr SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1)
- ☒ Sediment Deposits (B2)
- ☒ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 24(UPL)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S10 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 35

Subregion (LRR): A Lat: 47.488072 Long: -121.887654 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: SP-24 (UPL) is the paired upland plot for SP-23 (WET) and the associated upland plot of Wetland 29. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	30	Yes	FACU
2. Tsuga heterophylla	30	Yes	FACU
3. Alnus rubra	30	Yes	FAC
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	20	Yes	FAC
2. Thuja plicata	3	No	FAC
3. Rubus ursinus	2	No	FACU
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Polystichum munitum	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 24(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/3	100					L	
3-9	10YR 3/3	100					L	
9-16+	2.5Y 4/3	94	7.5YR 4/6	5	C	PL	L	
			10YR 4/2	1	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 25(WET)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 2-4

Subregion (LRR): A Lat: 47.493061 Long: -121.886549 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-25 (WET) is associated with Wetland 30. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	60	Yes	FAC
2.			
3.			
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	20	Yes	FAC
2. Rubus ursinus	15	Yes	FACU
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: r=1 m)			
1. Lysichiton americanus	30	Yes	OBL
2. Athyrium cyclosorum	5	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Sphagnum moss is present.

SOIL

Sampling Point: 25(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	92	10YR 3/6	8	C	M	SiL	
6-11	10YR 4/1	65	10YR 6/6	15	C	M/PL	SiL	
			10YR 5/1	10	D	M		
			7.5YR 4/1	5	D	M		
			10YR 2/1	5	C	M		
11-18+	10YR 6/4	63	10YR 5/6	20	C	M	SiL	
			10YR 2/1	10	C	M		
			10YR 4/6	7	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Oxidized rhizospheres present at 6 inches below the soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Oxidized rhizospheres present at 6 inches below the soil surface.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 26(UPL)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): A Lat: 47.493158 Long: -121.886499 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-26 (UPL) is the paired upland plot for SP-25(WET) and the associated upland plot of Wetland 30. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudostuga menziesii	80	Yes	FACU
2.			
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus ursinus	10	Yes	FACU
2. Vaccinium parvifolium	5	Yes	FACU
3. Rubus spectabilis	5	Yes	FAC
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: r=1 m)			
1. Polystichum munitum	75	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 26(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 3/2	100					L	
3-12	7.5YR 2.5/2	100					L	
12-16+	10YR 4/6	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 27(WET)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): A Lat: 47.493605 Long: -121.886496 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-27 (WET) is associated with Wetland 31. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	30	Yes	FAC
2. Spiraea douglasii	30	Yes	FACW
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Oenanthe sarmentosa	70	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: 40% sphagnum moss cover.

SOIL

Sampling Point: 27(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					L	
1-9	10YR 3/1	80	7.5YR 3/4	5	C	M	SiCL	
			10YR 4/1	10	D	M		
			10YR 3/4	5	C	M		
9-11	2.5Y 6/4	65	2.5Y 5/6	20	C	M		
			7.5YR 4/6	10	C	M		
			2.5Y 6/2	5	D	M		
11-13	10YR 3/1	97	10YR 5/1	3	D	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Soil layers continued: 13-15" 10YR 4/1 90% 10YR 5/1 10% D M SiCL , 15-17+" 7.5YR 5/8 70% 2.5Y 6/1 30% D M SiCL

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: SP-27(WET) is located within a swale.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 8/15/18

Applicant/Owner: WSDOT State: WA Sampling Point: 28(UPL)

Investigator(s): Josh Wozniak, Trey Parry Section, Township, Range: S11 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): A Lat: 47.493618 Long: -121.886585 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-28 (UPL) is positioned above SP-27 (WET) and is adjacent to the east side of SR 18. SP-28 (UPL) is the associated upland plot of Wetland 31. The WETS table indicates that conditions have been drier than normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	60	Yes	FACU
2. Alnus rubra	40	Yes	FAC
3.			
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Acer circinatum	80	Yes	FAC
2. Rubus spectabilis	15	No	FAC
3. Rubus ursinus	5	No	FACU
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Polystichum munitum	20	Yes	FACU
2. Gaultheria shallon	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: 40% sphagnum moss cover.

SOIL

Sampling Point: 28(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 29(WET)

Investigator(s): Jeff Meyer, Steve Krueger Section, Township, Range: S03 R7E T23N

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): convex Slope (%): 0

Subregion (LRR): A Lat: 47.50529 Long: -121.887428 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-29 (WET) is associated with Wetland 32. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	45	Yes	FAC
2. Populus balsamifera	25	Yes	FAC
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	85	Yes	FAC
2.			
3.			
4.			
5.			
	85	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: 75% cover of sphagnum moss in plot

SOIL

Sampling Point: 29(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic	sphagnum roots
3-8	10YR 2/1	100					SiL+organic	
8-13	10YR 4/3	90	10YR 6/3	10	D	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☒ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water Table Present?	Yes ☒	No ☐	Depth (inches): 13"
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 10"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Convex depression topography.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 30(UPL)

Investigator(s): Jeff Meyer, Steve Krueger Section, Township, Range: S02 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): A Lat: 47.505878 Long: -121.886408 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-30 (UPL) is located approximately 100 feet due west from the northwest corner of the maintenance yard. It is approximately 150 feet east of Wetland 32. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	30	Yes	FACU
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	60	Yes	FAC
2. Acer circinatum	40	Yes	FAC
3. Frangula purshiana	10	10	FAC
4.			
5.			
	110	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Rubus ursinus	5	Yes	FACU
2. Polystichum munitum	3	No	FACU
3. Gaultheria shallon	2	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 30(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/2	100					L	friable, loose soil
6-17	7.5YR 3/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 31(UPL)

Investigator(s): Jeff Meyer, Steve Krueger Section, Township, Range: S02 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): A Lat: 47.505085 Long: -121.886108 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-31 (UPL) is located approximately 75 feet due west from the southwest corner of the maintenance yard. It is approximately 100-150 feet away from Wetland 32. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	50	Yes	FACU
2. Alnus rubra	30	Yes	FAC
3. Thuja plicata	10	No	FAC
4.			
	90	= Total Cover	

Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	50	Yes	FAC
2. Acer circinatum	20	Yes	FAC
3. Lonicera involucrata	5	No	FAC
4.			
5.			
	75	= Total Cover	

Herb Stratum (Plot size: r=1 m)			
1. Blechnum spicant	5	Yes	FAC
2. Gaultheria shallon	3	No	FACU
3. Athyrium cyclosorum	2	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	

Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 31(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 3/3	100					L	
3-16	10YR 3/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: moist but not saturated at 14".

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 32(UPL)

Investigator(s): Jeff Meyer, Steve Krueger Section, Township, Range: S02 R7E T23N

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR): A Lat: 47.505035 Long: -121.886192 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-32 (UPL) is located within a depression and appears to be an old burn pile. SP-32 (UPL) is located near SP-31 (UPL) approximately 110 feet west of the southwest corner of the maintenance yard. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	25	Yes	FACU
2. Alnus rubra	20	Yes	FAC
3. Tsuga heterophylla	5	No	FACU
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	65	Yes	FAC
2. Physocarpus capitatus	35	Yes	FACW
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Gaultheria shallon	5	Yes	FACU
2. Blechnum spicant	3	No	FAC
3. Lysichiton americanus	2	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 32(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/1	100					SiL	charcoal bits
9-19	!0YR 4/4	100					L	horizon boundary is abrupt

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks: A lot of charcoal bits are present within the soil sample.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water Table Present?	Yes ☒	No ☐	Depth (inches): 19"
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 18"

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Moist but not saturated at 14 inches.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 33(UPL)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S03 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): A Lat: 47.505169 Long: -121.887405 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-33 (UPL) is the paired upland plot for SP-29 (WET) and the associated upland plot of Wetland 32. SP-33 (UPL) is located on an upland ridge near the wetland boundary. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	40	Yes	FAC
2. Tsuga heterophylla	30	Yes	FACU
3. Populus balsamifera	20	Yes	FAC
4.			
	90	= Total Cover	

Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	65	Yes	FAC
2. Frangula purshiana	5	No	FAC
3.			
4.			
5.			
	70	= Total Cover	

Herb Stratum (Plot size: r=1 m)			
1. Polystichum munitum	25	Yes	FACU
2. Rubus ursinus	5	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30	= Total Cover	

Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 33(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					L	
3-8	10YR 3/3	100					L	
8-15	10YR 3/4	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks: Massive root structures in area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 34(WET)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S03 R7E T23N

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR): A Lat: 47.508721 Long: -121.889929 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☒
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-34 (WET) is associated with Wetland 33. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	5	Yes	FAC
2.			
3.			
4.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	55	Yes	FAC
2. Spiraea douglasii	30	Yes	FACW
3.			
4.			
5.			
	85	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Veronica americana	60	Yes	OBL
2. Oenanthe sarmentosa	30	Yes	OBL
3. Lysichiton americanus	15	No	OBL
4. Rubus ursinus	15	No	FACU
5. Urdica dioica	2	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	122	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 34(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100					SiL	
7-16	10YR 3/2	75	7.5YR 4/6	25	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water Table Present?	Yes ☒	No ☐	Depth (inches): 9
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 6

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 35(UPL)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S03 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): A Lat: 47.508747 Long: -121.890059 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-35 (UPL) is the paired plot for SP-34 (WET) and the associated upland plot of Wetland 33. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea sitchensis	45	Yes	FAC
2. Thuja plicata	25	Yes	FAC
3. Populus balsamifera	10	No	FAC
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	90	Yes	FAC
2.			
3.			
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Rubus ursinus	3	No	FACU
2. Cyperus esculentus	1	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	4	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 35(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5YR 2/2	100					L	
14-19	10YR 4/3	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 36(UPL)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S03 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): A Lat: 47.508713 Long: -121.890218 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP- 36 (UPL) is west of SP-35 (UPL) and approximately 30 feet west of Wetland 33. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	60	Yes	FAC
2.			
3.			
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	80	Yes	FAC
2.			
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: r=1 m)			
1. Oenanthe sarmentosa	40	Yes	OBL
2. Lysichiton americanus	15	Yes	OBL
3. Rubus ursinus	10	No	FACU
4. Viola sp.	1	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	66 = Total Cover		
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 36(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					L	
4-14	10YR 3/1	100					SiL	
14-19	10YR 3/4	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water Table Present?	Yes ☒	No ☐	Depth (inches): 19"
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 15"

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 37(UPL)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR): A Lat: 47.479619 Long: -121.890573 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-37 (UPL) is located downslope of a ditch culvert (Stream 11). The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	70	Yes	FAC
2. Rubus armeniacus	30	Yes	FAC
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Area has been cleared by surveyors.

SOIL

Sampling Point: 37(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/3	100	10YR 4/3	3	C	M	L	
7-16	10YR 3/3	100					SL	
16+	10YR 3/2	97	7.5YR 4/6	3	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Located in a ditch adjacent to SR-18.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 38(UPL)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR): A Lat: 47.478484 Long: -121.890857 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-38 (UPL) is positioned within a vegetated stream channel tributary to Stream 11. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	80	Yes	FAC
2. Acer circinatum	20	Yes	FAC
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 38(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					L	
8-14	10YR 4/4	70	7.5YR 4/6	30	C	M	SL	very compacted

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks: Compacted layer at 14 inches that could not be investigated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 39(UPL)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR): A Lat: 47.478355 Long: -121.890657 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-39 (UPL) is positioned in a flat vine maple forest and was determined as upland. SP-39 (UPL) is approximately 100 feet east from Stream 11. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	30	Yes	FACU
2.			
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	40	Yes	FAC
2. Acer circinatum	40	Yes	FAC
3. Frangula purshiana	20	Yes	FAC
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: r=1 m)			
1. Polystichum munitum	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 39(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/2	100					L	
14-16	10YR 2/2	100					Cb L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 40(UPL)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR): A Lat: 47.478136 Long: -121.890644 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-40 (UPL) is approximately 80 feet south of SP-39 (UPL) and 150 east of Stream 11. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	25	Yes	FAC
2.			
3.			
4.			
	25 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	40	Yes	FAC
2. Frangula purshiana	30	Yes	FAC
3. Rubus ursinus	5	No	FAC
4.			
5.			
	105 = Total Cover		
Herb Stratum (Plot size: r=1 m)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Overhead canopy consisting of Populus balsamifera.

SOIL

Sampling Point: 40(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					L	
8-16	10YR 3/2+	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 41(WET)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 4

Subregion (LRR): A Lat: 47.477506 Long: -121.891428 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-41 (WET) is located within Wetland 34 which drains to Stream 11. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	60	Yes	FAC
2. Thuja plicata	10	No	FAC
3.			
4.			
5.			
	70	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Equisetum telmateia	50	Yes	FACW
2. Tolmiea menziesii	20	Yes	FAC
3. Athyrium cyclosorum	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 41(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/2	100					SiL	
7-11	10YR 3/2	100					SiL	
11-16	10YR 4/2	85	10YR 5/6	15	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 8"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0"; surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 42(UPL)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR): A Lat: 47.477534 Long: -121.89134 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-42 (UPL) is positioned on a bank above Wetland 34. SP-42 (UPL) is the paired plot for SP-41 (WET) and the associated upland plot of Wetland 34. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	50	Yes	FAC
2. Tsuga heterophylla	50	Yes	FACU
3. Alnus rubra	10	No	FAC
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	60	Yes	FAC
2.			
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Polystichum munitum	30	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 42 (UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					L	
12-16	7.5YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 43(UPL)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR): A Lat: 47.476798 Long: -121.892069 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-43 (UPL) is the paired upland plot for SP-44 (WET) and the associated upland plot of Wetland 22. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	80	Yes	FAC
2. Ribes bracteosum	20	Yes	FAC
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Tolmiea menziesii	70	Yes	FAC
2. Athyrium cyclosorum	15	No	FAC
3. Equisetum telmateia	8	No	FACW
4. Polystichum munitum	7	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 43(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					L	
3-18	10YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 44(WET)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): terrace+hillslope Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR): A Lat: 47.476734 Long: -121.892116 Datum: WGS-84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-44 (WET) is associated with Wetland 22. The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	90	Yes	FAC
2.			
3.			
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Equisetum telmateia	50	Yes	FACW
2. Tolmiea menziesii	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 44(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					SiL	
3-11	10YR 3/2	90	10YR 3/4	10	C	M	SiL	Oxidized rhizospheres
11-16	10YR 3/1	75	10YR 3/6	25	C	M	fine SL	Oxidized rhizospheres

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Oxidized rhizospheres present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Oxidized rhizospheres present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 45(WET)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR): A Lat: 47.481333 Long: -121.889374 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-45 (WET) is associated with Wetland 23. SP-45 (WET) is positioned ina swale-like depression that is hydrologically connected to the "WSDOT converted stream".The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus spectabilis	40	Yes	FAC
2.			
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. none			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 45(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					SiL	high amount of organic material
8-11	10YR 3/1	100					SiL	
11-16	10YR 4/2	70	7.5YR 5/8	30	C	M	Gr SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Oxidized rhizospheres present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water Table Present?	Yes ☒	No ☐	Depth (inches): 2"
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Oxidized rhizospheres present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 10/24/18

Applicant/Owner: WSDOT State: WA Sampling Point: 46(UPL)

Investigator(s): Jeff Meyer, Trey Parry Section, Township, Range: S15 R7E T23N

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 8

Subregion (LRR): A Lat: 47.481366 Long: -121.889432 Datum: WGS-84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-46 (UPL) is the paired upland plot for SP-45 (WET) and the associated upland plot of Wetland 23.The WETS table indicates that hydrologic conditions have been normal for the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	50	Yes	FAC
2. Tsuga heterophylla	50	Yes	FACU
3.			
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2 m)			
1. Rubus ursinus	3	No	FAC
2.			
3.			
4.			
5.			
	3	= Total Cover	
Herb Stratum (Plot size: r=1 m)			
1. Polystichum muntium	15	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: r=2 m)			
1. none			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 46(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	7.5YR 2.5/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 47(UPL)

Investigator(s): Jeff Meyer, Matt Murphy Section, Township, Range: S03, T23N, R7E

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): A Lat: 47.507019 Long: -121.888426 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-47 (UPL) is associated with Wetland 32 on the eastern side of the wetland/stream complex. It is approximately 25 feet away from the WSDOT fence and from Wetland Flag 32N-8.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	10	Yes	FAC
2. Populus balsamifera	25	Yes	FAC
3.			
4.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	80	Yes	FAC
2. Malus fusca	20	Yes	FACW
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Rubus ursinus	10	Yes	FACU
2. Polystichum munitum	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 47(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					SIL	
4-6	10YR 3/2	100					SIL	
6-11	10YR 2/1	100					SIL	Organics and Charcoal Bits
11-17	10YR 3/1	99	2.5Y 5/2	1	D	M	SIL	
+								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks: SP-47 near wetland boundary.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water Table Present?	Yes ☒	No ☐	Depth (inches): 6"
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 3"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 48 (UPL)

Investigator(s): Jeff Meyer, Matt Murphy Section, Township, Range: S03, T23N, R7E

Landform (hillslope, terrace, etc.): Hillslope: artificial hummock Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): A Lat: 47.507203 Long: -121.888393 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: SP-48 (UPL) is the paired upland plot for SP-49 (WET) and the associated upland plot of Wetland 32. SP-48 (UPL) is located approximately 10 feet east from SP-49 (WET).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	80	Yes	FAC
2. Alnus rubra	5	No	FAC
3.			
4.			
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	80	Yes	FAC
2.			
3.			
4.			
5.			
	80	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Polystichum munitum	20	Yes	FACU
2. Rubus ursinus	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 48(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					L	
1-15	10YR 3/3	100					FSaL	Fine Sandy Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 49(WET)

Investigator(s): Jeff Meyer, Matt Murphy Section, Township, Range: S03, T23N, R7E

Landform (hillslope, terrace, etc.): Depressional Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): A Lat: 47.507200 Long: -121.888425 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-49 (WET) is associated with Wetland 32. SP-49 (WET) is located within a channel approximately 40 feet from I-90 and approximately 10-15 feet away from culvert.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	60	Yes	FAC
2. Alnus rubra	10	No	FAC
3. Populus balsamifera	30	Yes	FAC
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	50	Yes	FAC
2. Vaccinium ovatum	10	No	FACU
3. Oemleria cerasiformis	5	No	FACU
4.			
5.			
	65	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Rubus ursinus	5	Yes	FACU
2. Polystichum munitum	2	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	7	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 49(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					L	
2-6	10YR 3/2	70	10YR 4/6	30	C	M	Gr SL	Models of redox
6-10	2.5Y 5/2	100	10YR 3/4				L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks: Excavated channel, could be in subsoils of adjacent upland area. Located 40 feet from culvert - due to the culvert there are large depositions silt from road runoff.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☒ Water Marks (B1)
- ☒ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☒	No ☐	Depth (inches): 1
Water Table Present?	Yes ☒	No ☐	Depth (inches): 0; (Surface)
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0; (Surface)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 50(UPL)

Investigator(s): Trey Parry, Kaylee Moser Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 10

Subregion (LRR): A Lat: 47.510203 Long: -121.876079 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: SP-50 (UPL) is the paired upland plot for SP 51 (WET) and the associated upland plot of Wetland 16. SP-50 (UPL) is located along cutslope directly north of I-90.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus ursinus	10	Yes	FACU
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Pteridium aquilinum	10	No	FACU
2. Poa pratensis	95	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 50(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100					SL	
5-7	2.5Y 4/3	95	10YR 3/6	5	C	M	SL	
7-9	2.5Y 5/2	85	10YR 4/6	15	C	M	SL	
9-13	2.5Y 5/2	80	10YR 4/6	15	C	M	SL	
			7.5YR 5/8	5	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Restrictive layer at 13".

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 51(WET)

Investigator(s): Trey Parry, Kaylee Moser Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-3

Subregion (LRR): A Lat: 47.510168 Long: -121.876014 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-51 (WET) is associated with Wetland 16. SP-51 (WET) is positioned on an old service road on the I-90 cutbank. Distrubed site that was likely artificially compacted during the I-90 construction process.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	35	Yes	FAC
2. Rubus ursinus	10	Yes	FACU
3.			
4.			
5.			
	45	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Juncus effusus	80	Yes	FACW
2. Holcus lanatus	15	No	FAC
3. Plantago lanceolata	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 51(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/1	100					L	
7-16	10YR 4/1	70	10YR 5/1	20	D	M	CbSL	Cobbly Sandy Loam
			10YR 5/8	5	C	M		
			7.5 YR 4/6	5	C	M	SI	Organic material present
14-18	10YR 3/1	80	10YR 2/1	20	C, CS	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Positioned on an outslope of I-90. The area has been compacted.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water Table Present?	Yes ☒	No ☐	Depth (inches): 10"
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 7"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 51J(UPL)

Investigator(s): Jeff Meyer, Matt Murphy Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): Depressional Local relief (concave, convex, none): Concave Slope (%): 2-5

Subregion (LRR): A Lat: 47.504885 Long: -121.886444 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☒ No ☐	

Remarks: SP-51J (UPL) is approximately 100 feet southwest of SP-32 (UPL). SP-51J (UPL) is located in a low area, possible old logging track, located near WSDOT Service Area, 150-200 feet back in woods southwst of SE 104th Street "WSDOT service road".

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer circinatum	10	Yes	FAC
2. Tsuga heterophylla	40	Yes	FACU
3.			
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	90	Yes	FAC
2. Sambucus racemosa	10	No	FACU
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Athyrium cyclosorum	3	No	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	3	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Majority of herb stratum is leaf litter, moss covers roughly 5% of the area.

SOIL

Sampling Point: 51J(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					L	
6-14	10YR 3/1	100					SIL	
14-17	2.5Y 6/4	100					SIL	Dense Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☒	No ☐	Depth (inches): +1"
Water Table Present?	Yes ☒	No ☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0; surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 52(WET)

Investigator(s): Trey Parry, Kaylee Moser Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 2-4%

Subregion (LRR): A Lat: 47.509853 Long: -121.879309 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-52 (WET) is associated with Wetland 36. SP-52 (WET) is located within Spiraea patch along gradual hillslope directly north of I-90.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Spiraea douglassi	15	Yes	FACW
2. Populus balsamifera	3	No	FAC
3.			
4.			
5.			
	18	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Poa pratensis	95	Yes	FAC
2. Plantago lanceolata	3	No	FACU
3. Taraxacum officinale	2	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 52(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					SL	
2-9	10YR 3/2	93	7.5YR 3/4	7	C	M, PL	SL	oxidized rhizospheres
9-16	10YR 3/1	81	7.5YR 3/3	7	C	M	SL	
			5YR 4/6	5	C	M		
			10YR 4/2	7	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water Table Present?	Yes ☒	No ☐	Depth (inches): 8"
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 5"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: 2" - 9" oxidized rhizospheres

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: Unincorporated King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 53(UPL)

Investigator(s): Trey Parry, Kaylee Moser Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 25

Subregion (LRR): A Lat: 47.509771 Long: -121.879291 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-53 (UPL) is the paired upland plot for SP-52 (WET) and the associated upland plot of Wetland 36. SP-53 (UPL) is located along fill prism for road (I-90) and is approximately 8 feet from I-90 road shoulder.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=1x5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=1x3m)			
1. None			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: r=1x1m)			
1. Poa pratensis	98	Yes	FAC
2. Plantago lanceolata	2	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 53(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					GrSL	
3-16+	2.5Y 5/2+	85	10YR 3/6	15	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 54(WET)

Investigator(s): Trey Parry, Kaylee Moser Section, Township, Range: S15, T23N, R7E

Landform (hillslope, terrace, etc.): Depressional Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): A Lat: 47.485073 Long: -121.88818 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-54 (WET) is associated with Wetland 37 and approximately 100 feet east of toe of slope, of SR 18 road prism.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Acer circinatum	30	Yes	FAC
2. Rubus spectabilis	20	Yes	FAC
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Athyrium cyclosorum	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 54(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	95	10YR 4/3	5	C	M	SIL	Distinct redox features
7-11	10YR 3/2	90	2.5Y 5/1	10	D	M	SIL	
11-16	10YR 3/2	85	10YR 3/4	5	C	M	SIL	
			10YR 4/3	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1)
- ☒ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/16/18

Applicant/Owner: WSDOT State: WA Sampling Point: 55 (UPL)

Investigator(s): Trey Parry, Kaylee Moser Section, Township, Range: S15, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2-4

Subregion (LRR): A Lat: 47.485069 Long: -121.88835 Datum: WGS84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-55 (UPL) is the paired upland plot for SP-54 (WET) and the associated upland plot of Wetland 37. SP-55 (UPL) is located near top of slope of SR 18 prism.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	40	Yes	FACU
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Thuja plicata	20	Yes	FAC
2. Acer cicinatum	10	Yes	FAC
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: r=1m)			
1. Polystichum munitum	20	Yes	FACU
2. Tolmiea menziesii	35	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 55(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					L	
4-8	2.5Y 4/3	90	2.5YR 4/6	10	C	M	SL	
8-16	2.5Y 4/4	95	7.5YR 4/6	5	C	M, CS	LS	
16-19	10YR 2/1	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water Table Present?	Yes ☒	No ☐	Depth (inches): 17"
Saturation Present? (includes capillary fringe)	Yes ☐	No ☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/16/18

Applicant/Owner: WSDOT State: WA Sampling Point: 56(UPL)

Investigator(s): Trey Parry, Kaylee Moser Section, Township, Range: S15, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 21

Subregion (LRR): A Lat: 47.478173 Long: -121.893403 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-56 (UPL) is the paired upland plot for SP-57 (WET) and the assocaited upland plot of Wetland 35. SP-56 (UPL) has coarse sand present within pit that could be draining the wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Acer circinatum	40	Yes	FAC
2. Rubus spectabilis	40	Yes	FAC
3. Ribes bracteosum	20	Yes	FAC
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Tolmiea menziesii	80	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 56(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100					FSaL	Fine Sand Loam
9-16+	Mixed	100					SAND	Coarse Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 18"

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: Coarse sand is potentially draining the wetland.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/16/18

Applicant/Owner: WSDOT State: WA Sampling Point: 57(WET)

Investigator(s): Trey Parry, Kaylee Moser Section, Township, Range: S15, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): A Lat: 47.478159 Long: -121.893435 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-57 (WET) is associated with Wetland 35. SP-57 (WET) is located at the toe of slope and is actively seeping water. The seepage drains to Deep Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	100	Yes	FAC
2.			
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Tolmiea menziesii	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 57(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					L	
8-16	10YR 3/1	92	7.5YR 4/6	5	C	M	L	
			10YR 4/1	3	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☒ Water Marks (B1)
- ☒ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☒ No ☐ Depth (inches): 1"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0; surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/16/18

Applicant/Owner: WSDOT State: WA Sampling Point: 58(UPL)

Investigator(s): Jeff Meyer, Matt Murphy Section, Township, Range: S15, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): A Lat: 47.478139 Long: -121.893459 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-58 (UPL) is the west facing paired upland plot for SP-57 (WET) and the associated upland plot of Wetland 35. SP-58 (UPL) is located on an upland hillslope, approximatey 10-15 feet from SP-57 (WET).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	60	Yes	FAC
2.			
3.			
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	60	Yes	FAC
2. Ribes bracteosum	10	No	FAC
3. Acer circinatum	30	Yes	FAC
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: r=1m)			
1. Leaf Litter	80		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 58(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					L	
4-16	10YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/16/18

Applicant/Owner: WSDOT State: WA Sampling Point: 59(WET)

Investigator(s): Trey Parry, Kaylee Moser Section, Township, Range: S15, T23N, R7E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 3-4

Subregion (LRR): A Lat: 47.477347 Long: -121.892844 Datum: WGS84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: SP-59 (WET) is associated with Wetland 35. SP-59 (WET) is located at the toe of slope of SR 18 road prism; seep groundwater expression nearby.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	90	Yes	FAC
2.			
3.			
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Tolmiea menziesii	55	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 59(WET)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	97	10YR 3/6	3			L	
6-16	2.5Y 5/2	70	10YR 4/6	20	C	M, PL	SL	
			7.5YR 3/4	10	C	M,PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water Table Present?	Yes ☒	No ☐	Depth (inches): 2"
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 60(UPL)

Investigator(s): Trey Parry, Kaylee Moser Section, Township, Range: S15, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 50

Subregion (LRR): A Lat: 47.477274 Long: -121.892802 Datum: WGS84

Soil Map Unit Name: Tokul-Pastik complex NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: SP-60 (UPL) is the paired upland plot for SP-59 (WET) and the associated upland plot of Wetland 35..

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea sitchensis	80	Yes	FAC
2.			
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Sambucas racemosa	15	Yes	FACU
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: r=1m)			
1. Polystichum munitum	30	Yes	FACU
2. Tolmiea menziesii	5	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: 60 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 5/3+	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange & Weigh Station Design Services City/County: King County Sampling Date: 11/14/18

Applicant/Owner: WSDOT State: WA Sampling Point: 61(UPL)

Investigator(s): Jeff Meyer, Matt Murphy Section, Township, Range: S50, T23N, R7E

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): A Lat: 47.507097 Long: -121.888808 Datum: WGS84

Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: SP-61 (UPL) is the associated upland plot of Wetland 32. SP-61 (UPL) is located on the northwestern side of Wetland 32, approximately 20-30 feet from the WSDOT fence, and approximately 10-15 feet away from Wetland flag A10.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	50	Yes	FACU
2. Thuja plicata	25	No	FAC
3. Populus balsamifera	60	Yes	FAC
4.			
	135	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=2m)			
1. Rubus spectabilis	40	Yes	FAC
2. Frangula purshiana	2	No	FAC
3. Oplopanax horridus	20	Yes	FAC
4.			
5.			
	62	= Total Cover	
Herb Stratum (Plot size: r=1m)			
1. Polystichum munitum	30	Yes	FACU
2. Athyrium cyclosorum	2	No	FAC
3. Rubus ursinus	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	37	= Total Cover	
Woody Vine Stratum (Plot size: r=2m)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

SOIL

Sampling Point: 61(UPL)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/4	100					L	Organic debris
2-6	10YR 2/2	100					L	
6-13	10YR 3/3	100					FSL	Fine Sandy Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange and Weigh/Inspection Station City/County: King County Sampling Date: 6/20/2019

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W41-SP1

Investigator(s): Ryan Boyle and Jennie Husby Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 3

Subregion (LRR): A Lat: 47.506255 Long: -121.884202 Datum: NAD83HARN

Soil Map Unit Name: Tokul gravelly medial loam NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Agrostis capillaris*	80	**Y**	80.0	FAC
2. *Phalaris arundinacea*	20	**Y**	20.0	FACW
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	100 = Total Cover			
Woody Vine Stratum (Plot size: 5ft x 5ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		280 (B)

Prevalence Index = B/A = 2.800

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W41-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/1	100						Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted roadfill

Depth (inches): 6

Hydric Soil Present? ○ Yes ● No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ● No Depth (inches): _____

Water Table Present? ○ Yes ● No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ● No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ● No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange and Weigh/Inspection Station City/County: King County Sampling Date: 6/20/2019

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W41-SP2

Investigator(s): Ryan Boyle and Jennie Husby Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 3

Subregion (LRR): A Lat: 47.509287 Long: -121.884193 Datum: NAD83HARN

Soil Map Unit Name: Tokul gravelly medial loam NWI Classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [✓] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	(●) Yes ( ) No
Hydric Soil Present?	(●) Yes	( ) No		
Wetland Hydrology Present?	(●) Yes	( ) No		

Remarks:
Hydrology is naturally problematic due to the site visit occurring during the normal annual dry season. A restrictive soil layer is present within 24 in. of the surface, hydrophytic vegetation, and hydric soils are present. Wetland hydrology is presumed to be present during the wet part of the growing season as conditions 2f. and 3a. (pgs. 116 & 117 USACE 2010) are met for wetlands that periodically lack indicators of wetland hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1. *Spiraea douglasii*	10	**Y**	100.0	FACW
2.				
3.				
4.				
5.				
	10 = Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Agrostis capillaris*	90	**Y**	91.8	FAC
2. *Taraxacum officinale*	5	N	5.1	FACU
3. *Juncus effusus*	3	N	3.1	FACW
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	98 = Total Cover			
Woody Vine Stratum (Plot size: 5ft x 5ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	13	x 2 =	26
FAC species	90	x 3 =	270
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	108 (A)		316 (B)

Prevalence Index = B/A = 2.926

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [✓] 2 - Dominance Test is >50%
- [✓] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W41-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/2	100						Clay Loam	
4-10	7.5YR	5/1	70	5YR	3/4	5	C	M	Clay Loam	concentration is prominent
				5YR	4/6	25	C	M	Clay Loam	concentration is prominent

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted roadfill

Depth (inches): 10

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A restrictive soil layer is present within 24 in of the surface. The site visit occurred during the dry season on a site that contains hydric soils and hydrophytic vegetation and no significant hydrologic manipulation, so the site is considered to be a wetland.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange and Weigh/Inspection Station City/County: King County Sampling Date: 6/20/2019

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W41-SP3

Investigator(s): Ryan Boyle and Jennie Husby Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): A Lat: 47.509407 Long: -121.883957 Datum: NAD83HARN

Soil Map Unit Name: Tokul gravelly medial loam NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Agrostis capillaris*	95	**Y**	95.0	FAC
2. *Plantago lanceolata*	5	N	5.0	FACU
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	100 = Total Cover			
Woody Vine Stratum (Plot size: 5ft x 5ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	100 (A)		305 (B)

Prevalence Index = B/A = 3.050

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W41-SP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	4/4	100						Sandy Loam	
3-4	10YR	4/3	90	10YR	4/6	10	C	M	Sandy Loam	concentration is distinct

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted roadfill

Depth (inches): 4

Hydric Soil Present? ○ Yes ● No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ● No Depth (inches): _____

Water Table Present? ○ Yes ● No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ● No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ● No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange and Weigh/Inspection Station City/County: King County Sampling Date: 6/20/2019

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W41-SP4

Investigator(s): Ryan Boyle and Jennie Husby Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): A Lat: 47.509384 Long: -121.884011 Datum: NAD83HARN

Soil Map Unit Name: Tokul gravelly medial loam NWI Classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [✓] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	(●) Yes ( ) No
Hydric Soil Present?	(●) Yes	( ) No		
Wetland Hydrology Present?	(●) Yes	( ) No		

Remarks:
Hydrology is naturally problematic due to the site visit occurring during the normal annual dry season. A restrictive soil layer is present within 24 in. of the surface, hydrophytic vegetation, and hydric soils are present. Wetland hydrology is presumed to be present during the wet part of the growing season as conditions 2f. and 3a. (pgs. 116 & 117 USACE 2010) are met for wetlands that periodically lack indicators of wetland hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15ft x 15ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Anthoxanthum odoratum*	20	N	18.7	FACU
2. *Juncus effusus*	20	N	18.7	FACW
3. *Solidago lepida*	5	N	4.7	FAC
4. *Plantago lanceolata*	2	N	1.9	FACU
5. *Agrostis capillaris*	60	**Y**	56.1	FAC
6.				
7.				
8.				
9.				
10.				
11.				
	107 = Total Cover			
Woody Vine Stratum (Plot size: 5ft x 5ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	65	x 3 =	195
FACU species	22	x 4 =	88
UPL species	0	x 5 =	0
Column Totals:	107 (A)		323 (B)

Prevalence Index = B/A = 3.019

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [✓] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W41-SP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR	3/2	100						Sandy Loam	
5-12	2.5Y	5/1	70	5YR	4/6	30	C	M	Sandy Loam	concentration is prominent

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted roadfill

Depth (inches): 12

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A restrictive soil layer is present within 24 in of the surface. The site visit occurred during the dry season on a site that contains hydric soils and hydrophytic vegetation and no significant hydrologic manipulation, so the site is considered to be a wetland.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange and Weigh/Inspection Station City/County: King County Sampling Date: 6/20/2019

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W41-SP5

Investigator(s): Ryan Boyle and Jennie Husby Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): A Lat: 47.509142 Long: -121.884611 Datum: NAD83HARN

Soil Map Unit Name: Tokul gravelly medial loam NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			

Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			

Herb Stratum (Plot size: 5ft x 5ft)				
1. *Agrostis capillaris*	90	**Y**	87.4	FAC
2. *Juncus effusus*	10	N	9.7	FACW
3. *Vicia hirsuta*	3	N	2.9	UPL
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	103 = Total Cover			

Woody Vine Stratum (Plot size: 5ft x 5ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	3	x 5 =	15
Column Totals:	103 (A)		305 (B)

Prevalence Index = B/A = 2.961

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [✓] 2 - Dominance Test is >50%
- [✓] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W41-SP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR	3/2	100						Sandy Loam	
5-6	2.5Y	5/1	75	10YR	5/6	25	C	M	Sandy Loam	concentration is prominent

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted roadfill

Depth (inches): 6

Hydric Soil Present? ○ Yes ● No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ● No Depth (inches): _____

Water Table Present? ○ Yes ● No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ● No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ● No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange and Weigh/Inspection Station City/County: King County Sampling Date: 6/20/2019

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W41-SP6

Investigator(s): Ryan Boyle and Jennie Husby Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): A Lat: 47.509169 Long: -121.884638 Datum: NAD83HARN

Soil Map Unit Name: Tokul gravelly medial loam NWI Classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [✓] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	(●) Yes ( ) No
Hydric Soil Present?	(●) Yes	( ) No		
Wetland Hydrology Present?	(●) Yes	( ) No		

Remarks:
Hydrology is naturally problematic due to the site visit occurring during the normal annual dry season. A restrictive soil layer is present within 24 in. of the surface, hydrophytic vegetation, and hydric soils are present. Wetland hydrology is presumed to be present during the wet part of the growing season as conditions 2f. and 3a. (pgs. 116 & 117 USACE 2010) are met for wetlands that periodically lack indicators of wetland hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Agrostis capillaris*	95	**Y**	95.0	FAC
2. *Taraxacum officinale*	5	N	5.0	FACU
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	100 = Total Cover			
Woody Vine Stratum (Plot size: 5ft x 5ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	100 (A)		305 (B)

Prevalence Index = B/A = 3.050

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [✓] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W41-SP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR	5/1	100						Sandy Loam	
4-8	2.5Y	5/1	60	10YR	5/8	40	C	M	Sandy Loam	concentration is prominent

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted roadfill

Depth (inches): 8

Hydric Soil Present? ◉ Yes ○ No

Remarks:
Presumed redox in compacted soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
A restrictive soil layer is present within 24 in of the surface. The site visit occurred during the dry season on a site that contains hydric soils and hydrophytic vegetation and no significant hydrologic manipulation, so the site is considered to be a wetland.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange and Weigh/Inspection Station City/County: King County Sampling Date: 6/20/2019

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W42-SP1

Investigator(s): Ryan Boyle and Jennie Husby Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): A Lat: 47.507386 Long: -121.883457 Datum: NAD83HARN

Soil Map Unit Name: Tokul gravelly medial loam NWI Classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	(●) Yes ( ) No
Hydric Soil Present?	(●) Yes	( ) No		
Wetland Hydrology Present?	(●) Yes	( ) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1. *Spiraea douglasii*	40	**Y**	61.5	FACW
2. *Alnus rubra*	25	**Y**	38.5	FAC
3.				
4.				
5.				
	65	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Anthoxanthum odoratum*	75	**Y**	76.5	FACU
2. *Leucanthemum vulgare*	5	N	5.1	FACU
3. *Cytisus scoparius*	5	N	5.1	UPL
4. *Solidago lepida*	5	N	5.1	FAC
5. *Juncus effusus*	3	N	3.1	FACW
6. *Glyceria elata*	3	N	3.1	FACW
7. *Plantago lanceolata*	2	N	2.0	FACU
8.				
9.				
10.				
11.				
	98	= Total Cover		
Woody Vine Stratum (Plot size: 5ft x 5ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	46	x 2 =	92
FAC species	30	x 3 =	90
FACU species	82	x 4 =	328
UPL species	5	x 5 =	25
Column Totals:	163 (A)		535 (B)

Prevalence Index = B/A = 3.282

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [✓] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W42-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR	3/2	100						Sandy Loam	
5-11	2.5Y	5/1	80	10YR	4/6	20	C	M	Sandy Loam	concentration is prominent

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ◉ Yes ○ No Depth (inches): 5

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange and Weigh/Inspection Station City/County: King County Sampling Date: 6/20/2019

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W42-SP2

Investigator(s): Ryan Boyle and Jennie Husby Section, Township, Range: S02, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): A Lat: 47.507428 Long: -121.883542 Datum: NAD83HARN

Soil Map Unit Name: Tokul gravelly medial loam NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	( ) Yes	(●) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Anthoxanthum odoratum*	50	**Y**	76.9	FACU
2. *Solidago lepida*	10	N	15.4	FAC
3. *Leucanthemum vulgare*	5	N	7.7	FACU
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	65 = Total Cover			
Woody Vine Stratum (Plot size: 5ft x 5ft)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum 35

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals:	65 (A)		250 (B)

Prevalence Index = B/A = 3.846

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ( ) Yes (●) No

Remarks:

SOIL

Sampling Point: W42-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	3/2	100						Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compact roadfill

Depth (inches): 3

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 90/18 IC City/County: King Sampling Date: 6/13/2019

Applicant/Owner: WSDOT State: WA Sampling Point: WL50-1

Investigator(s): VR and RB Section, Township, Range: T 23N, R7E, Section 10

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): A Lat: TBD Long: TBD Datum: NAD83HARN

Soil Map Unit Name: TBD NWI Classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	( ) Yes	(●) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Tsuga heterophylla*	90	**Y**	100.0	FACU
2.				
3.				
4.				
	90	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1. *Tsuga heterophylla*	10	**Y**	40.0	FACU
2. *Vaccinium parvifolium*	15	**Y**	60.0	FACU
3.				
4.				
5.				
	25	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Gaultheria shallon*	35	**Y**	87.5	FACU
2. *Rubus ursinus*	5	N	12.5	FACU
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	40	= Total Cover		
Woody Vine Stratum (Plot size: 5ft x 5ft)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	155	x 4 =	620
UPL species	0	x 5 =	0
Column Totals:	155 (A)		620 (B)

Prevalence Index = B/A = 4.000

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ( ) Yes (●) No

Remarks:

SOIL

Sampling Point: WL50-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5YR	2.5/2	100						Silty Clay Loam	dry
14-20	10YR	2/2	100						Silt Loam	dry, rocky

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 90/18 Interchange City/County: King Sampling Date: 6/13/2019

Applicant/Owner: WSDOT State: WA Sampling Point: WL50-2

Investigator(s): RB and VR Section, Township, Range: T 23N, R7E, Section 10

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): A Lat: TBD Long: TBD Datum: NAD83HARN

Soil Map Unit Name: TBD NWI Classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	(●) Yes ( ) No
Hydric Soil Present?	(●) Yes	( ) No		
Wetland Hydrology Present?	(●) Yes	( ) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Tsuga heterophylla*	15	**Y**	100.0	FACU
2.				
3.				
4.				
	15	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1. *Vaccinium parvifolium*	1	**Y**	100.0	FACU
2.				
3.				
4.				
5.				
	1	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Lysichiton americanus*	10	**Y**	66.7	OBL
2. *Gaultheria shallon*	2	N	13.3	FACU
3. *Athyrium cyclosorum*	2	N	13.3	FAC
4. *Rubus spectabilis*	1	N	6.7	FAC
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	15	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	3	x 3 =	9
FACU species	18	x 4 =	72
UPL species	0	x 5 =	0
Column Totals:	31 (A)		91 (B)

Prevalence Index = B/A = 2.935

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:
Other plants in wetland include water parsley and western red cedar

SOIL

Sampling Point: WL50-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/2	50	10YR	4/2	40	D	M	loamy clay	
				7.5YR	5/8	10	C	M		
6-14	10YR	2/2	85	2.5Y	6/1	5	D	M	loamy clay	charcoal present
				7.5YR	4/6	10	C	M		
14-20	7.5YR	4/6	80	10YR	3/1	20	D	M	loamy clay	charcoal present

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	○ Yes	◉ No	Depth (inches):
Water Table Present?	◉ Yes	○ No	Depth (inches): 14
Saturation Present? (includes capillary fringe)	◉ Yes	○ No	Depth (inches): 0

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 90/18 Interchange City/County: King Sampling Date: 7/30/2019

Applicant/Owner: WSDOT State: WA Sampling Point: WL51-SP1

Investigator(s): RB+VR+JH Section, Township, Range: T 23N, R 7E, S 2

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.505567 Long: -121.882748 Datum: NAD83HARN

Soil Map Unit Name: Seattle muck NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Tsuga heterophylla*	30	**Y**	54.5	FACU
2. *Alnus rubra*	25	**Y**	45.5	FAC
3.				
4.				
	55	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1. *Lonicera involucrata*	20	**Y**	28.6	FAC
2. *Cornus alba*	40	**Y**	57.1	FACW
3. *Rubus spectabilis*	10	N	14.3	FAC
4.				
5.				
	70	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Polystichum munitum*	10	**Y**	41.7	FACU
2. *Maianthemum dilatatum*	10	**Y**	41.7	FAC
3. *Rubus ursinus*	3	N	12.5	FACU
4. *Geranium robertianum*	1	N	4.2	FACU
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	24	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	65	x 3 =	195
FACU species	44	x 4 =	176
UPL species	0	x 5 =	0
Column Totals:	149 (A)		451 (B)

Prevalence Index = B/A = 3.027

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: WL51-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5YR	2.5/2	100						silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 90/18 Interchange City/County: King Sampling Date: 7/30/2019

Applicant/Owner: WSDOT State: WA Sampling Point: W51-SP2

Investigator(s): RB+VR+JH Section, Township, Range: T 23N, R 7E, S 2

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): A Lat: 47.505561 Long: -121.882671 Datum: NAD83HARN

Soil Map Unit Name: Seattle muck NWI Classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	(●) Yes ( ) No
Hydric Soil Present?	(●) Yes	( ) No		
Wetland Hydrology Present?	(●) Yes	( ) No		

Remarks:
Area dry on delineation but previously observed as wet

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Thuja plicata*	30	**Y**	50.0	FAC
2. *Alnus rubra*	30	**Y**	50.0	FAC
3.				
4.				
	60	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1. *Symphoricarpos albus*	3	N	4.8	FACU
2. *Lonicera involucrata*	10	N	15.9	FAC
3. *Physocarpus capitatus*	50	**Y**	79.4	FACW
4.				
5.				
	63	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
		= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	70	x 3 =	210
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	123 (A)		322 (B)

Prevalence Index = B/A = 2.618

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W51-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	2/2	100						organic	
2-8	2.5Y	4/2	90	7.5YR	5/8	10	C	M	clayey loam	
8-13.5	10YR	2/2	100						silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water present 1.5 weeks prior to delineation

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 90/18 Interchange City/County: King Sampling Date: 8/16/2019

Applicant/Owner: WSDOT State: WA Sampling Point: W51-SP3

Investigator(s): RB+VR+JH Section, Township, Range: T 23N, R 7E, S 2

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.507098 Long: -121.881734 Datum: NAD83HARN

Soil Map Unit Name: Seattle muck NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Thuja plicata*	40	**Y**	100.0	FAC
2.				
3.				
4.				
	40	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1. *Physocarpus capitatus*	5	N	8.8	FACW
2. *Rubus spectabilis*	15	**Y**	26.3	FAC
3. *Blechnum spicant*	15	**Y**	26.3	FAC
4. *Vaccinium parvifolium*	2	N	3.5	FACU
5. *Athyrium cyclosorum*	20	**Y**	35.1	FAC
	57	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Maianthemum dilatatum*	3	**Y**	100.0	FAC
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	3	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	93	x 3 =	279
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	100 (A)		297 (B)

Prevalence Index = B/A = 2.970

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W51-SP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	2/1	100						clay loam	
7-14	10YR	3/1	100						clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ◉ Yes ○ No Depth (inches): 0

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 90/18 Interchange City/County: King Sampling Date: 7/30/2019

Applicant/Owner: WSDOT State: WA Sampling Point: W51-SP4

Investigator(s): RB+VR+JH Section, Township, Range: T 23N, R 7E, S 2

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.507050 Long: -121.881666 Datum: NAD83HARN

Soil Map Unit Name: Seattle Muck NWI Classification: PSS/PFO

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	(●) Yes ( ) No
Hydric Soil Present?	(●) Yes	( ) No		
Wetland Hydrology Present?	(●) Yes	( ) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Alnus rubra*	25	**Y**	100.0	FAC
2.				
3.				
4.				
	25	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1. *Physocarpus capitatus*	45	**Y**	64.3	FACW
2. *Rubus spectabilis*	25	**Y**	35.7	FAC
3.				
4.				
5.				
	70	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Athyrium cyclosorum*	20	**Y**	20.0	FAC
2. *Lysichiton americanus*	80	**Y**	80.0	OBL
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	100	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	45	x 2 =	90
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	195 (A)		380 (B)

Prevalence Index = B/A = 1.949

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W51-SP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR	2/1	95	10YR	5/6	5	C	M	clay laom	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	◉ Yes	○ No	Depth (inches): 0
Water Table Present?	◉ Yes	○ No	Depth (inches): 12
Saturation Present? (includes capillary fringe)	◉ Yes	○ No	Depth (inches): 0

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 90/18 Interchange City/County: King Sampling Date: 7/30/2019

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W51-SP5

Investigator(s): RB+VR+JH Section, Township, Range: T 23N, R 7E, S 2

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): A Lat: 47.507343 Long: -121.880337 Datum: NAD83HARN

Soil Map Unit Name: Seattle Muck NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	( ) Yes (●) No
Hydric Soil Present?	( ) Yes	(●) No		
Wetland Hydrology Present?	( ) Yes	(●) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Populus balsamifera*	10	**Y**	50.0	FAC
2. *Salix lasiandra*	10	**Y**	50.0	FACW
3.				
4.				
	20	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1. *Polystichum munitum*	30	**Y**	58.8	FACU
2. *Lonicera involucrata*	15	**Y**	29.4	FAC
3. *Rubus spectabilis*	5	N	9.8	FAC
4. *Spiraea douglasii*	1	N	2.0	FACW
5.				
	51	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Geranium robertianum*	1	**Y**	100.0	FACU
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	1	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	11	x 2 =	22
FAC species	30	x 3 =	90
FACU species	31	x 4 =	124
UPL species	0	x 5 =	0
Column Totals:	72 (A)		236 (B)

Prevalence Index = B/A = 3.278

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: W51-SP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/4	100						loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Roots, roadfill

Depth (inches): 4

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 90/18 Interchange City/County: King Sampling Date: 7/30/2019

Applicant/Owner: WSDOT State: WA Sampling Point: WL51-SP6

Investigator(s): RB+VR+JH Section, Township, Range: T 23N, R 7E, S 2

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.507276 Long: -121.880351 Datum: NAD83HARN

Soil Map Unit Name: Seattle Muck NWI Classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? (●) Yes ( ) No (If no, explain in Remarks.)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? (●) Yes ( ) No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	(●) Yes	( ) No	**Is the Sampled Area within a Wetland?**	(●) Yes ( ) No
Hydric Soil Present?	(●) Yes	( ) No		
Wetland Hydrology Present?	(●) Yes	( ) No		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1. *Salix lasiandra*	40	**Y**	76.9	FACW
2. *Populus balsamifera*	10	N	19.2	FAC
3. *Thuja plicata*	2	N	3.8	FAC
4.				
	52	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10ft x 10ft)				
1. *Rubus spectabilis*	2	N	3.0	FAC
2. *Lysichiton americanus*	60	**Y**	89.6	OBL
3. *Lonicera involucrata*	1	N	1.5	FAC
4. *Spiraea douglasii*	2	N	3.0	FACW
5. *Polystichum munitum*	2	N	3.0	FACU
	67	= Total Cover		
Herb Stratum (Plot size: 5ft x 5ft)				
1. *Geranium robertianum*	1	**Y**	100.0	FACU
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	1	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
		= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	42	x 2 =	84
FAC species	15	x 3 =	45
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	120 (A)		201 (B)

Prevalence Index = B/A = 1.675

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] 5 - Wetland Non-Vascular Plants[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? (●) Yes ( ) No

Remarks:

SOIL

Sampling Point: WL51-SP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14		100					silty clay	Color: Gley 1: 4/10Y

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	○ Yes	◉ No	Depth (inches):
Water Table Present?	◉ Yes	○ No	Depth (inches): 12
Saturation Present? (includes capillary fringe)	◉ Yes	○ No	Depth (inches): 0

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90 / SR 18 Interchange and SR Widening City/County: King Sampling Date: 3/12/2020
Applicant/Owner: WSDOT State: WA Sampling Point: **62**
Investigator(s): P. Johnson, A. Thom Section, Township, Range: T23N R07E S15 NWSE
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): >10%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.476439 Long: -121.894173 Datum: NAD 1983
Soil Unit (Name-ID-Hydric Rating): okul gravelly medial loam, 15 to 30 percent slope - 256 - Not Hydric NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No X (If no, explain in Remarks)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	X
Hydric Soil Present?	Yes	No	X
Wetland Hydrology Present?	Yes	No	X

Is the Sampled Area within a Wetland? **Yes** **No** X

Precipitation:
According to the Sand Point NOAA weather station, precipitation was above the normal range for the three months prior to the site visit.

Remarks:
Upland sample plot 1 of 2 in a 4 sample plot gradient for W41. Upslope of SP63. Located approx 100 feet west of SR18.

VEGETATION

Tree Stratum (Plot size: r=3X1m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	90%	Yes	FACU
2.			
3.			
4.			
	90% = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2X1m)			
1. *Acer circinatum*	30%	Yes	FAC
2. *Rubus spectabilis*	20%	Yes	FAC
3. *Vaccinium membranaceum*	5%	No	FACU
4. *Gaultheria shallon*	2%	No	FACU
5.			
	57% = Total Cover		
Herb Stratum (Plot size: r=1x1m)			
1. *Polystichum munitum*	70%	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70% = Total Cover		
Woody Vine Stratum (Plot size: r=2x1m)			
1. *none*	0%		
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 30%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** **No** X

Remarks:

SOIL

Sampling Point: 62

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	7.5YR 3/3	70	7.5YR 3/4	25	C	M	L	
			7.5YR 3/2	5	C	M		
10-20+	7.5YR 3/4	70	7.5YR 4/6	30	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

4" of duff above surface horizon. Organic material present at 6" (7.5YR 3/4).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90 / SR 18 Interchange and SR Widening City/County: King Sampling Date: 3/12/2020
Applicant/Owner: WSDOT State: WA Sampling Point: **63**
Investigator(s): P. Johnson, A. Thom Section, Township, Range: T23N R07E S15 NWSE
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): >10%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.476491 Long: -121.894146 Datum: NAD 1983
Soil Unit (Name-ID-Hydric Rating): okul gravelly medial loam, 15 to 30 percent slope - 256 - Not Hydric NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes ____	No **X**	
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the Sand Point NOAA weather station, precipitation was above the normal range for the three months prior to the site visit.

Remarks:
Upland sample plot 2 of 2 in a 4 sample plot gradient for W41. Downslope from SP62 and upslope from SP63.

VEGETATION

Tree Stratum (Plot size: r=3x1m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2x1m)			
1. *Acer circinatum*	60%	Yes	FAC
2. *Rubus spectabilis*	60%	Yes	FAC
3.			
4.			
5.			
	120% = Total Cover		
Herb Stratum (Plot size: r=1x1m)			
1. *Polystichum munitum*	40%	Yes	FACU
2. *Rubus ursinus*	5%	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45% = Total Cover		
Woody Vine Stratum (Plot size: r=2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 55%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 63

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10YR 3/3	95	10YR 4/4	5	C	M	L	
6-8	-	-	-	-	-	-	-	decomposing log
8-14	10YR 2/2	95	7.5YR 3/4	5	C	M	L	
14-20+	10YR 3/3	95	10YR 4/6	5	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
4" duff layer above 0-6

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90 / SR 18 Interchange and SR Widening City/County: King Sampling Date: 3/12/2020
Applicant/Owner: WSDOT State: WA Sampling Point: **64**
Investigator(s): P. Johnson, A. Thom Section, Township, Range: T23N R07E S15 NWSE
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): >10%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.476555 Long: -121.894143 Datum: NAD 1983
Soil Unit (Name-ID-Hydric Rating): okul gravelly medial loam, 15 to 30 percent slope - 256 - Not Hydric NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** **Yes X** **No** ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Precipitation:
According to the Sand Point NOAA weather station, precipitation was above the normal range for the three months prior to the site visit.

Remarks:
Wetland sample plot 1 of 2 in a 4 sample plot gradient for W41. Downslope of SP63 and upslope of wetland sample plot SP64, which is also a wetland sample plot.

VEGETATION

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer circinatum*	80%	Yes	FAC
2. *Alnus rubra*	60%	Yes	FAC
3.			
4.			
	140% = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2m)			
1. *Rubus spectabilis*	50%	Yes	FAC
2. *Acer circinatum*	10%	No	FAC
3.			
4.			
5.			
	60% = Total Cover		
Herb Stratum (Plot size: r=1m)			
1. *Tolmiea menziesii*	70%	Yes	FAC
2. *Polystichum munitum*	20%	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: r=2m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 10%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:

SOIL

Sampling Point: 64

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR 2/2	95	10YR 4/6	5	C	M	GrL	
8-16	10YR 3/2	90	10YR 4/6	10	C	M	GrL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** X **No** ___

Remarks:

4" of duff above 0-8" layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 10

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90 / SR 18 Interchange and SR Widening City/County: King Sampling Date: 3/12/2020
Applicant/Owner: WSDOT State: WA Sampling Point: **65**
Investigator(s): M. Murphy Section, Township, Range: T23N R07E S15 NWSE
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3-5%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.476612 Long: -121.894122 Datum: NAD 1983
Soil Unit (Name-ID-Hydric Rating): okul gravelly medial loam, 15 to 30 percent slope - 256 - Not Hydric NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** **Yes X** **No** ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Precipitation:
According to the Sand Point NOAA weather station, precipitation was above the normal range for the three months prior to the site visit.

Remarks:
Wetland sample plot 2 of 2 in a 4 sample plot gradient for W41. Sample plot located at the southern end of SR 18 study area, west of SR 18 on a gradual hillslope wetland in a forested area.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: r=3x1m)			
1. *Populus balsamifera*	80%	Yes	FAC
2. *Alnus rubra*	20%	Yes	FAC
3.			
4.			
	100% = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2x1m)			
1. *Rubus spectabilis*	75%	Yes	FAC
2. *Acer circinatum*	25%	Yes	FAC
3.			
4.			
5.			
	100% = Total Cover		
Herb Stratum (Plot size: r=1x1m)			
1. *Tolmiea menziesii*	90%	Yes	FAC
2. *Petasites frigidus*	5%	No	FACW
3. *Polystichum munitum*	5%	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: r=2x1m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:

SOIL

Sampling Point: 65

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10YR 2/1	95	10YR 4/6	5	C	M	L	
8-18	10YR 2/2	95	10YR 4/6	5	C	M	GrL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes X	No ___	Depth (inches): 15	**Wetland Hydrology Present?**	**Yes** X **No** ___
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 10		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90 / SR 18 Interchange and SR Widening City/County: King Sampling Date: 3/13/2020
Applicant/Owner: WSDOT State: WA Sampling Point: **68**
Investigator(s): P. Johnson, A. Thom Section, Township, Range: T23N R07E S15 NWSE
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): None
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.475338 Long: -121.895185 Datum: NAD 1983
Soil Unit (Name-ID-Hydric Rating): okul gravelly medial loam, 15 to 30 percent slope - 256 - Not Hydric NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** **Yes X** **No** ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Precipitation:
According to the Sanpoint NOAA weather station, precipitation was above the normal range for the three months prior to the site visit.

Remarks:
PSS wetland sample plot for W43 located downstream of two seeps one to the northeast and one to the west.

VEGETATION

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	45%	Yes	FAC
2. *Alnus rubra*	30%	Yes	FAC
3.			
4.			
	75% = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2m)			
1. *Rubus spectabilis*	85%	Yes	FAC
2.			
3.			
4.			
5.			
	85% = Total Cover		
Herb Stratum (Plot size: r=1m)			
1.			
2. *none*			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0% = Total Cover		
Woody Vine Stratum (Plot size: r=2m)			
1. *none*	0%		
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 100%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:

SOIL

Sampling Point: 68

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y 3/2	75	2.5Y 4/4	15	C	M	cobbly L	
			2.5Y 4/2	20	D	M		
10+	2.5Y 4/2	80	2.5Y 5/6	20	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** X **No** ___

Remarks:
4" duff layer above 0-10 layer

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seeps nearby (upslope), draining to sample plot, surface water nearby ~3 feet downslope.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90 / SR 18 Interchange and SR Widening City/County: King Sampling Date: 3/13/2020
Applicant/Owner: WSDOT State: WA Sampling Point: **69**
Investigator(s): P. Johnson, A. Thom Section, Township, Range: T23N R07E S15 NWSE
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): <3%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.475402 Long: -121.895243 Datum: NAD 1983
Soil Unit (Name-ID-Hydric Rating): okul gravelly medial loam, 15 to 30 percent slope - 256 - Not Hydric NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No **X**	**Is the Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes ____	No **X**	
Wetland Hydrology Present?	Yes ____	No **X**	

Precipitation:
According to the Sanpoint NOAA weather station, precipitation was above the normal range for the three months prior to the site visit.

Remarks:
Upland sample plot paired with SP68 for W43.

VEGETATION

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	75%	Yes	FAC
2.			
3.			
4.			
	75% = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2m)			
1. *Rubus spectabilis*	40%	Yes	FAC
2.			
3.			
4.			
5.			
	40% = Total Cover		
Herb Stratum (Plot size: r=1m)			
1. *Polystichum munitum*	30%	Yes	FACU
2. *Rubus ursinus*	15%	Yes	FACU
3. *Tolmiea menziesii*	2%	No	FAC
4. *Athyrium cyclosorum*	1%	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	48% = Total Cover		
Woody Vine Stratum (Plot size: r=2m)			
1. *None*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 52%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No **X**

Remarks:

SOIL

Sampling Point: 69

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16+	2.5Y 3/3	80	2.5Y 4/4	20	C	M	cobbly L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
4" duff layer aboove 0-16 layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seep located ~10 feet upslope of sample plot, but its flow does not reach SP69.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90 / SR 18 Interchange and SR Widening City/County: King Sampling Date: 3/13/2020
Applicant/Owner: WSDOT State: WA Sampling Point: **70**
Investigator(s): P. Johnson, A. Thom Section, Township, Range: T23N R07E S15 NWSE
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): <3%
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.475256 Long: -121.894677 Datum: NAD 1983
Soil Unit (Name-ID-Hydric Rating): okul gravelly medial loam, 15 to 30 percent slope - 256 - Not Hydric NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is the Sampled Area within a Wetland?** **Yes X** **No** ____
Hydric Soil Present?	Yes **X**	No ____	
Wetland Hydrology Present?	Yes **X**	No ____	

Precipitation:
According to the Sanpoint NOAA weather station, precipitation was above the normal range for the three months prior to the site visit.

Remarks:
PSS wetland sample plot for W44 along SR 18.

VEGETATION

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2m)			
1. *Thuja plicata*	10%	No	FAC
2. *Rubus spectabilis*	65%	Yes	FAC
3.			
4.			
5.			
	75% = Total Cover		
Herb Stratum (Plot size: r=1m)			
1. *Polystichum munitum*	50%	Yes	FACU
2. *Tolmiea menziesii*	30%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80% = Total Cover		
Woody Vine Stratum (Plot size: r=2m)			
1. *None*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 20%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:
Bare ground is dry streambed

SOIL

Sampling Point: 70

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	96	10YR 4/6	4	CS	M	GrSa	
9-12	10YR 2/2	95	10YR 4/6	5	C	M	SaL	
12+	10YR 4/2	90	10YR 4/6	10	C	M	SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (LRR A)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (LRR A)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 9

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
SP located 3 feet from OHWM of S18 in area that appears to receive infrequent overbank flooding.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: I-90 / SR 18 Interchange and SR Widening City/County: King Sampling Date: 3/13/2020
Applicant/Owner: WSDOT State: WA Sampling Point: **71**
Investigator(s): P. Johnson, A. Thom Section, Township, Range: T23N R07E S15 NWSE
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%):
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.475203 Long: -121.894710 Datum: NAD 1983
Soil Unit (Name-ID-Hydric Rating): okul gravelly medial loam, 15 to 30 percent slope - 256 - Not Hydric NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No **X**	**Is the Sampled Area within a Wetland?** Yes ___ No **X**
Hydric Soil Present?	Yes ___	No **X**	
Wetland Hydrology Present?	Yes ___	No **X**	

Precipitation:
According to the Sanpoint NOAA weather station, precipitation was above the normal range for the three months prior to the site visit.

Remarks:
Upland sample plot, paired with SP-70 for W44.

VEGETATION

Tree Stratum (Plot size: r=3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	25%	Yes	FACU
2.			
3.			
4.			
	25% = Total Cover		
Sapling/Shrub Stratum (Plot size: r=2m)			
1. *Rubus spectabilis*	85%	Yes	FAC
2.			
3.			
4.			
5.			
	85% = Total Cover		
Herb Stratum (Plot size: r=1m)			
1. *Polystichum munitum*	100%	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: r=2m)			
1. *none*			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No **X**

Remarks:

SOIL

Sampling Point: 71

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	85	10YR 3/6	15	C	M	GrL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

[3]Texture: S = sand; Si = silt; C = clay; L = loam or loamy. Texture Modifier: co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (except MLRA 1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
4" duff layer

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (LRR A)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix D. Rating Forms

Appendix D. Rating Forms

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-01 Date of site visit: 8/28/2018
(Updated 1/12/2022)

Rated by T. Parry and J. Meyer Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY I (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

X **Category I** - Total score = 23 - 27
___ **Category II** - Total score = 20 - 22
___ **Category III** - Total score = 16 - 19
___ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	H	H	M	
Landscape Potential	H	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	9	8	8	**25**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	4
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0		3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		4
Total for D 1	Add the points in the boxes above	**13**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Roadside debris/garbage	Yes = 1 No = 0	1
Total for D 2	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 or 4 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-01

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		5
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		5
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**12**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

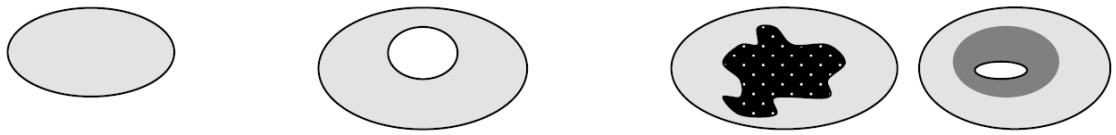
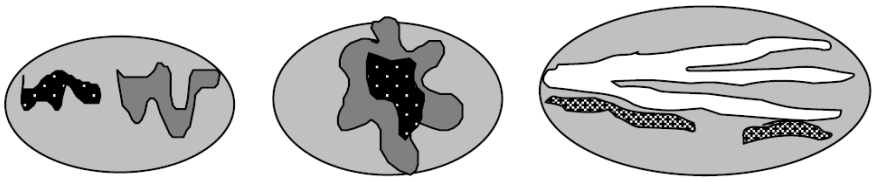
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	2
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 — Add the points in the boxes above	**11**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 25 % undisturbed habitat + (20 % moderate & low intensity land uses / 2) = 35% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 27 % undisturbed habitat + (22 % moderate & low intensity land uses / 2) = 38% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	**5**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☑ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

0 37.5 75 150 Feet

Wetland 1 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-01
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
King County, WA

Parametrix

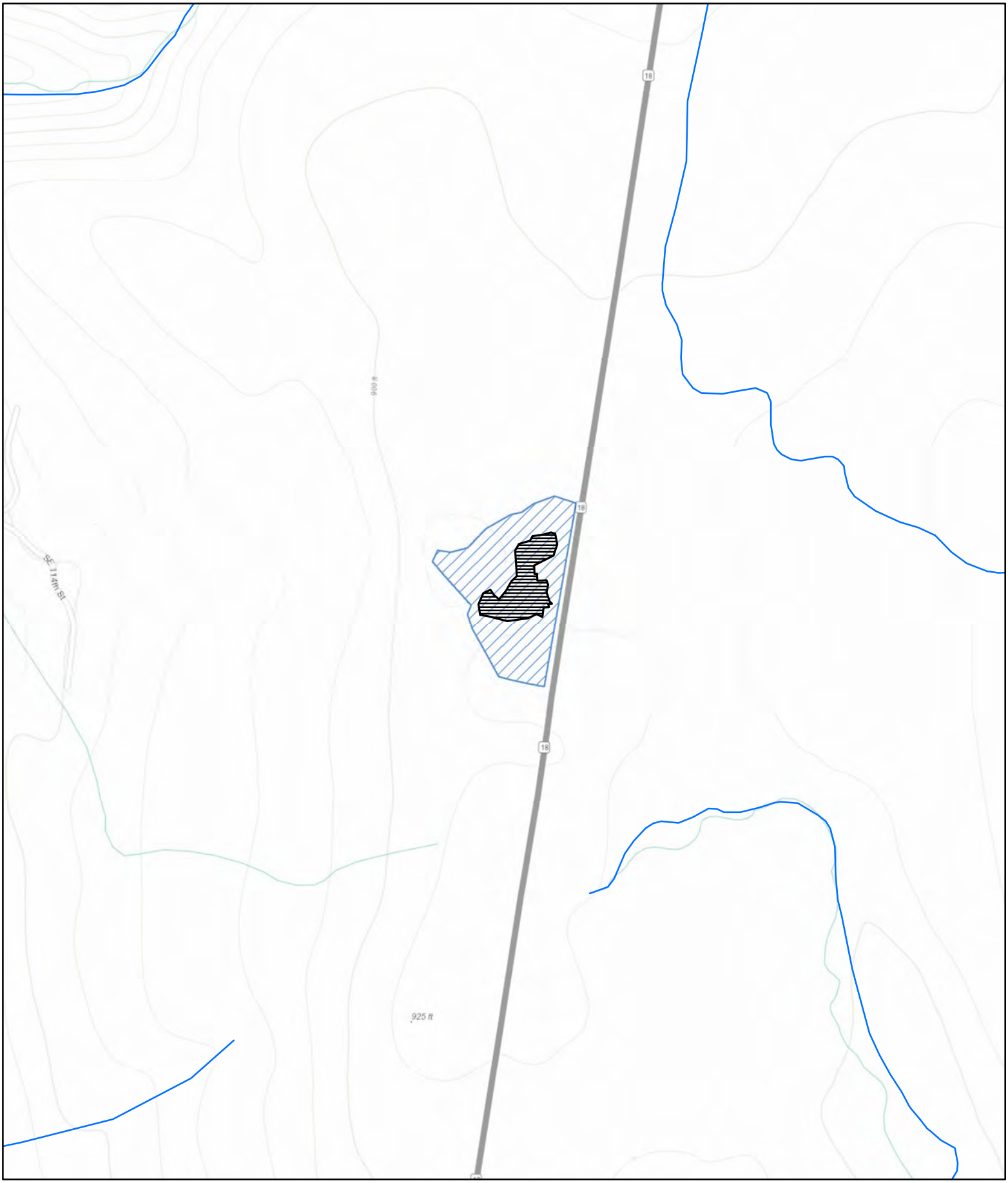
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 62.5 125 250 Feet

Wetland 1 (Approx. Boundary)
150-ft Boundary
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream
Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

Wetland LC-01
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

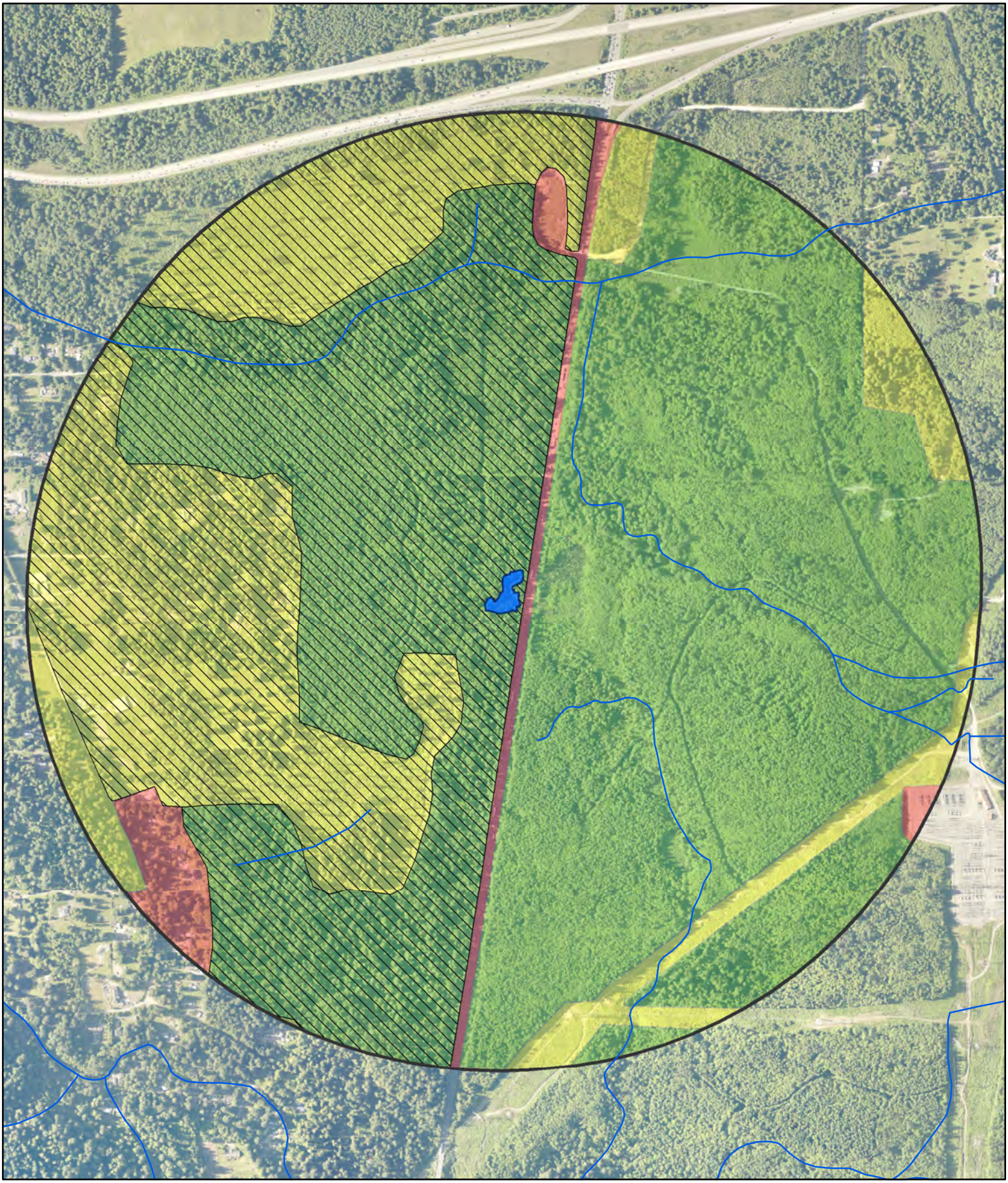
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 1 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-01
Contributing Basin
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 1 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

Land Use Intensity

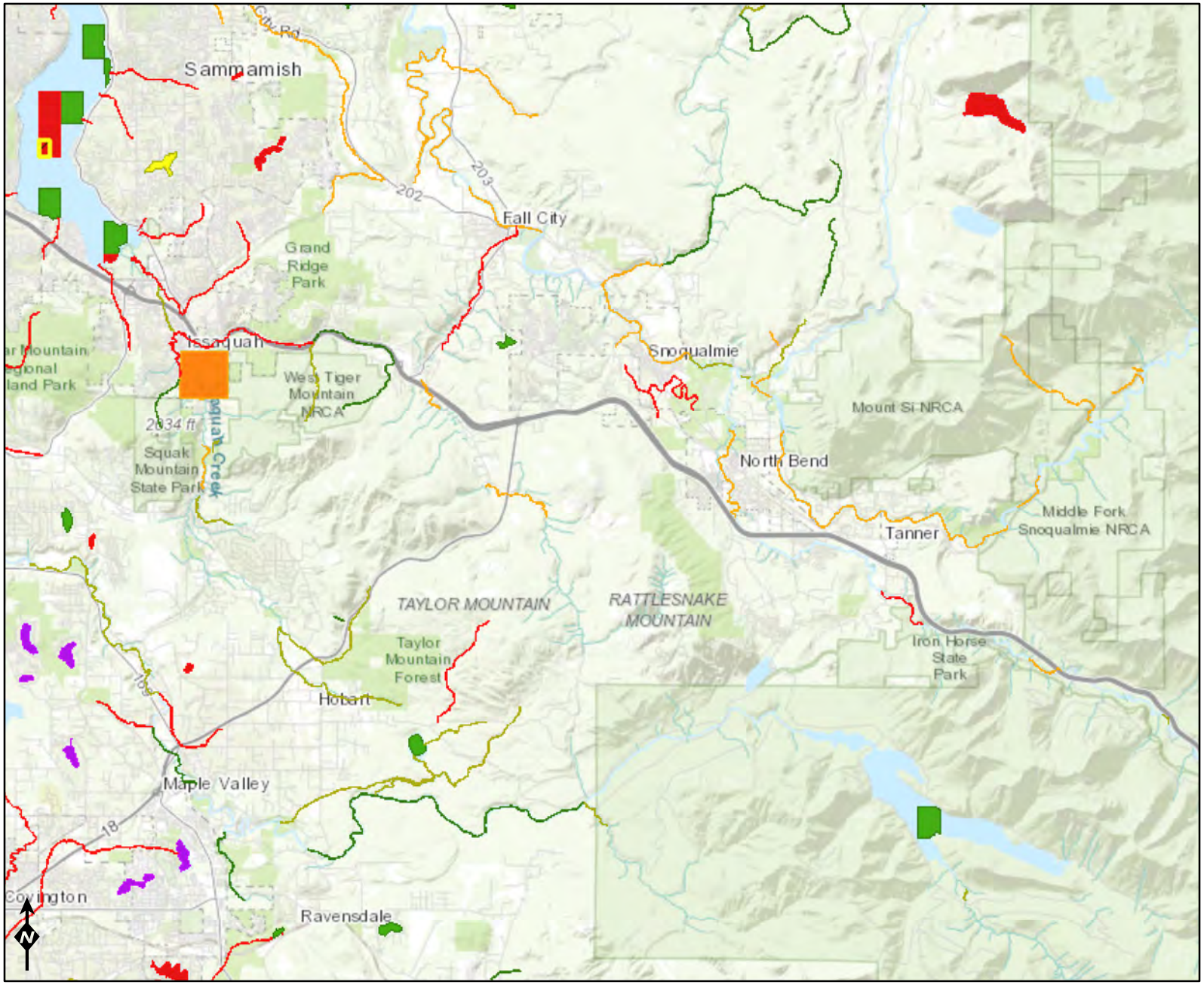
High
Moderate and Low
Undisturbed

Wetland LC-01
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

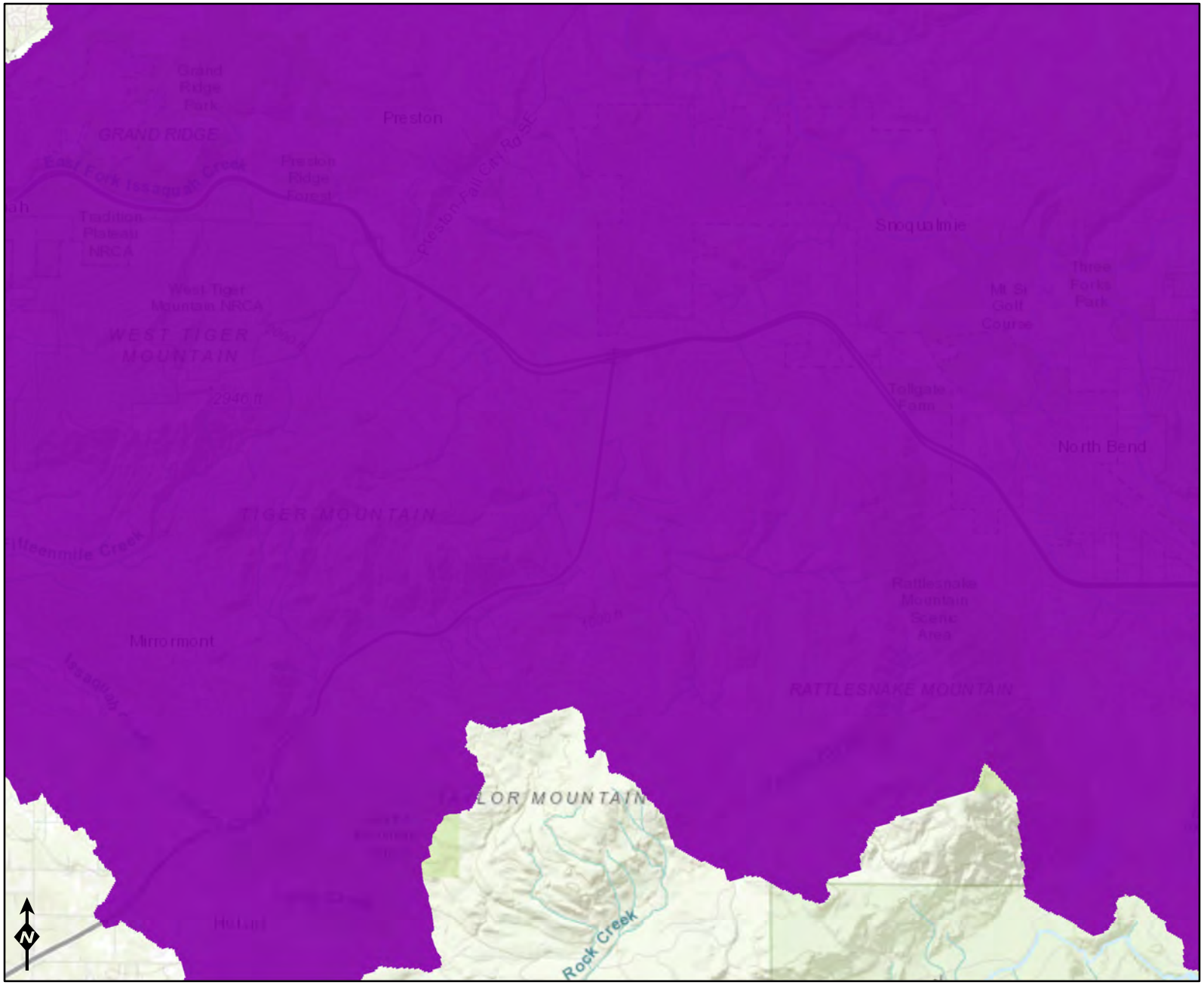
Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-02 Date of site visit: 8/28/2018 (Updated 1/12/2022)

Rated by T. Parry and J. Meyer Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY II (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- X **Category II** - Total score = 20 - 22
- ____ **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	H	M	L	
Landscape Potential	H	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	8	7	7	**22**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0		5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		4
Total for D 1	Add the points in the boxes above	**11**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Roadside debris/garbage	Yes = 1 No = 0	1
Total for D 2	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 or 4 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

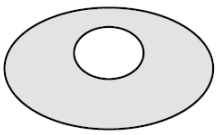
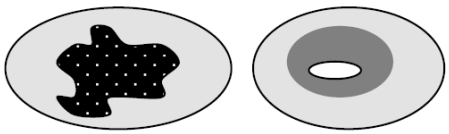
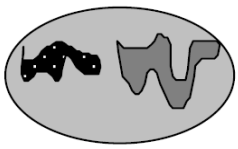
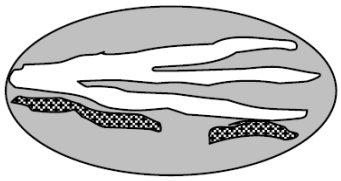
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points   	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**6**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 27 % undisturbed habitat + (22 % moderate & low intensity land uses / 2) = 38% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 69 % undisturbed habitat + (27 % moderate & low intensity land uses / 2) = 82.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

0 25 50 100 Feet

Wetland 2 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-02
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

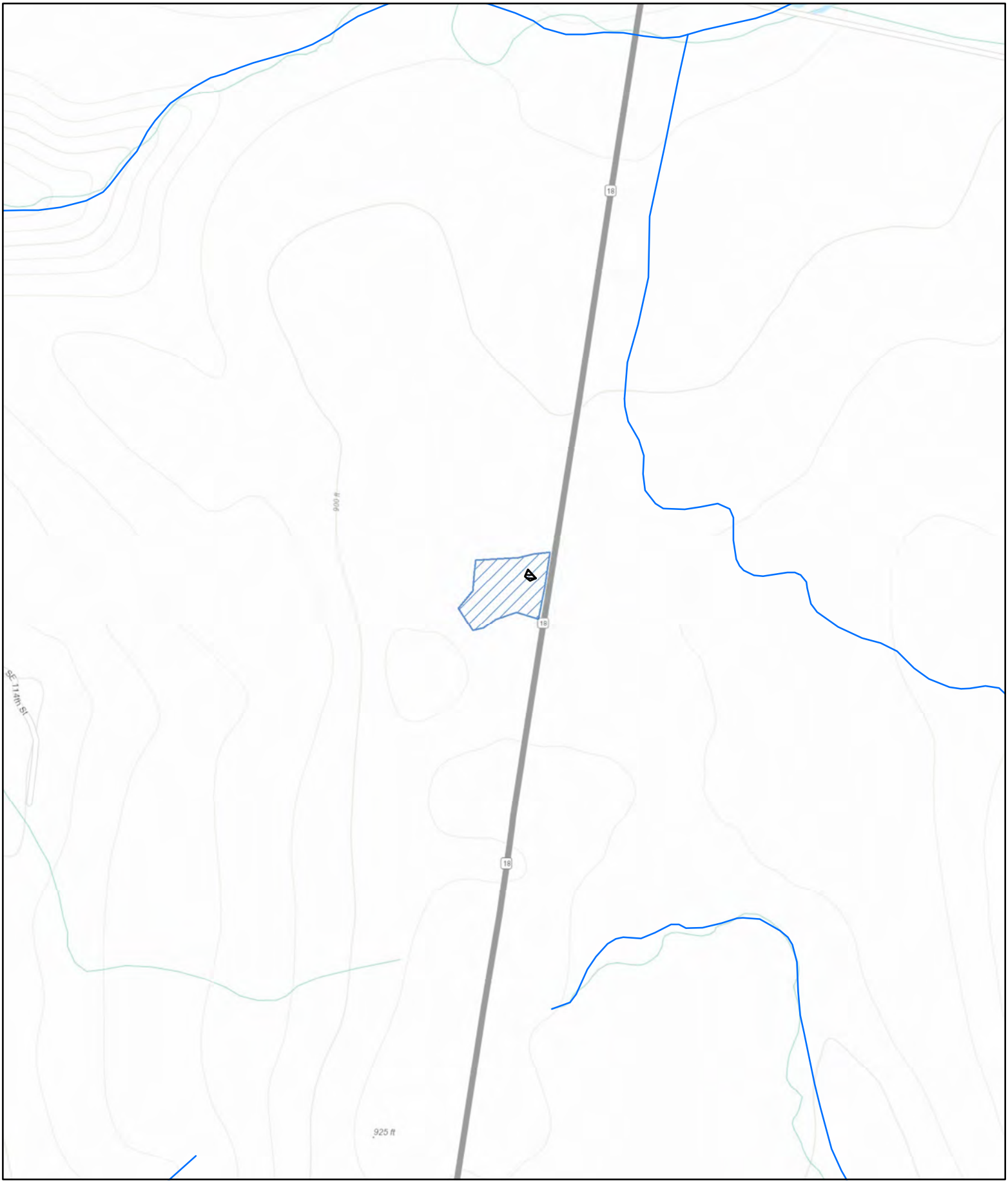
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 50 100 200 Feet

Wetland 2 (Approx. Boundary)
150-ft Boundary
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream
Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

Wetland LC-02
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

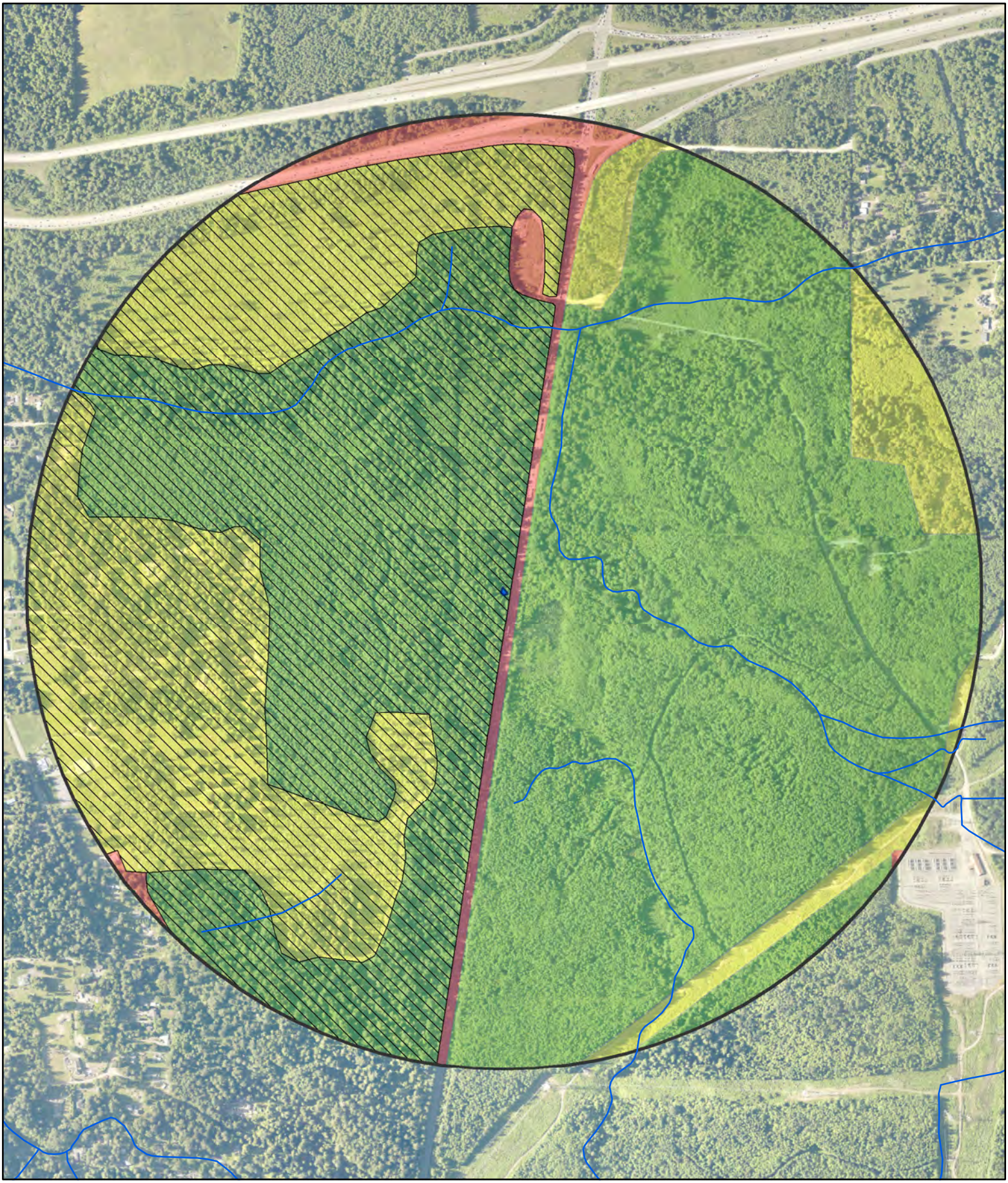
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 2 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-02
Contributing Basin
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 2 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

Land Use Intensity

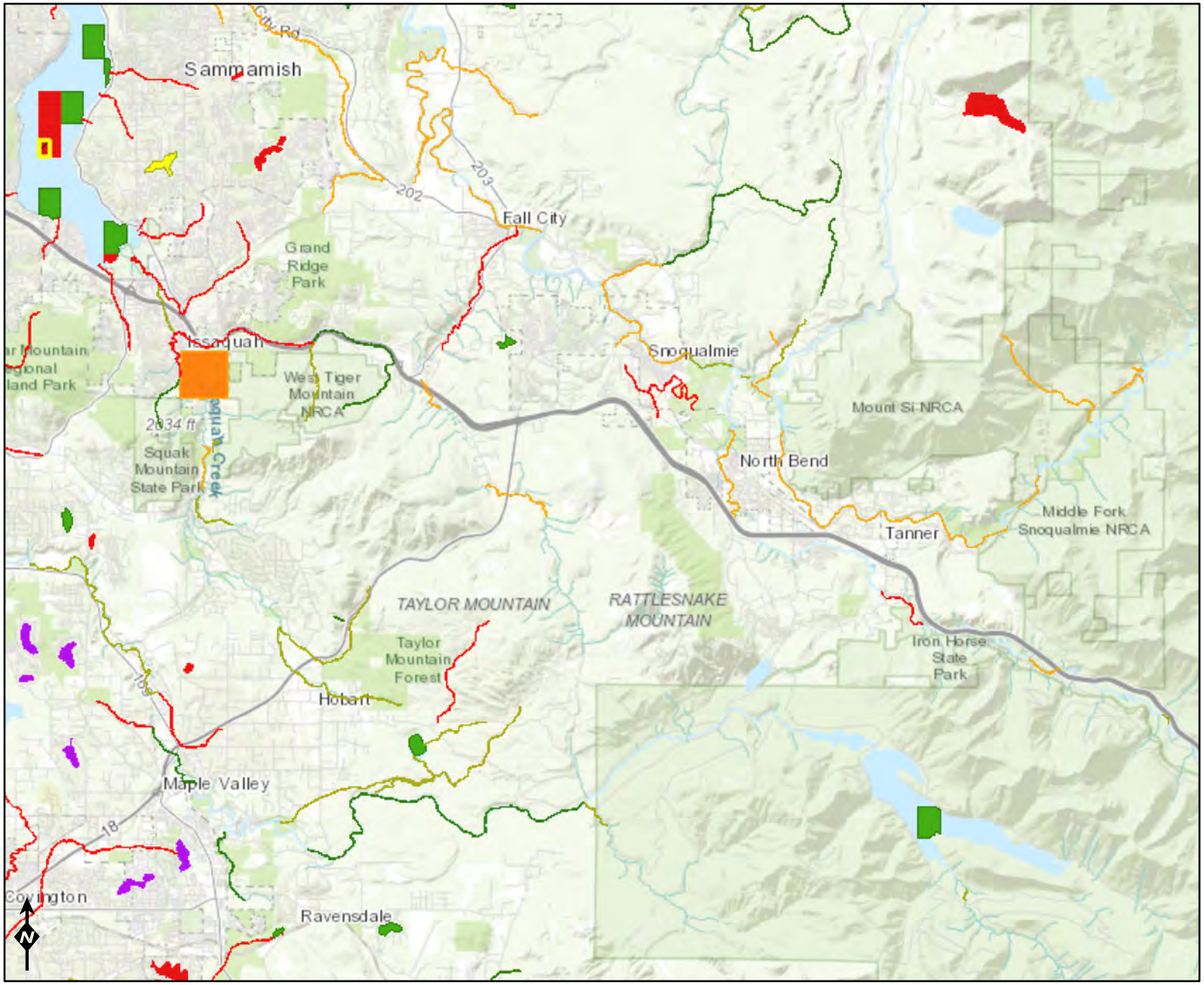
High
Moderate and Low
Undisturbed

Wetland LC-02
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

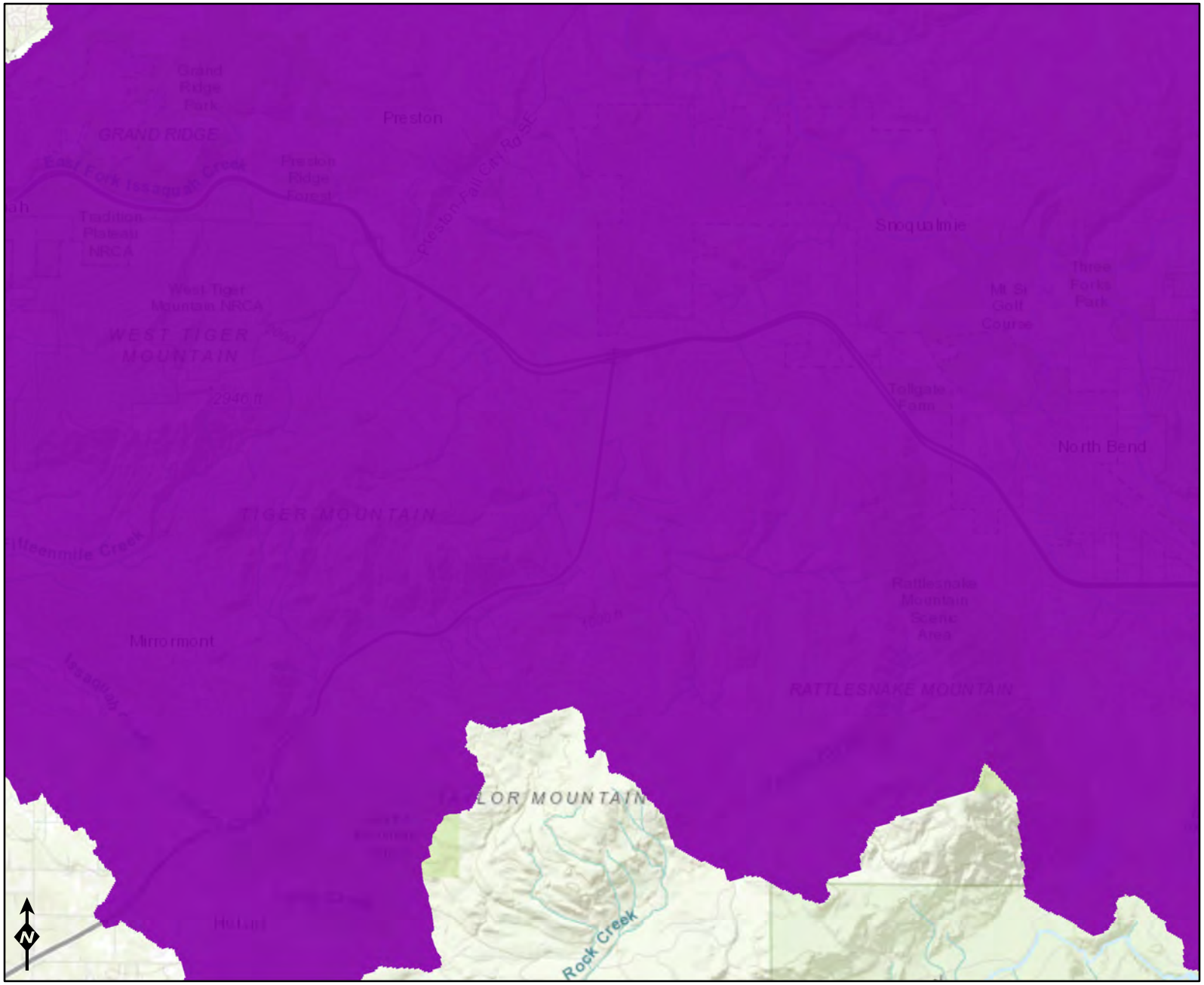
Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-03 Date of site visit: 8/28/2018

Rated by T. Parry and J. Meyer Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY I (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

X **Category I** - Total score = 23 - 27
___ **Category II** - Total score = 20 - 22
___ **Category III** - Total score = 16 - 19
___ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	H	H	M	
Landscape Potential	H	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	9	8	8	**25**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	4
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0		5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		4
Total for D 1	Add the points in the boxes above	**16**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Roadside debris/garbage	Yes = 1 No = 0	1
Total for D 2	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 or 4 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		4
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		5
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**12**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

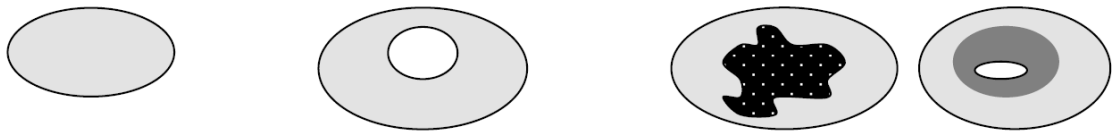
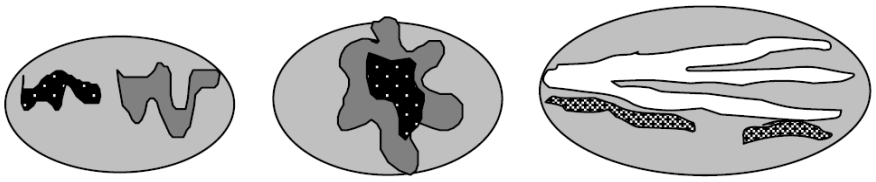
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 — Add the points in the boxes above	**9**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 25 % undisturbed habitat + (23 % moderate & low intensity land uses / 2) = 36.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 65 % undisturbed habitat + (29 % moderate & low intensity land uses / 2) = 79.5% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

0 25 50 100 Feet

Wetland 3 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-03
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 3 (Approx. Boundary)
150-ft Boundary

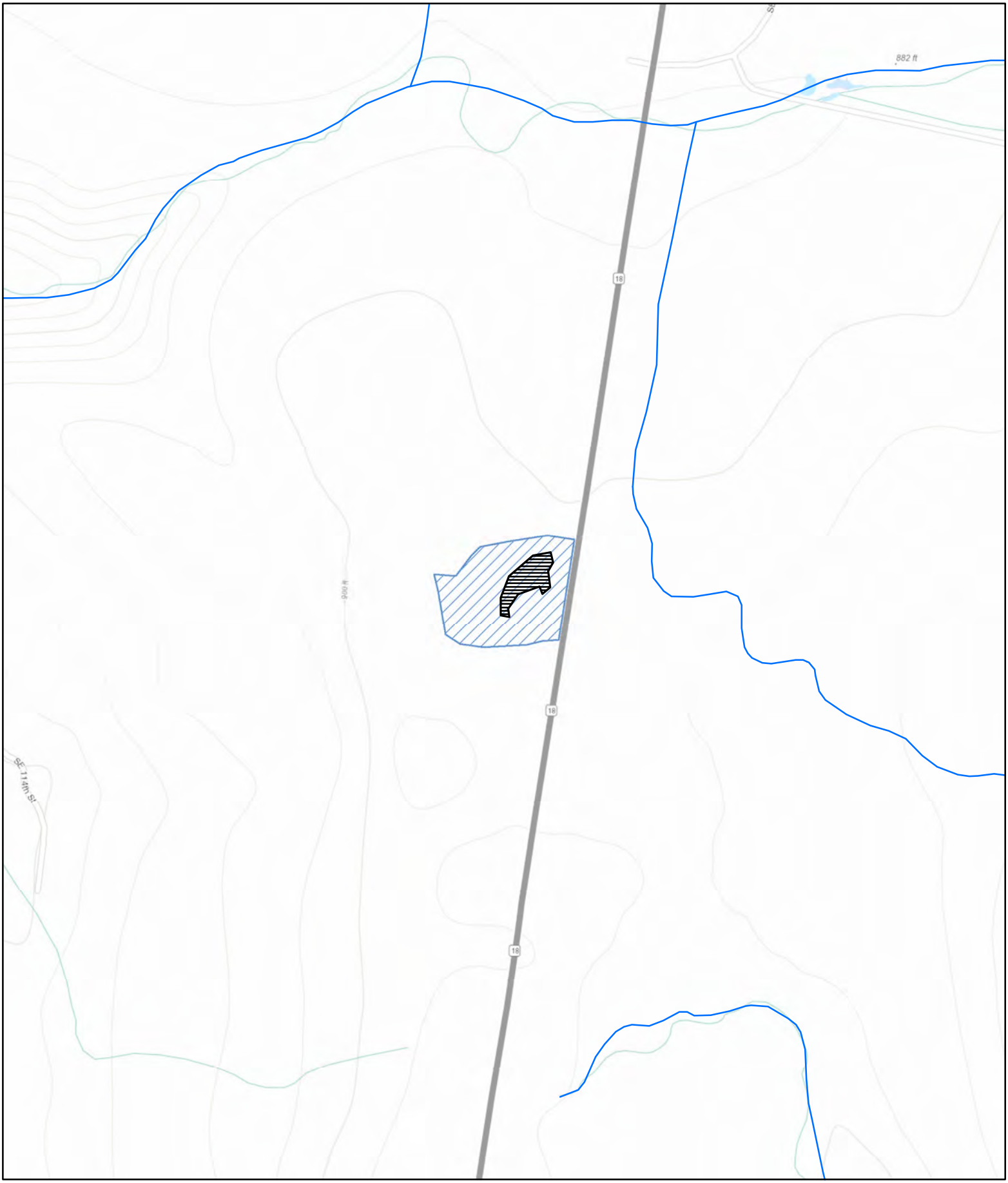
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-03
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

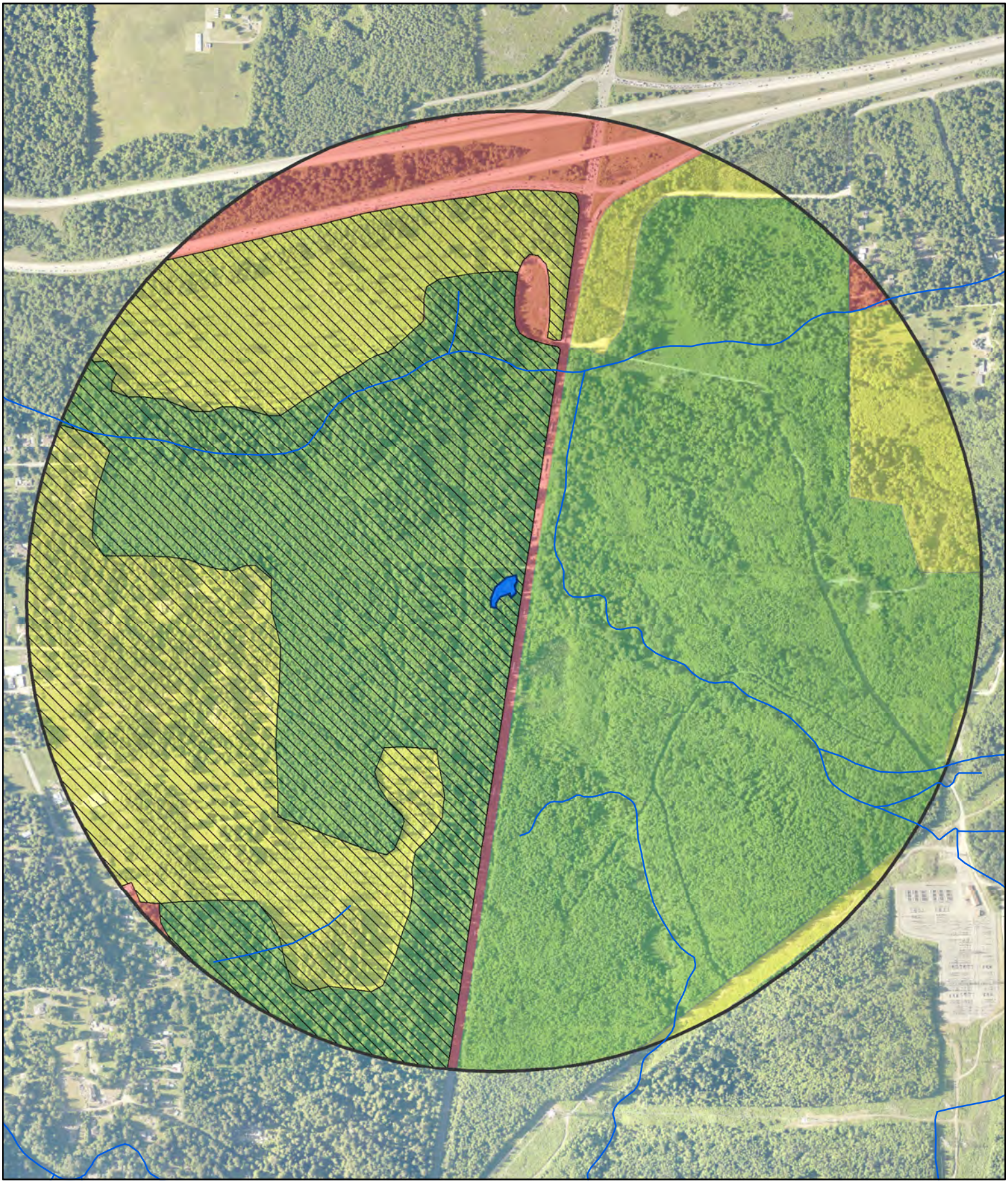
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 3 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-03
Contributing Basin
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 3 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

Land Use Intensity

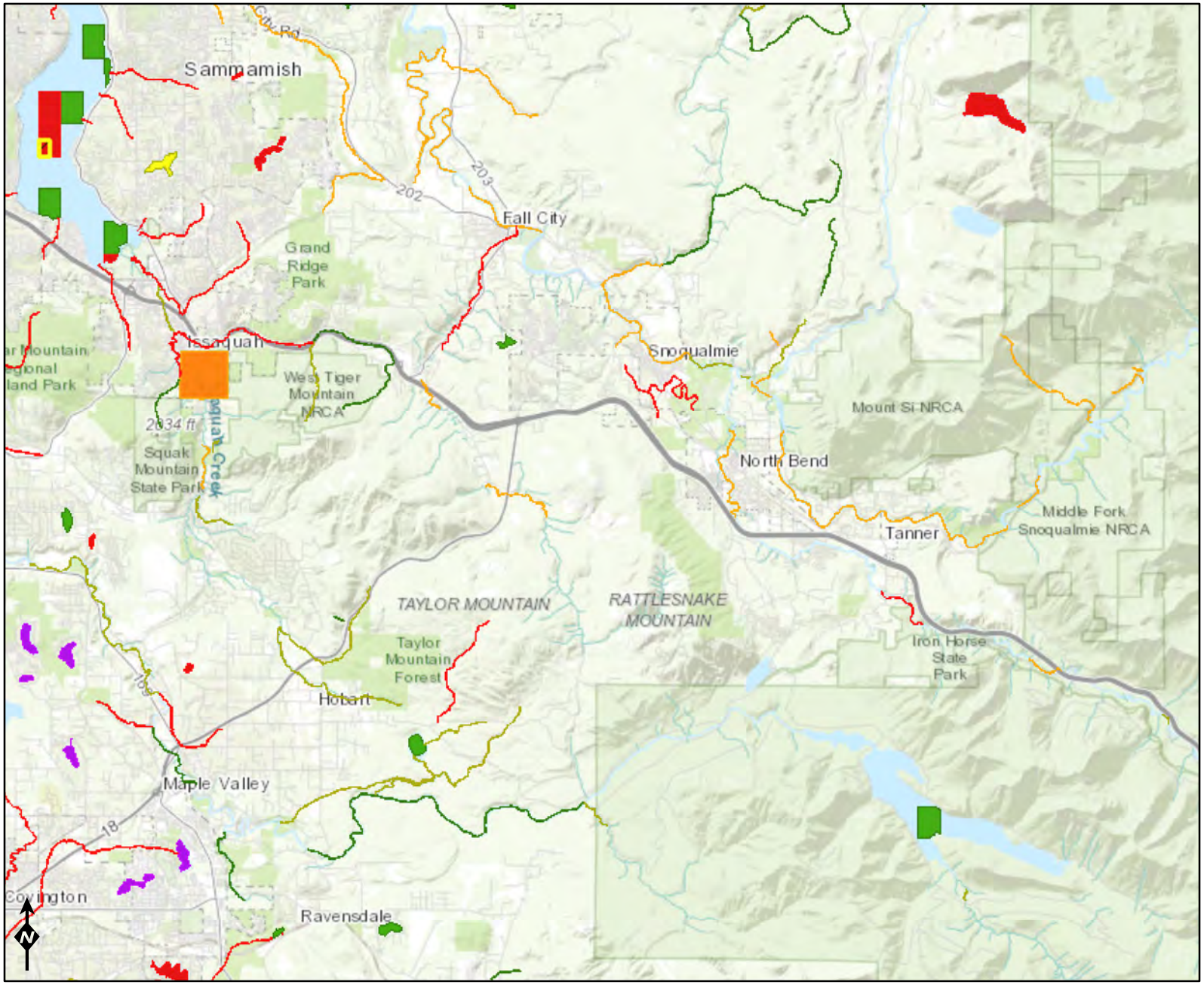
High
Moderate and Low
Undisturbed

Wetland LC-03
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

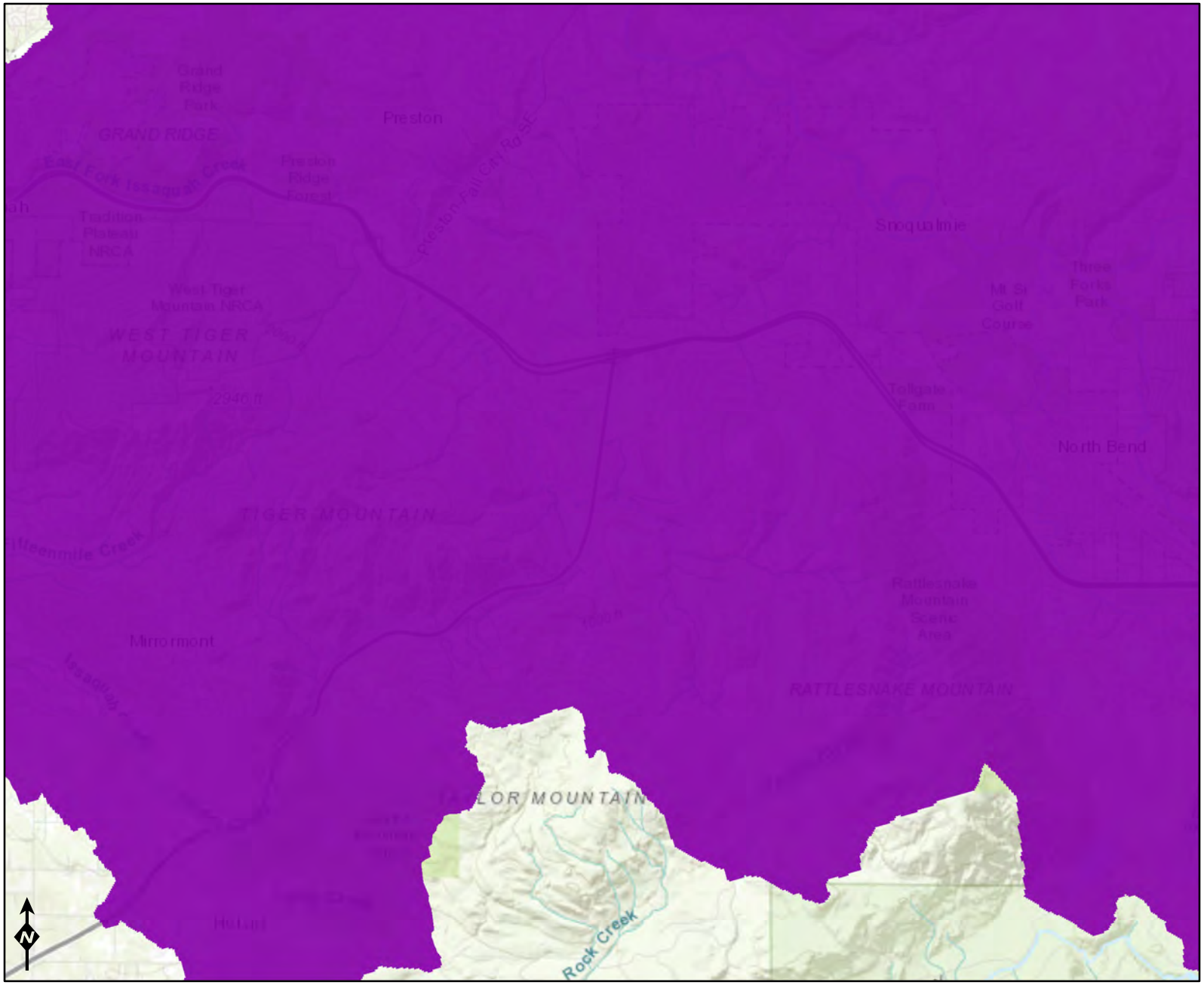
Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-04 Date of site visit: 8/27/2018

Rated by T. Parry and J. Meyer Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY I (based on functions ☑ or special characteristics ☑)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- X **Category II** - Total score = 20 - 22
- ____ **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	M	
Landscape Potential	H	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	8	6	7	**21**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	I
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☑ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☑ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:
3 CLASSES PRESENT: portion of wetland is slope, portion of wetland is riverine, and portion of wetland is depressional.

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0		5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		0
Total for D 1	Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	1
Total for D 2	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 or 4 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-04

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		0
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☐**6 - 11 = M** ☑**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

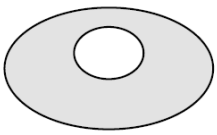
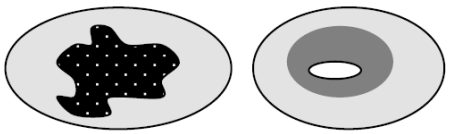
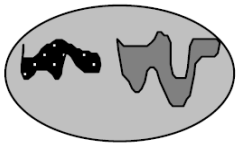
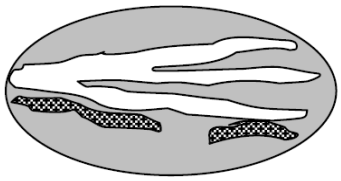
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☑ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☑ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	3
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	2
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points   	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☑ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	6
Total for H 1 — Add the points in the boxes above	**14**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 18 % undisturbed habitat + (17 % moderate & low intensity land uses / 2) = 26.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 55 % undisturbed habitat + (31 % moderate & low intensity land uses / 2) = 70.5% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	**5**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. ☑ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). ☑ Yes = **Category I** ☐ No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*) ☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) ☐ Yes = **Category I** ☐ No = **Category II**	
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: ☐ Long Beach Peninsula: Lands west of SR 103 ☐ Grayland-Westport: Lands west of SR 105 ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 ☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ☐ Yes = **Category I** ☐ No - Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? ☐ Yes = **Category II** ☐ No - Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? ☐ Yes = **Category III** ☐ No = **Category IV**	
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**Cat. I**

Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 100 200 400 Feet

Wetland 4 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-04
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
King County, WA

Parametrix

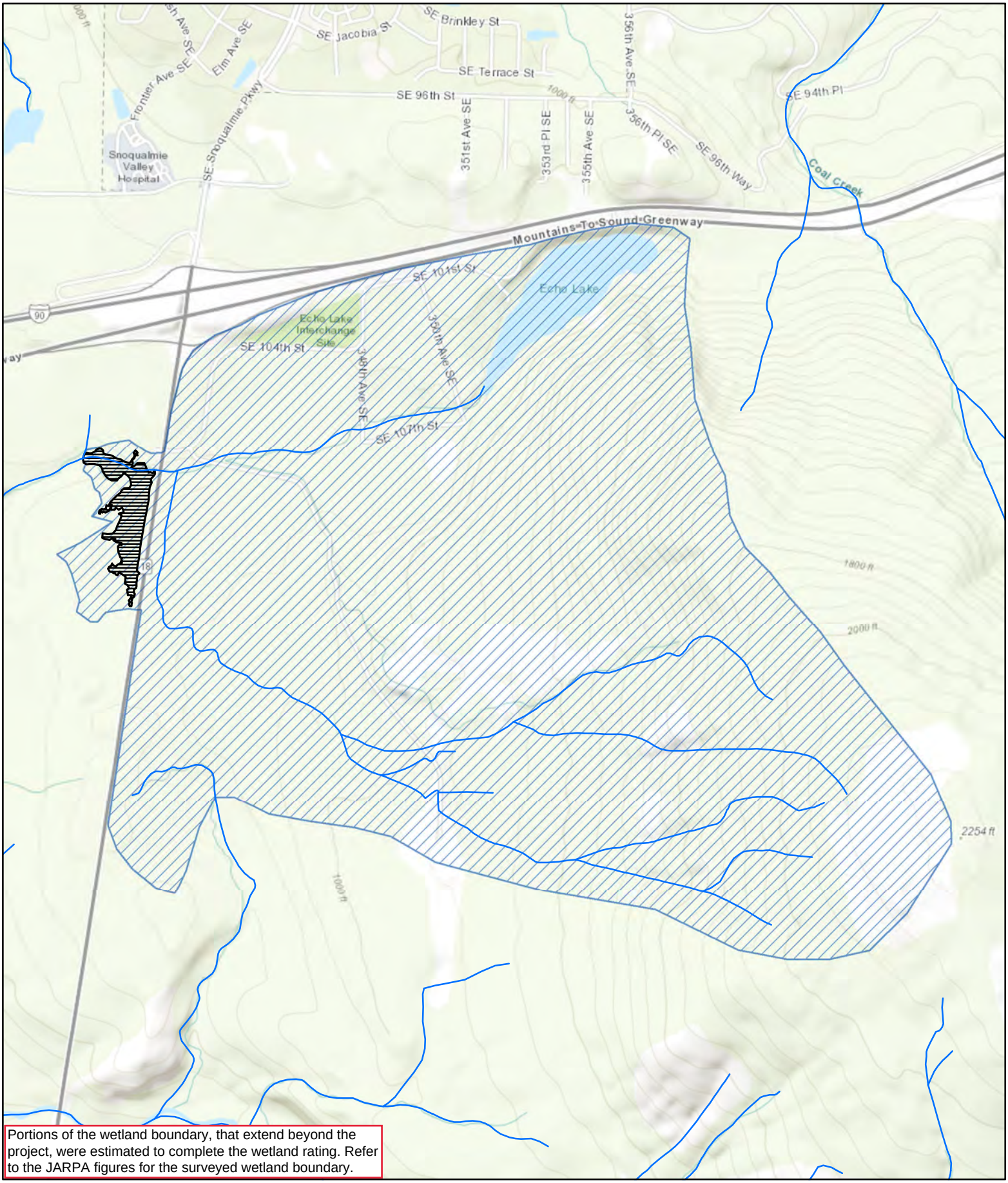
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 112.5 225 450 Feet

Wetland 4 (Approx. Boundary)
150-ft Boundary
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream
Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

Wetland LC-04
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

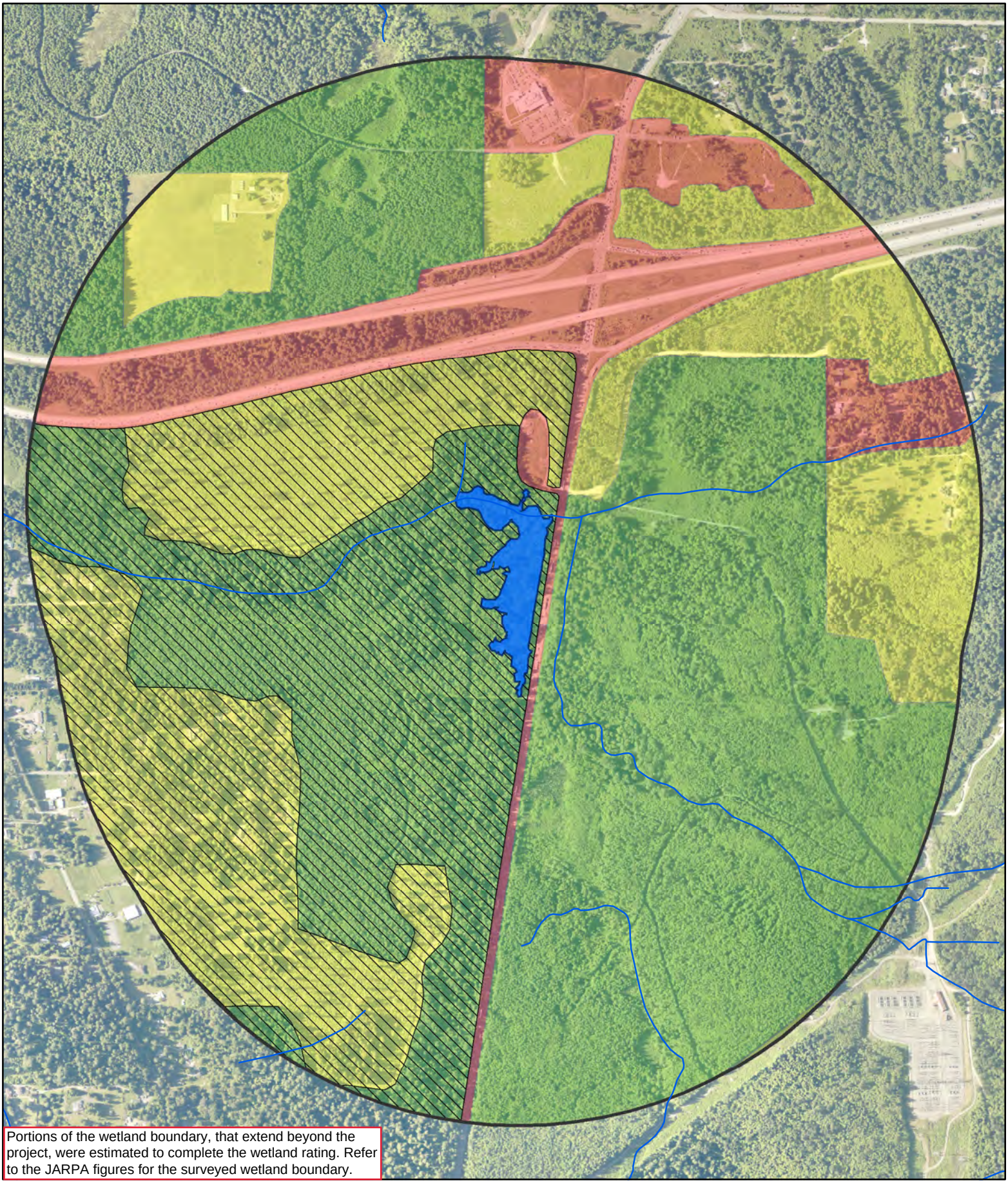
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 375 750 1,500 Feet

Wetland 4 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-04
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 250 500 1,000 Feet

Wetland 4 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

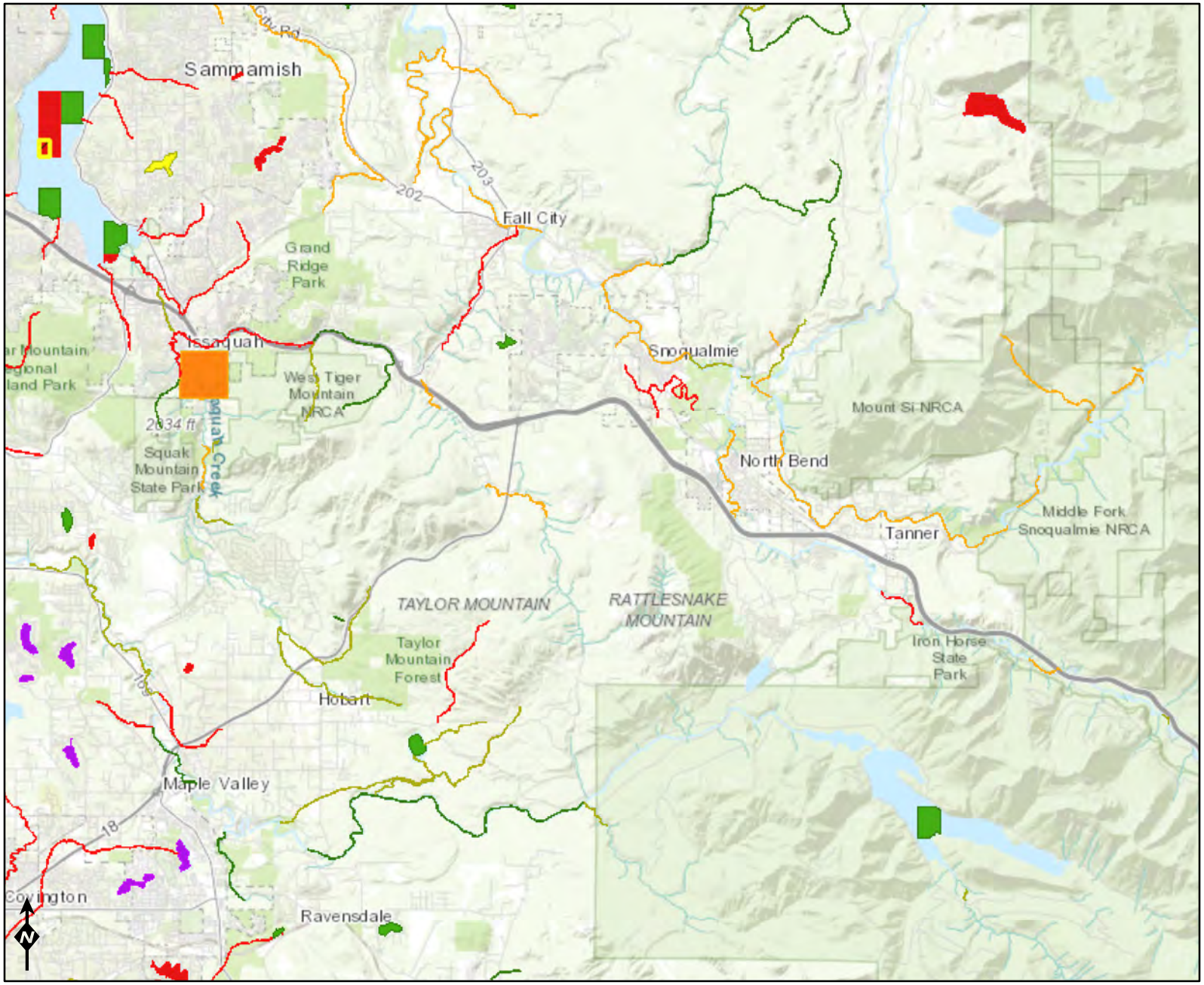
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-04
Land Use & Accessible Habitat
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
King County, WA

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

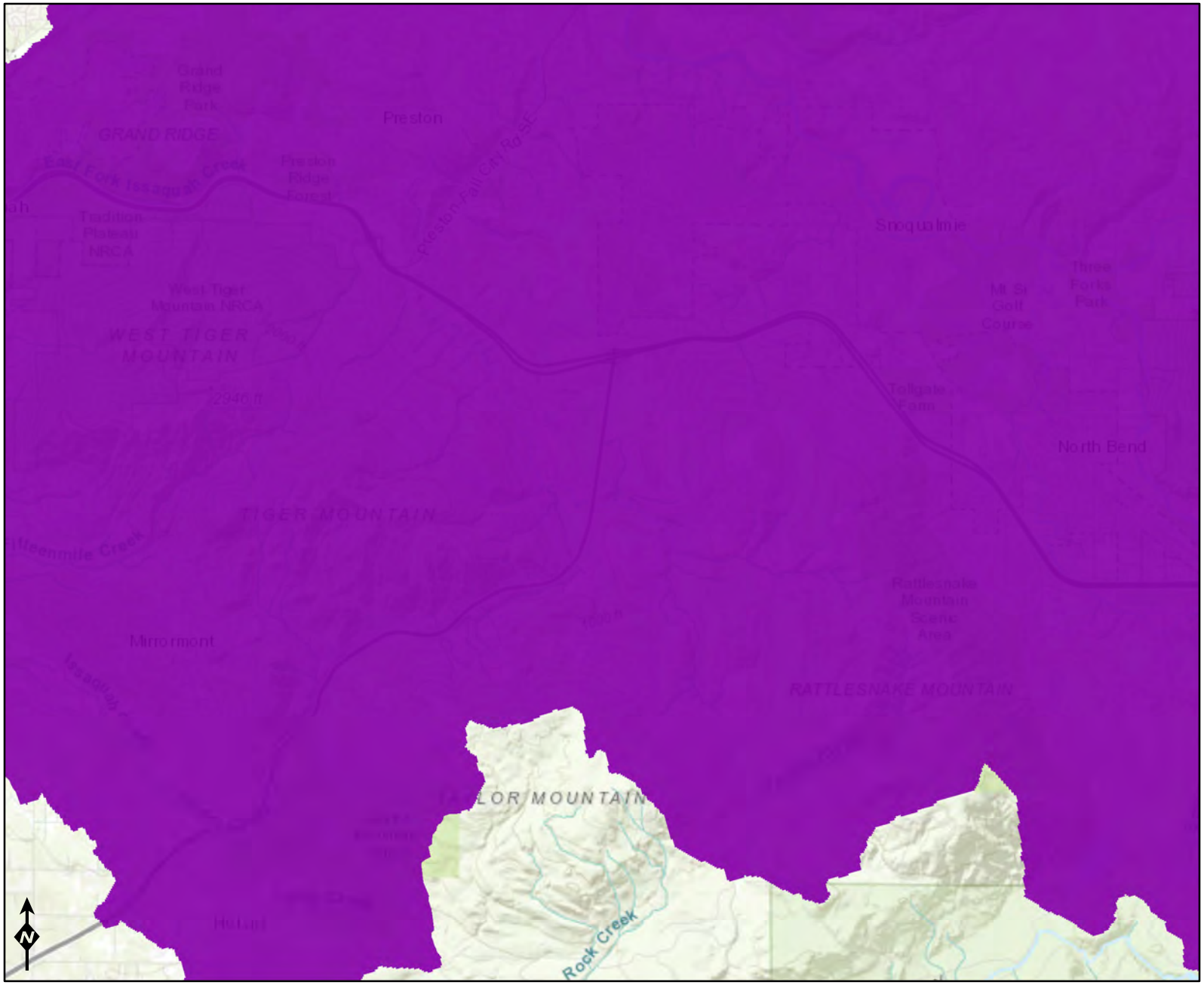
Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 5 Date of site visit: 8/27/2018

Rated by T. Parry, J. Meyer Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
X **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	L	
Landscape Potential	M	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	7	7	7	**21**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-05

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LC-05

SLOPE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1% - 2% points = 2 Slope is > 2% - 5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	6
Total for S 1 Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐ **12 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☑ **1 - 2 = M** ☐ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?		
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.*		1
Dense, uncut, **rigid** plants cover > 90% of the area of the wetland	points = 1	
All other conditions	points = 0	

Rating of Site Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	Yes = 1 No = 0	1

Rating of Landscape Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?		
S 6.1. Distance to the nearest areas downstream that have flooding problems:		2
The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for S 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-05

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- ☐ Aquatic bed — 4 structures or more: points = 4
- ☑ Emergent — 3 structures: points = 2
- ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1
- ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0

If the unit has a Forested class, check if:

- ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- ☐ Permanently flooded or inundated — 4 or more types present: points = 3
- ☑ Seasonally flooded or inundated — 3 types present: points = 2
- ☐ Occasionally flooded or inundated — 2 types present: points = 1
- ☑ Saturated only — 1 types present: points = 0
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** — **2 points**
- ☐ **Freshwater tidal wetland** — **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

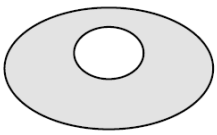
If you counted:		
	> 19 species	points = 2
	5 - 19 species	points = 1
	< 5 species	points = 0

1

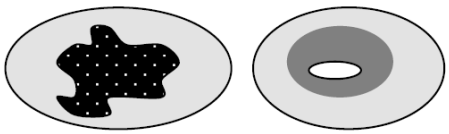
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points

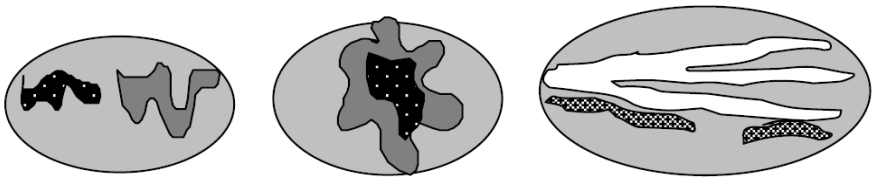


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3 points



1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**6**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 20 % undisturbed habitat + (12 % moderate & low intensity land uses / 2) = 26% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 54 % undisturbed habitat + (28 % moderate & low intensity land uses / 2) = 68% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**4**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

0 25 50 100 Feet

Wetland 5 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-05
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 5 (Approx. Boundary)
150-ft Boundary

Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-05
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

0 25 50 100 Feet

Wetland 5 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-05
Dense Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

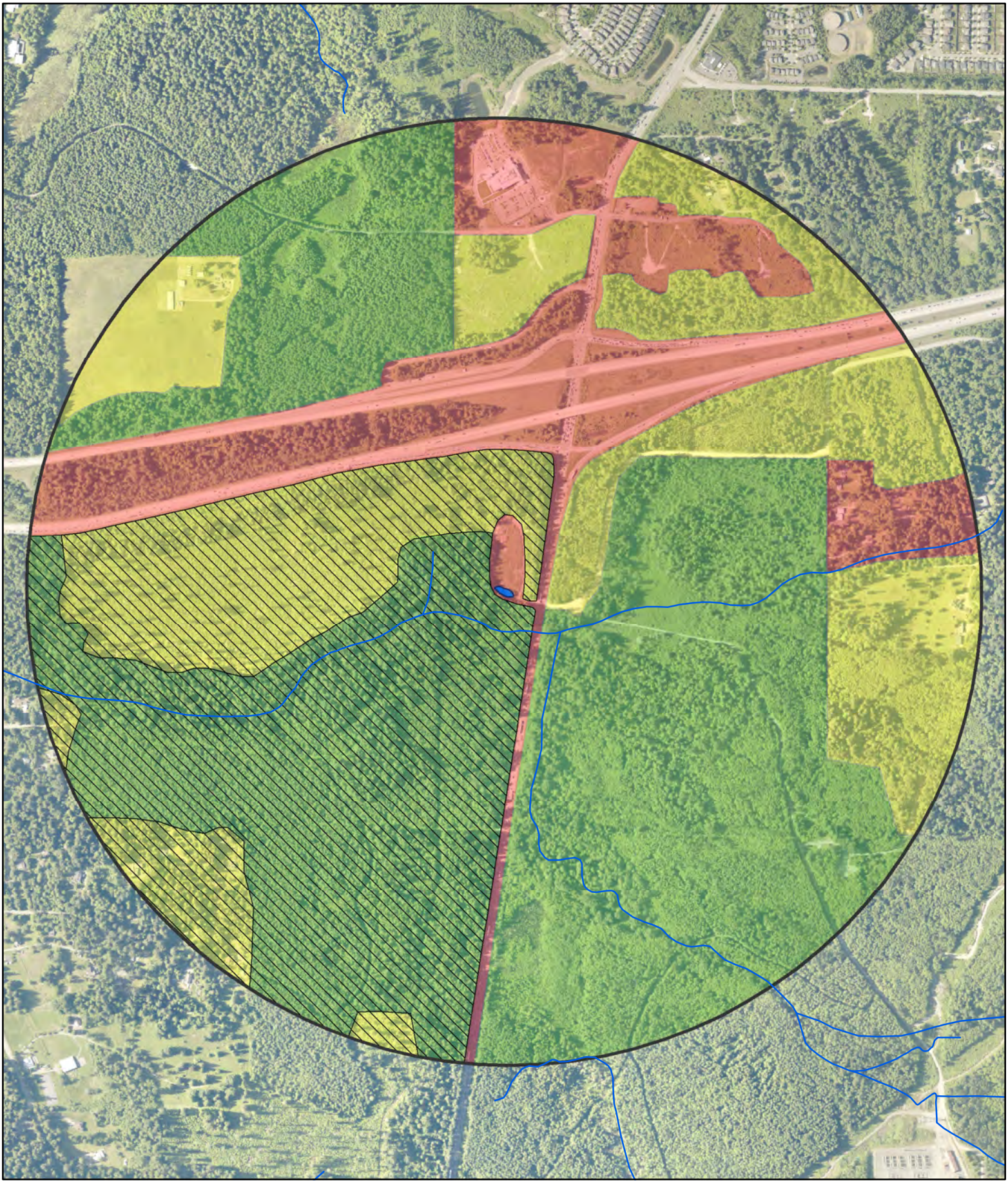
0 25 50 100 Feet

Wetland 5 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-05
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 5 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

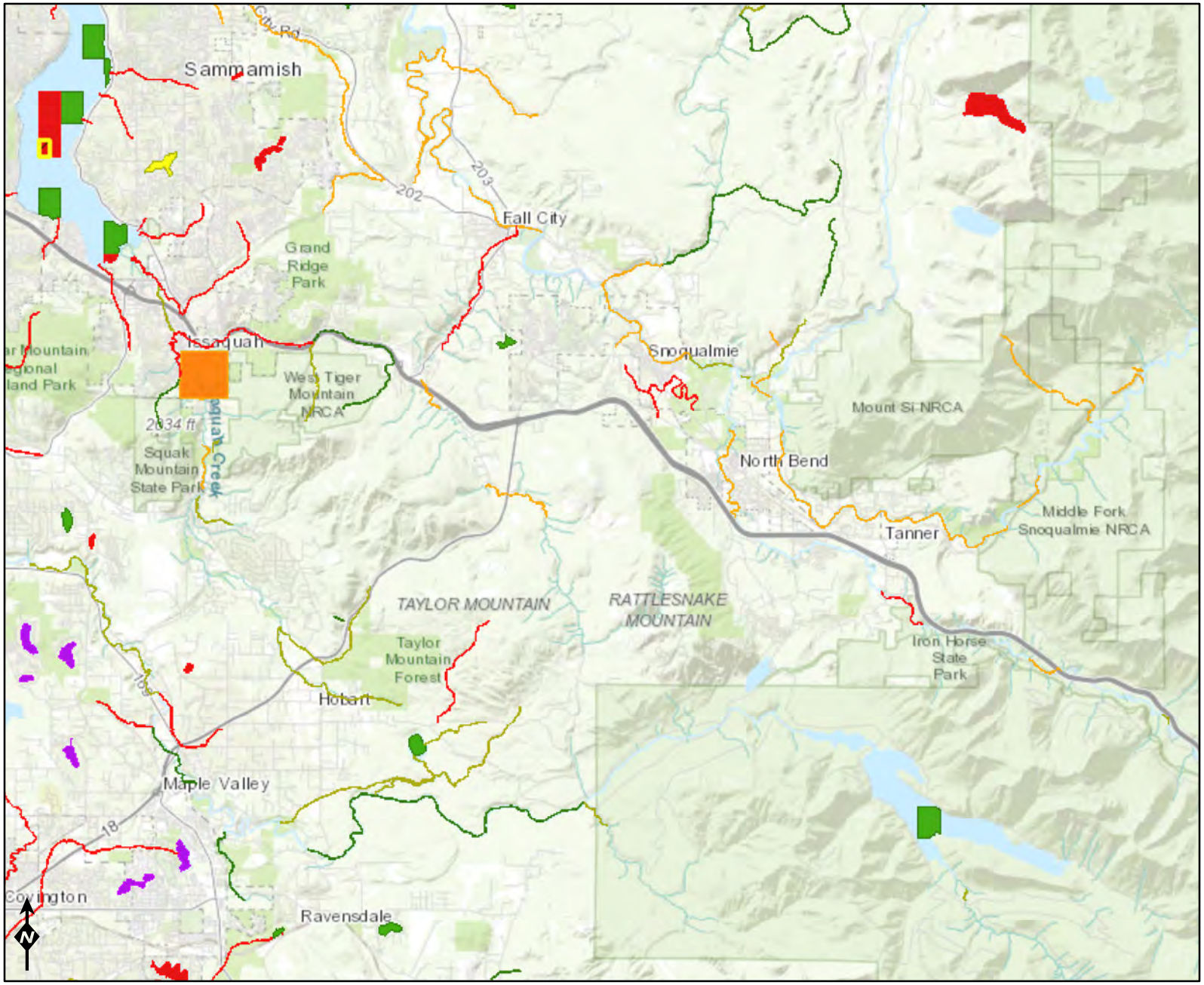
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-05
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

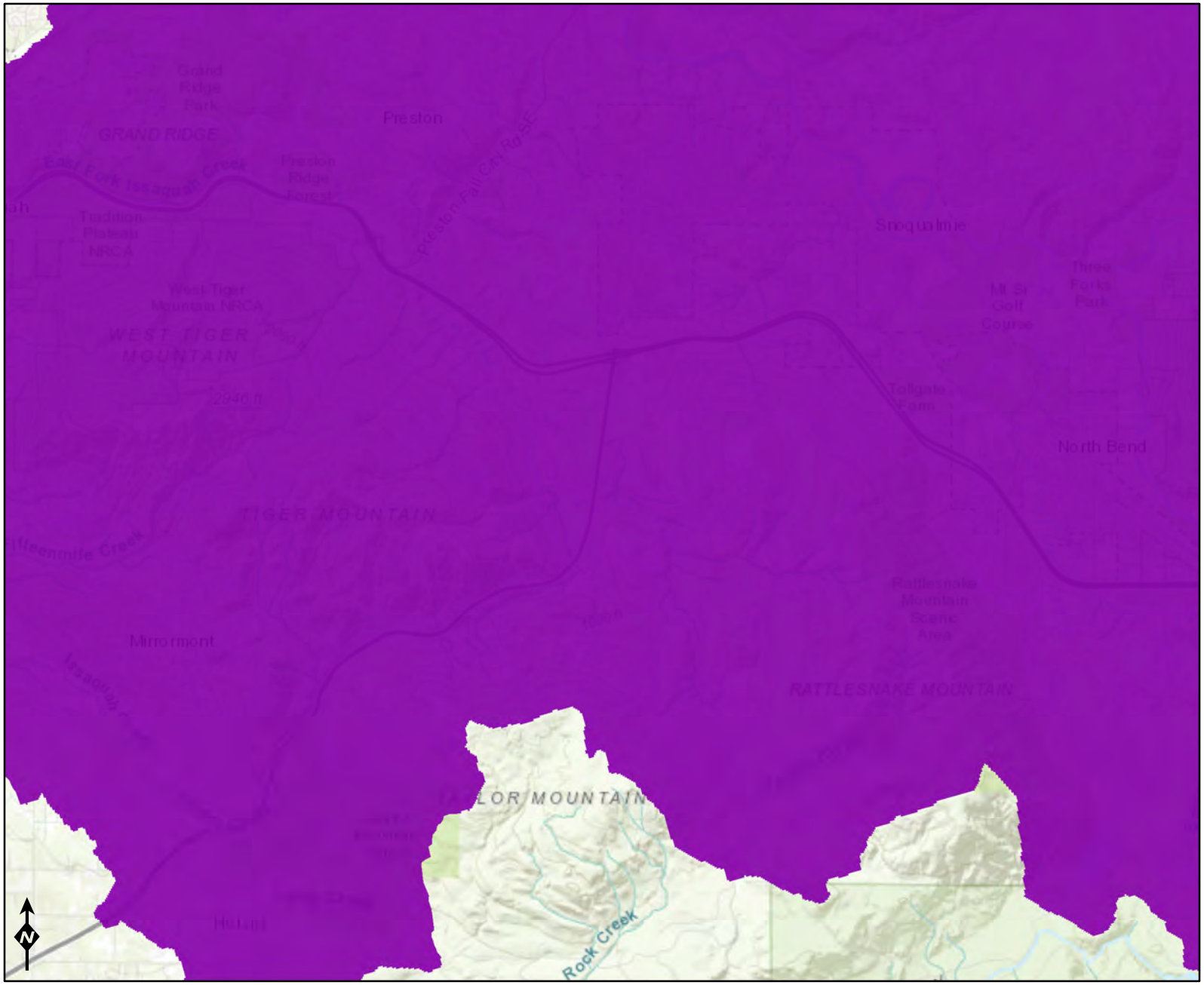
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-06 Date of site visit: 10/24/2018

Rated by Jeff Meyer Trained by Ecology? ☑ Yes ☐ No Date of training Sep-14

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

	Category I - Total score = 23 - 27
X	**Category II** - Total score = 20 - 22
	Category III - Total score = 16 - 19
	Category IV - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	M	
Landscape Potential	M	M	H	
Value	H	H	M	**Total**
Score Based on Ratings	6	7	7	**20**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-06

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-06

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 3 points = 2 points = 1 points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > $^1/_{10}$ of area Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 5 points = 3 points = 1 points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ¼ total area of wetland Area seasonally ponded is < ¼ total area of wetland	points = 4 points = 2 points = 0	0
Total for D 1	Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-06

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

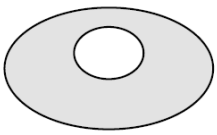
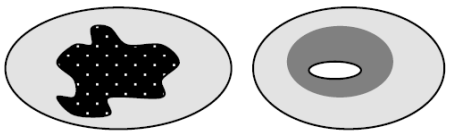
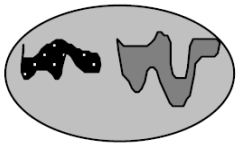
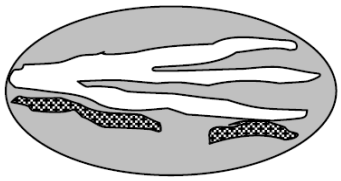
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☐ Seasonally flooded or inundated — 3 types present: points = 2 ☑ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points   	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**7**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 33 % undisturbed habitat + (5 % moderate & low intensity land uses / 2) = 35.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 57 % undisturbed habitat + (20 % moderate & low intensity land uses / 2) = 67% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 33 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 62.5 125 250 Feet

Wetland LC-06
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 33 (Approx. Boundary)
150-ft Boundary

Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 87.5 175 350 Feet

Wetland LC-06
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

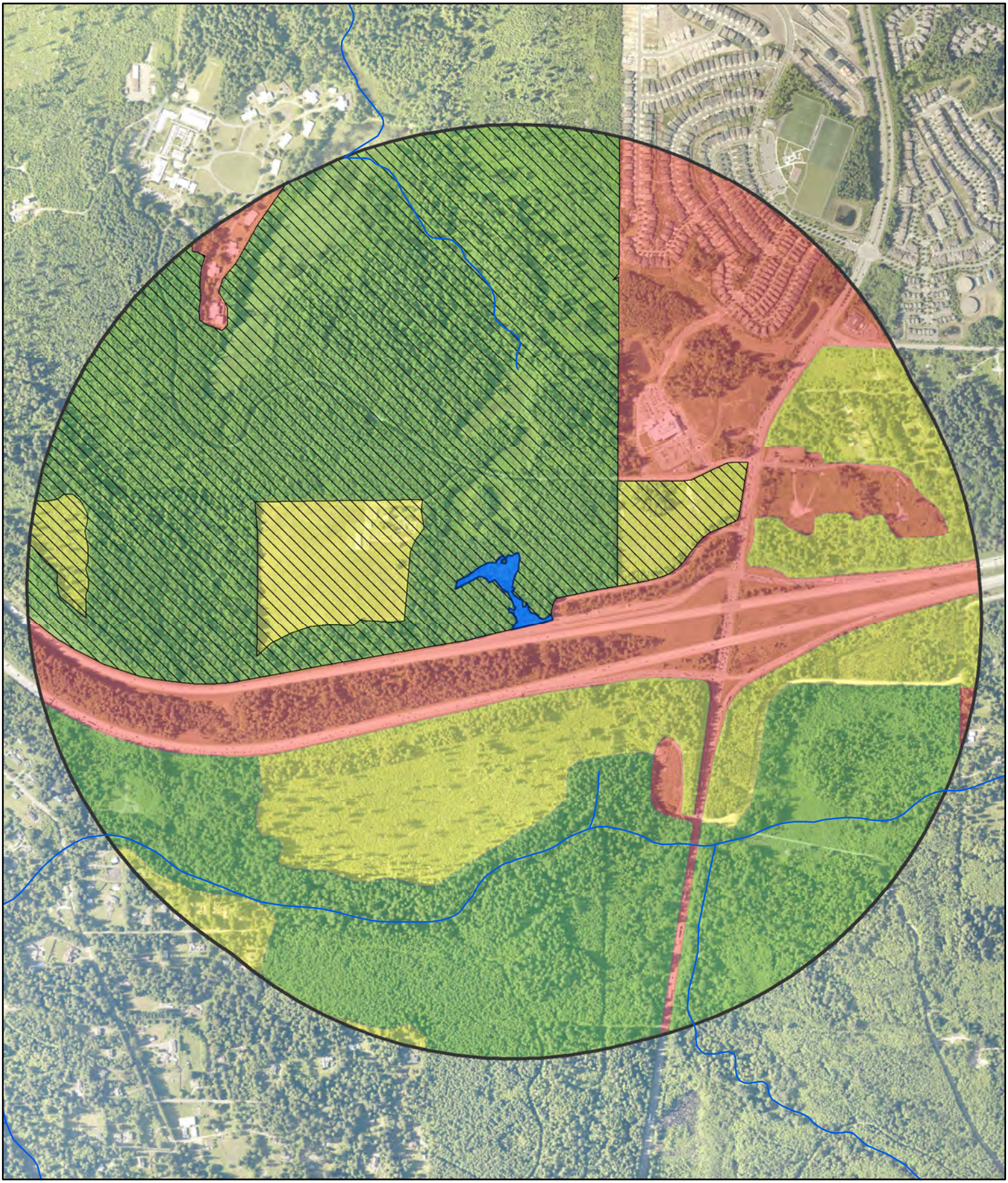
Source: WSDOT, WA DNR
King County

0 187.5 375 750 Feet

Wetland 33 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-06
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 33 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

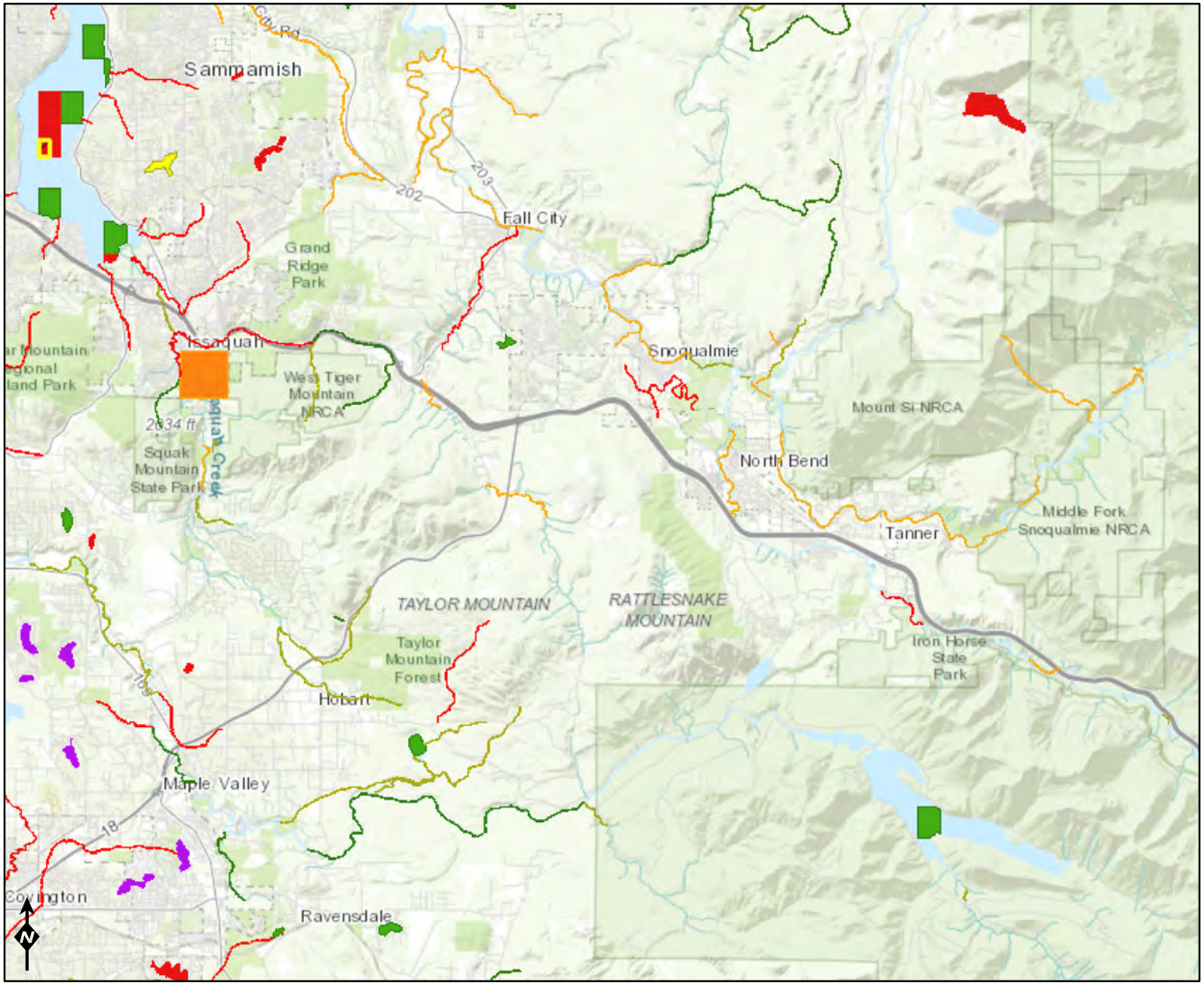
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-06
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

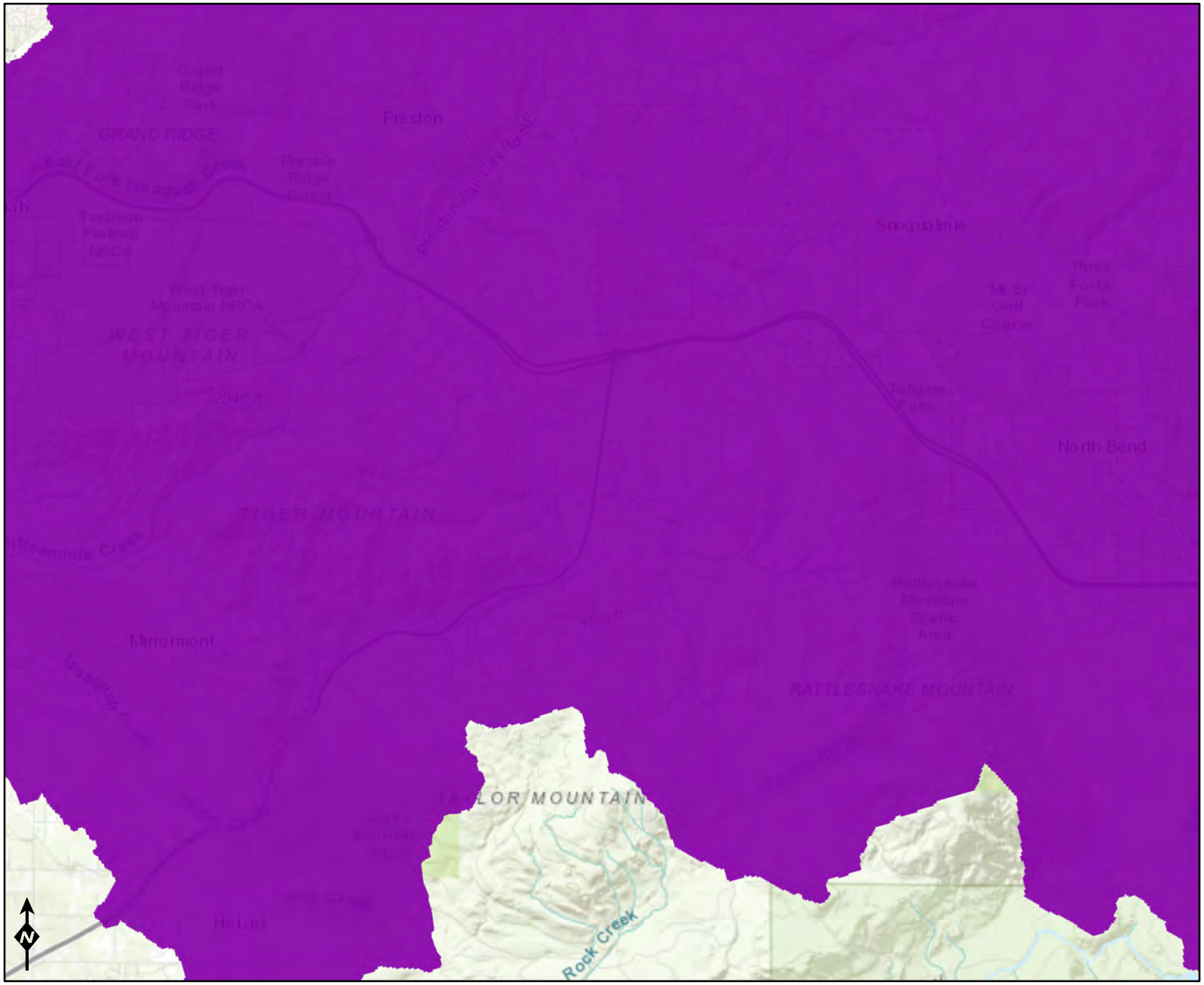
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-07 Date of site visit: 6/20/2019

Rated by Jennie Husby Trained by Ecology? ☑ Yes ☐ No Date of training 4/1/2015

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map WSDOT Statewide 2017 1ft 4band wsps 83h

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- ____ **Category II** - Total score = 20 - 22
- X **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	L	
Landscape Potential	M	M	M	
Value	H	L	M	**Total**
Score Based on Ratings	7	4	5	**16**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number LC-07

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	1
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	1
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	5

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☑ The wetland is on a slope (*slope can be very gradual*),
☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LC-07

SLOPE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1% - 2% points = 2 Slope is > 2% - 5% points = 1 Slope is greater than 5% points = 0	0
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	6
Total for S 1 Add the points in the boxes above	**6**

Rating of Site Potential If score is: ☐ **12 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Particulates in vehicle exhaust and stormwater Yes = 1 No = 0	1
Total for S 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☑ **1 - 2 = M** ☐ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-07

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	1

Rating of Landscape Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	**0**

Rating of Value If score is: ☐ **2 - 4 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-07

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- ☐ Aquatic bed — 4 structures or more: points = 4
- ☑ Emergent — 3 structures: points = 2
- ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1
- ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0

If the unit has a Forested class, check if:

- ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

0

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- ☐ Permanently flooded or inundated — 4 or more types present: points = 3
- ☐ Seasonally flooded or inundated — 3 types present: points = 2
- ☐ Occasionally flooded or inundated — 2 types present: points = 1
- ☑ Saturated only — 1 types present: points = 0
- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** — **2 points**
- ☐ **Freshwater tidal wetland** — **2 points**

0

H 1.3. Richness of plant species

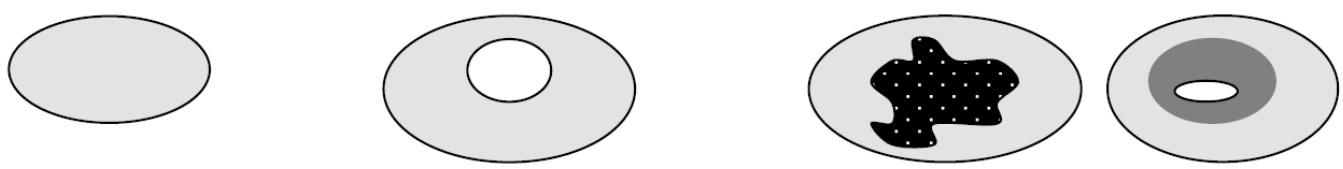
Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted:		
	> 19 species	points = 2
	5 - 19 species	points = 1
	< 5 species	points = 0

0

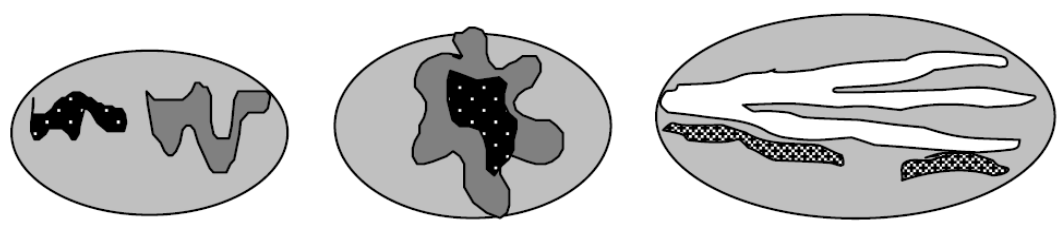
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points **Low** = 1 point **Moderate** = 2 points

All three diagrams in this row are **HIGH** = 3 points



0

Wetland name or number LC-07

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	**1**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 0% If total accessible habitat is: > $^{1}/_{3}$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 38 % undisturbed habitat + (28 % moderate & low intensity land uses / 2) = 52% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number LC-07

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☑ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☑ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☑ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions***. SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

N

0 37.5 75 150
Feet

Washington State
Department of Transportation

Fig1_S_Cowardin&PlantCover

Date Saved: 7/24/2019 3:40:29 PM

Wetland Rating for Western Washington 2014 Update

Representation: Wetland_slope

- wetland
- PEM

Plant cover:

Representation: Plant_cover_slope

- dense, uncut, herbaceous
- dense, woody plants

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
Wetland LC-07

Cowardin Plant Classes Map Questions H 1.1, H 1.4, Plant Cover Map Questions S 1.3, S 4.1

Figure 1

Wetland Rating for Western Washington 2014 Update

N

0 25 50 100
Feet

wetland

saturated only (SO)

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
Wetland LC-07

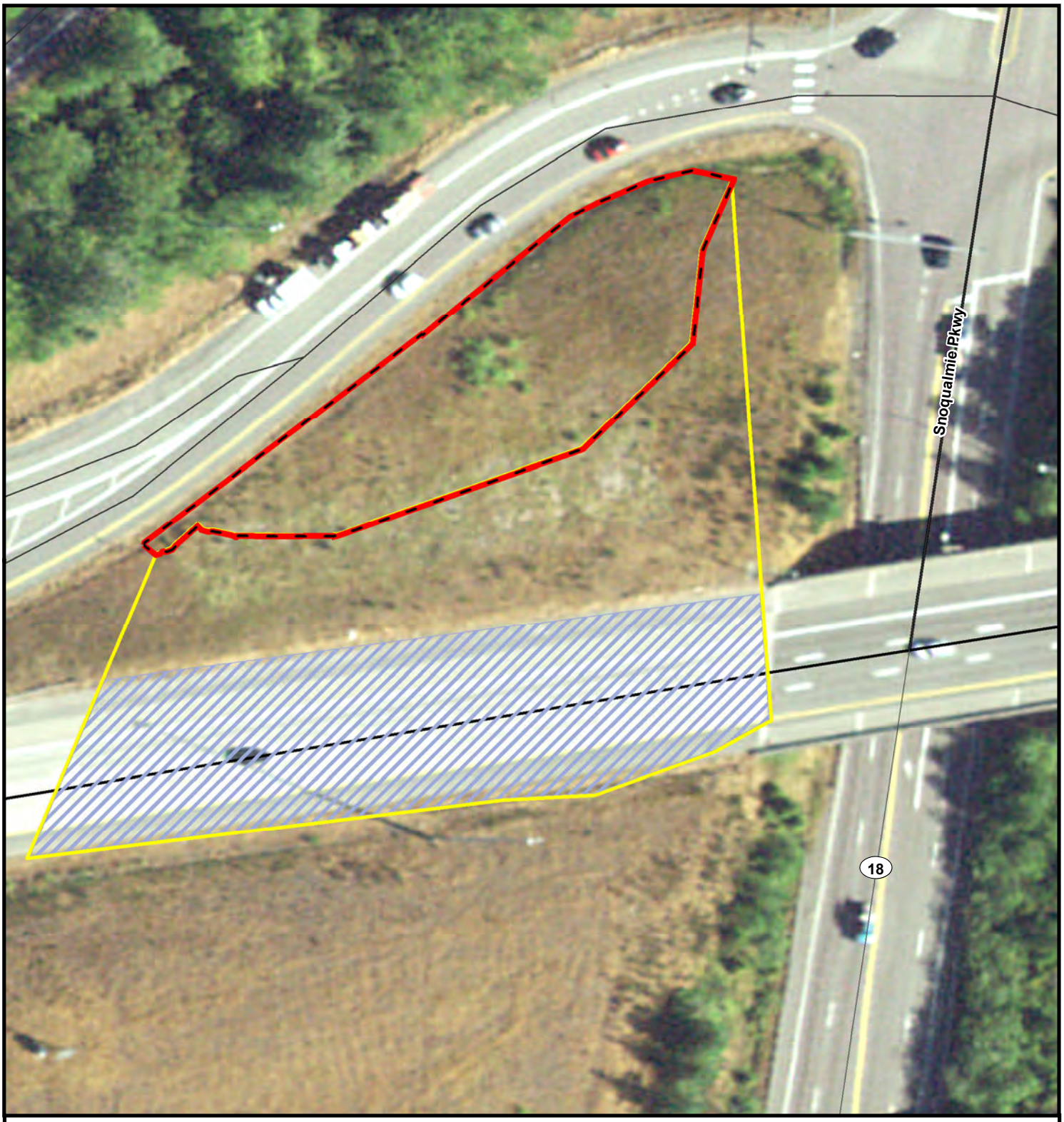
Hydroperiods Map
Question H 1.2

Washington State Department of Transportation

Fig2_S_Hydroperiods

Date Saved: 7/24/2019 3:48:17 PM

Figure 2



Wetland Rating for Western Washington 2014 Update

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
Wetland LC-07

N

0 37.5 75 150
Feet

Washington State Department of Transportation

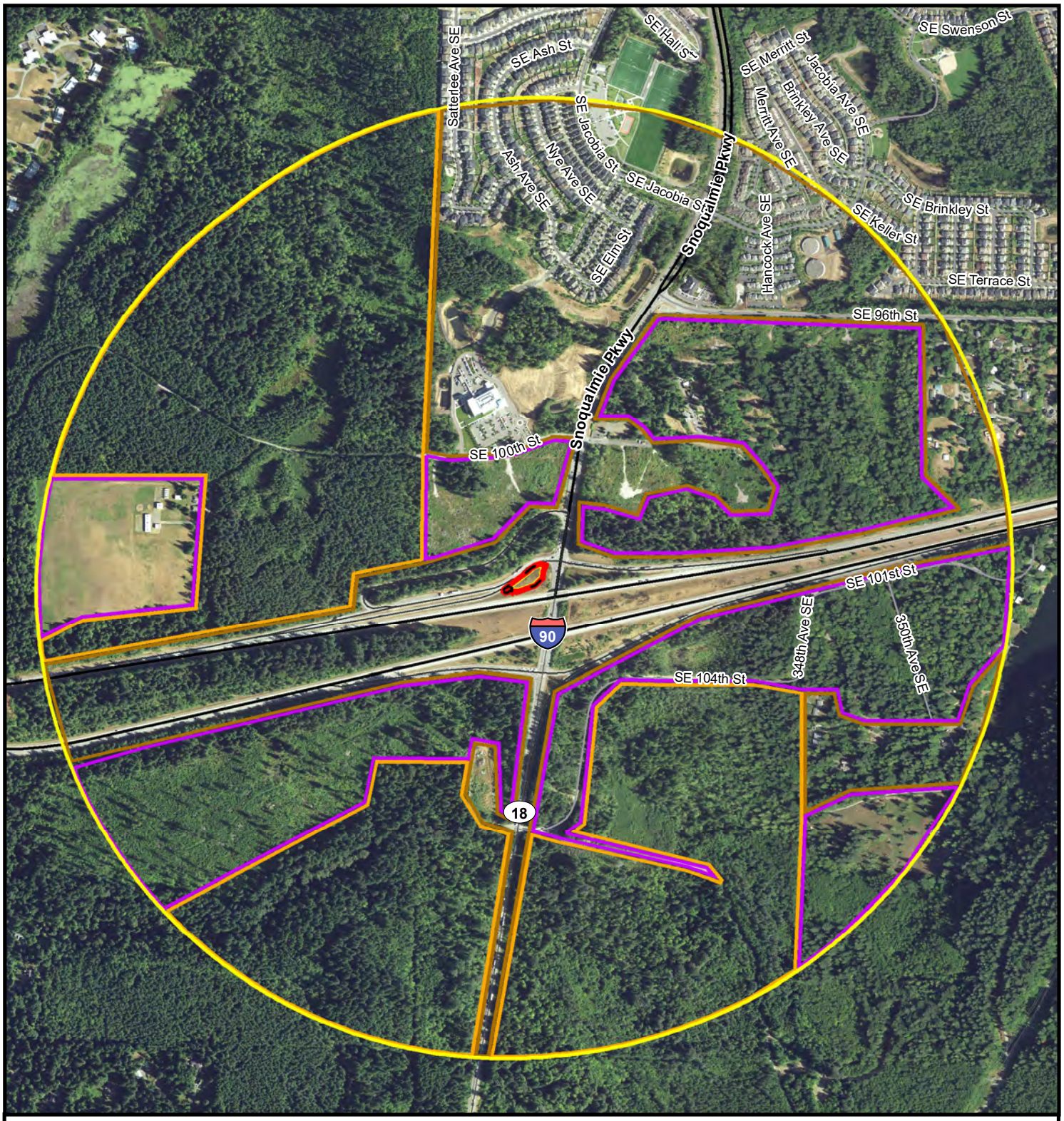
150ft uphill
wetland
pollutant and excess runoff generating surfaces

150 ft Polygon Map
Questions S 2.1, S 5.1

Fig3_S_150ftPolygon

Date Saved: 7/24/2019 4:09:28 PM

Figure 3



Wetland Rating for Western Washington 2014 Update

N

1km buffer
wetland
separate - undisturbed
separate - moderate to low intensity
high intensity

0 0.25 0.5 1
Kilometers

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
Wetland LC-07

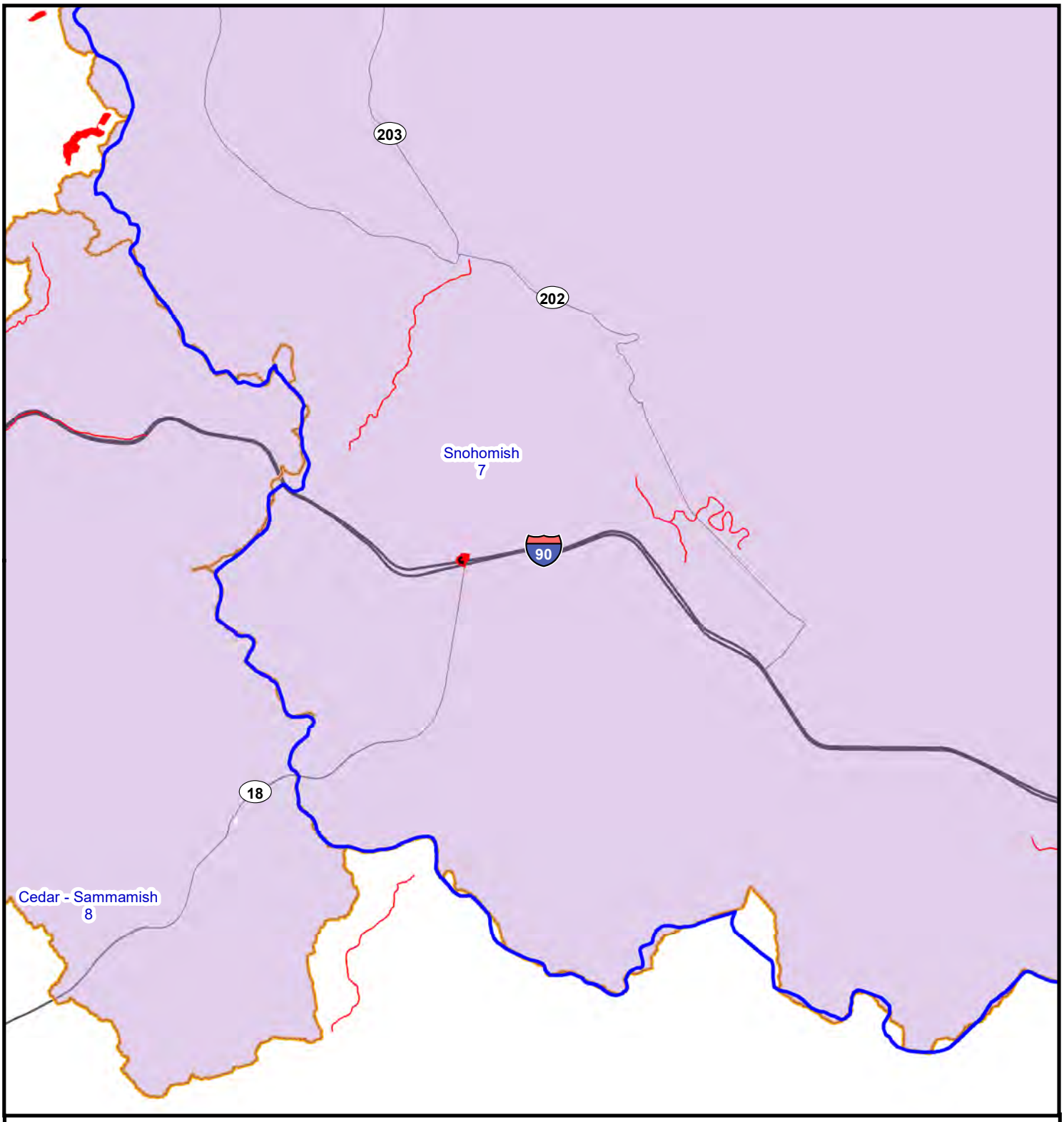
1 Km Polygon Map
Questions H 2.1, H 2.2, H 2.3

Washington State Department of Transportation

Fig4_S_1KmPolygon

Date Saved: 7/24/2019 4:19:58 PM

Figure 4



Wetland Rating for Western Washington 2014 Update

N

0 0.5 1 2
Miles

Washington State
Department of Transportation

Approved TMDLs

- Approved TMDLs
- Category 5 Impaired Waters
- wetland
- WRIA (1:24K)

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
Wetland LC-07
303(d) listed waters in basin & TMDL's for WRIA Map Questions S 3.1, S 3.2, S 3.3

Fig5_S_303(d)&TMDLs

Date Saved: 7/24/2019 4:24:26 PM

Figure 5

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-11 Date of site visit: 10/4/2018

Rated by T. Parry and K. Moser Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	M	
Landscape Potential	L	M	M	
Value	H	H	M	**Total**
Score Based on Ratings	6	7	6	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number LC-11

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-11

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 3 points = 2 points = 1 points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > $^1/_{10}$ of area Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 5 points = 3 points = 1 points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ¼ total area of wetland Area seasonally ponded is < ¼ total area of wetland	points = 4 points = 2 points = 0	4
Total for D 1	Add the points in the boxes above	**11**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☐ **1 or 2 = M** ☑ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-11

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

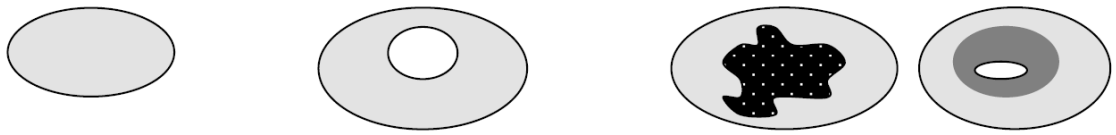
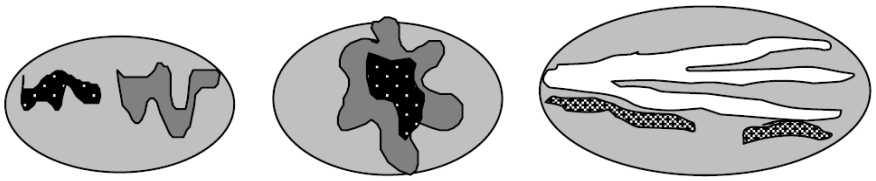
Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-11

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	3

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**10**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (9 % moderate & low intensity land uses / 2) = 4.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 32 % undisturbed habitat + (29 % moderate & low intensity land uses / 2) = 46.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 13 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 37.5 75 150 Feet

Wetland LC-11
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 13 (Approx. Boundary)
150-ft Boundary

Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 37.5 75 150 Feet

Wetland LC-11
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 13 (Approx. Boundary)
150-ft Boundary

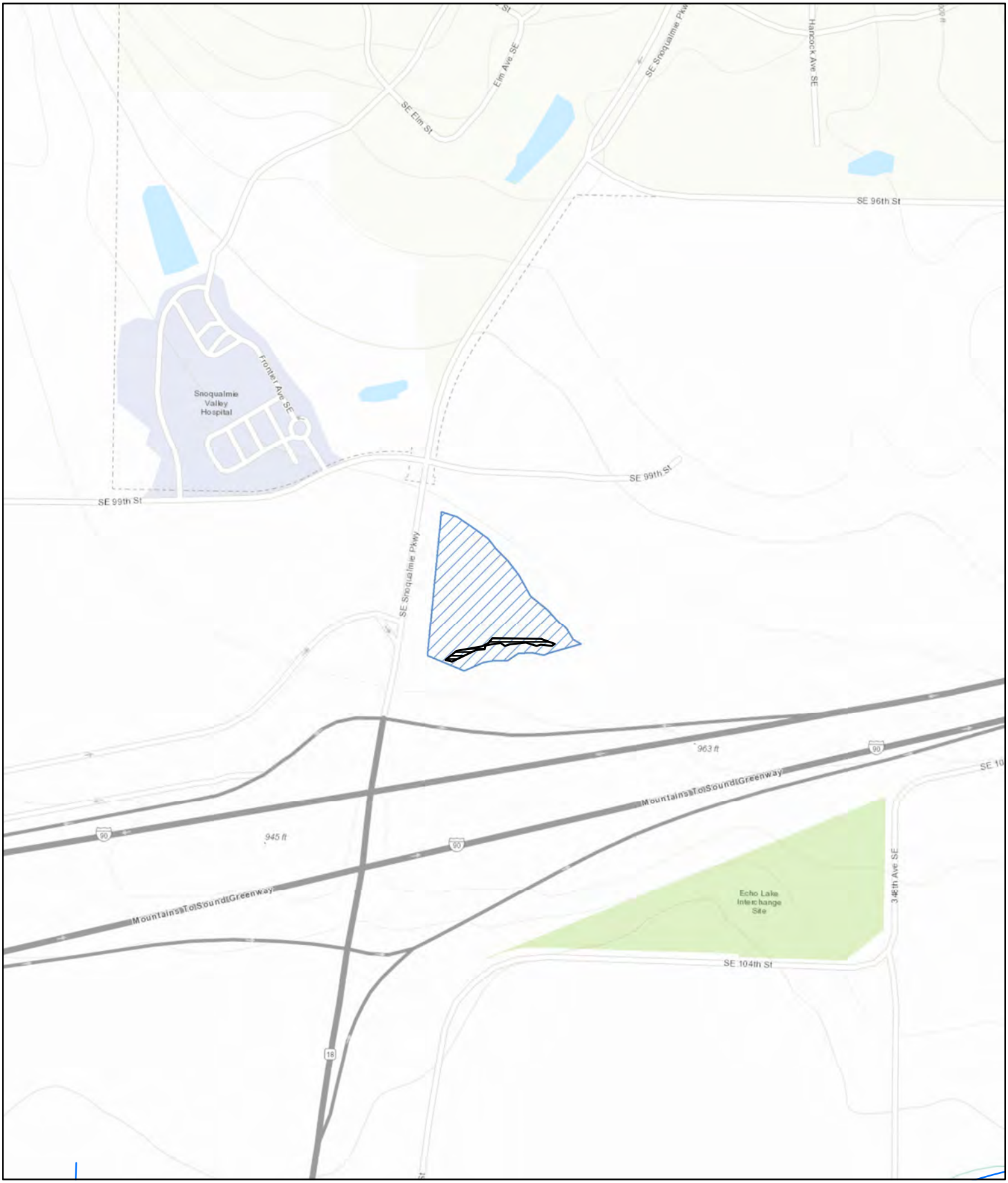
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 62.5 125 250 Feet

Wetland LC-11
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

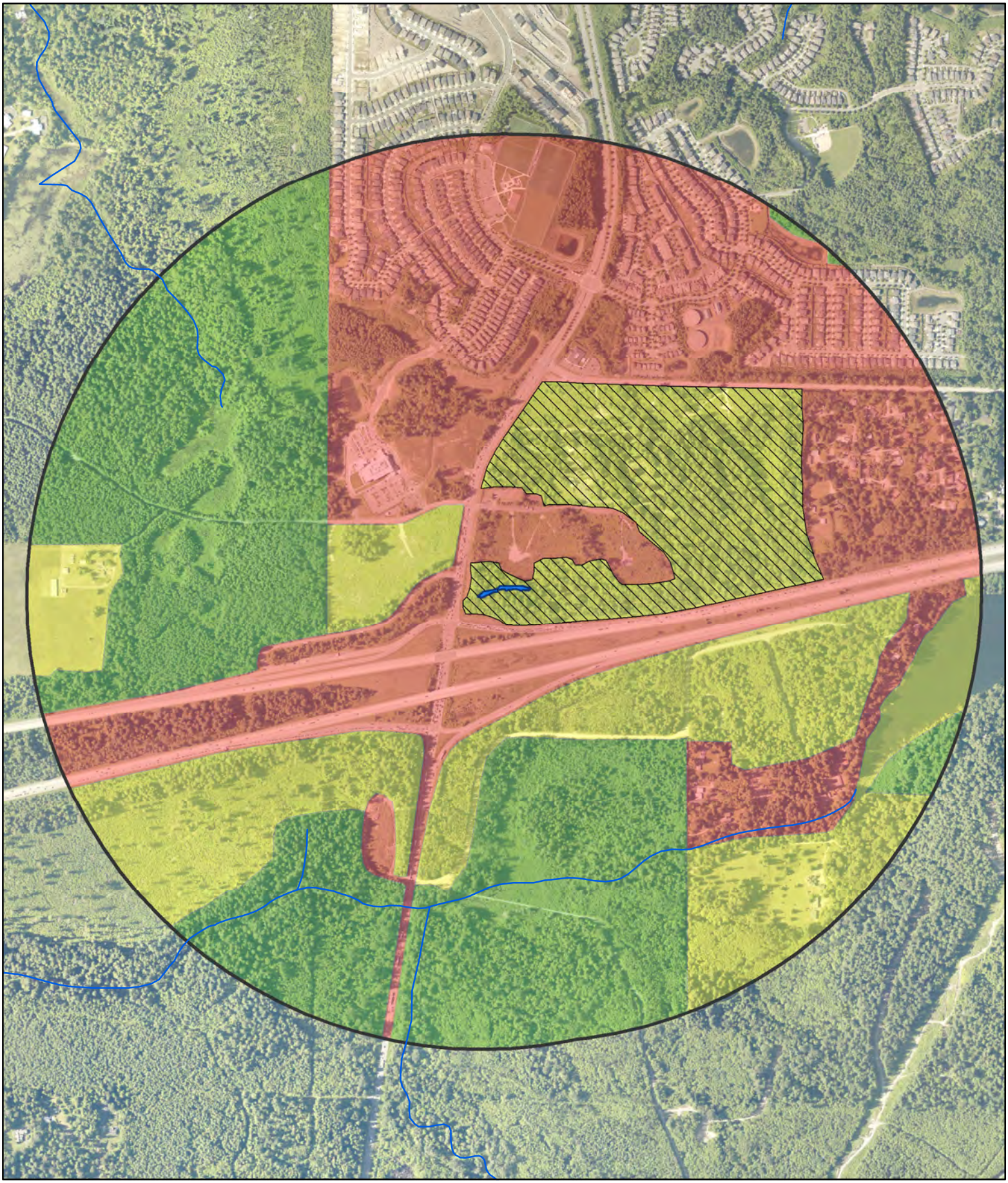
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 13 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-11
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 13 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

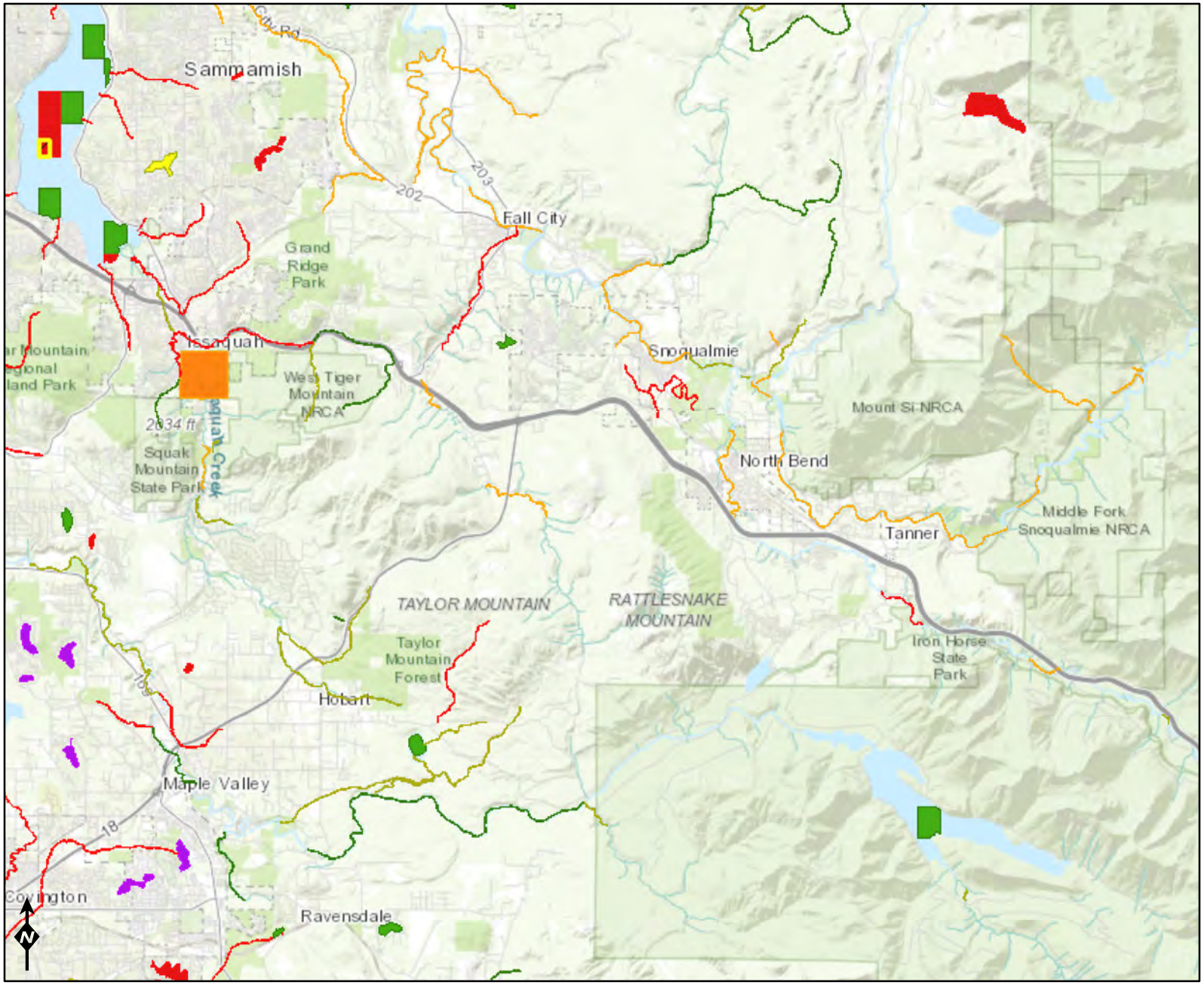
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-11
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

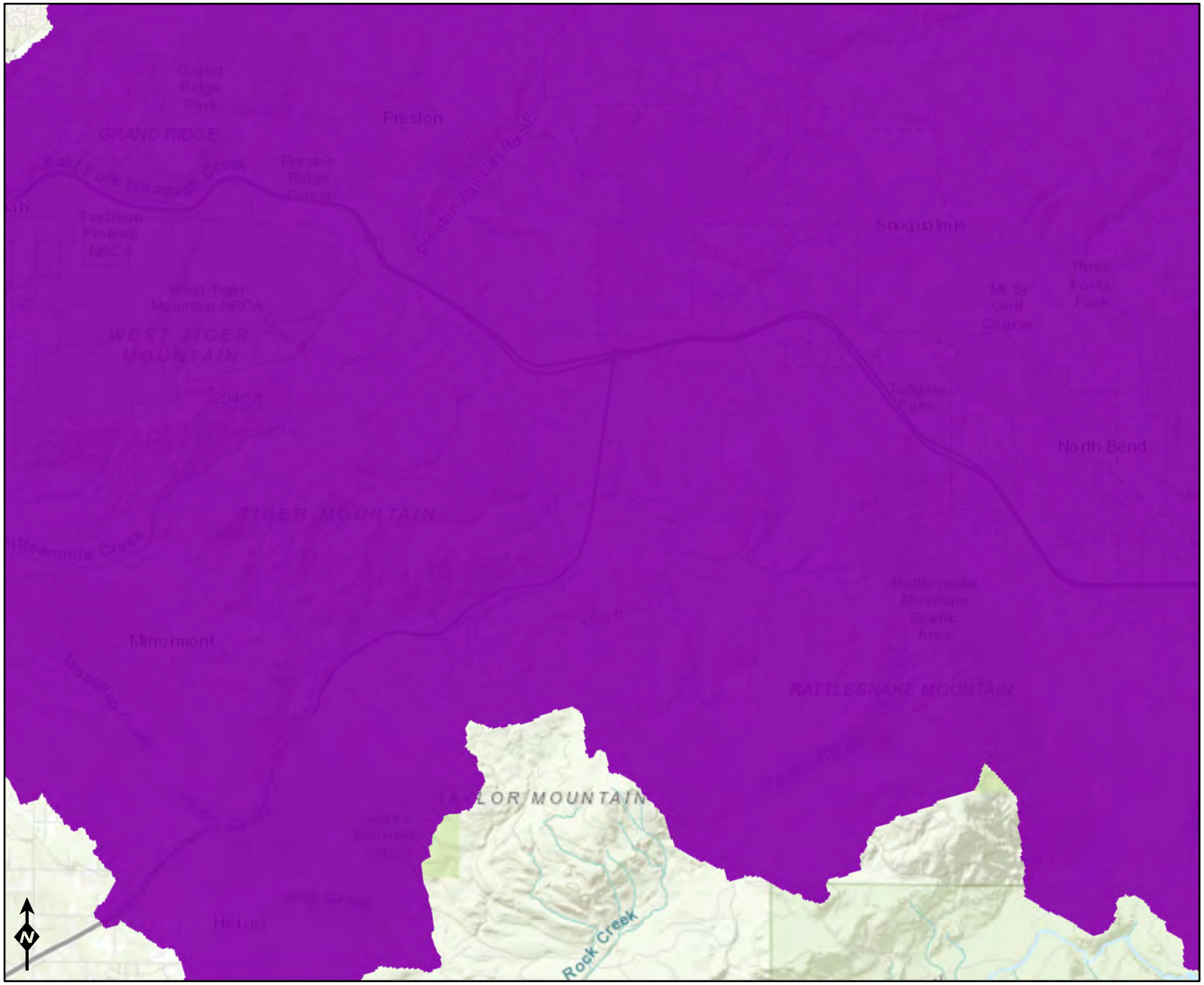
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-12 Date of site visit: 10/4/2018

Rated by T. Parry and K. Moser Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- **X** **Category II** - Total score = 20 - 22
- ____ **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	H	M	
Landscape Potential	M	M	M	
Value	H	H	H	**Total**
Score Based on Ratings	7	8	7	**22**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-12

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-12

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	**10**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-12

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		4
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		5
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**12**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

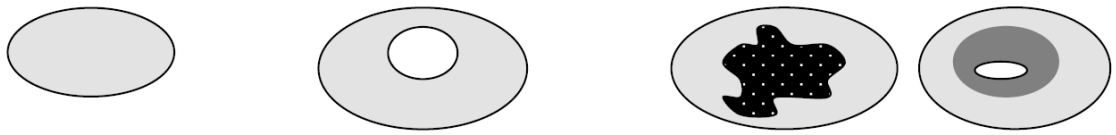
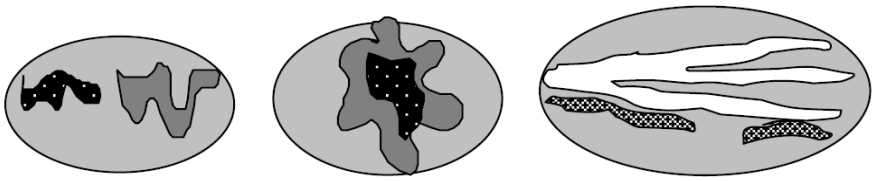
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**10**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (9 % moderate & low intensity land uses / 2) = 4.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 29 % undisturbed habitat + (29 % moderate & low intensity land uses / 2) = 43.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

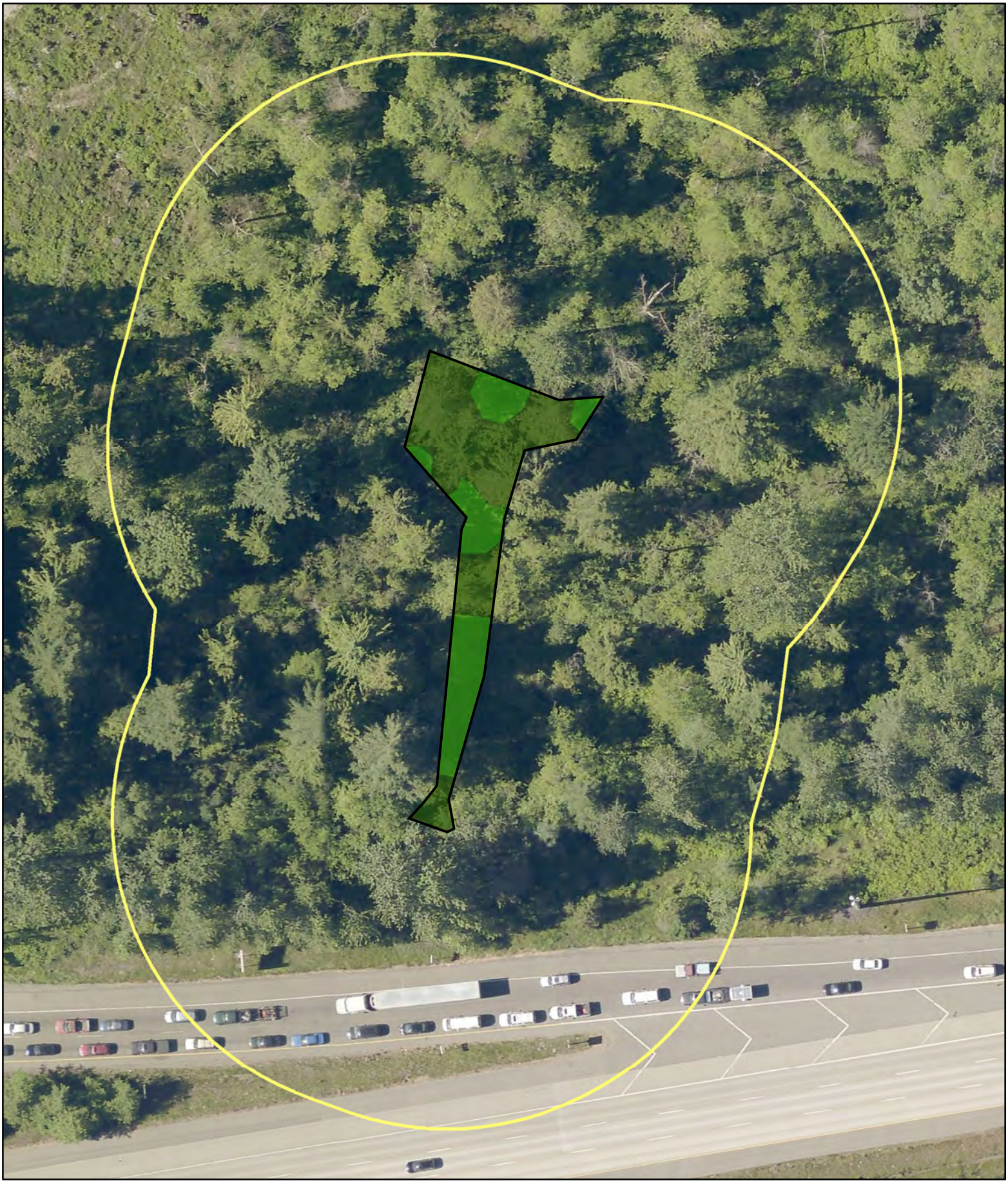
☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form



Parametrix

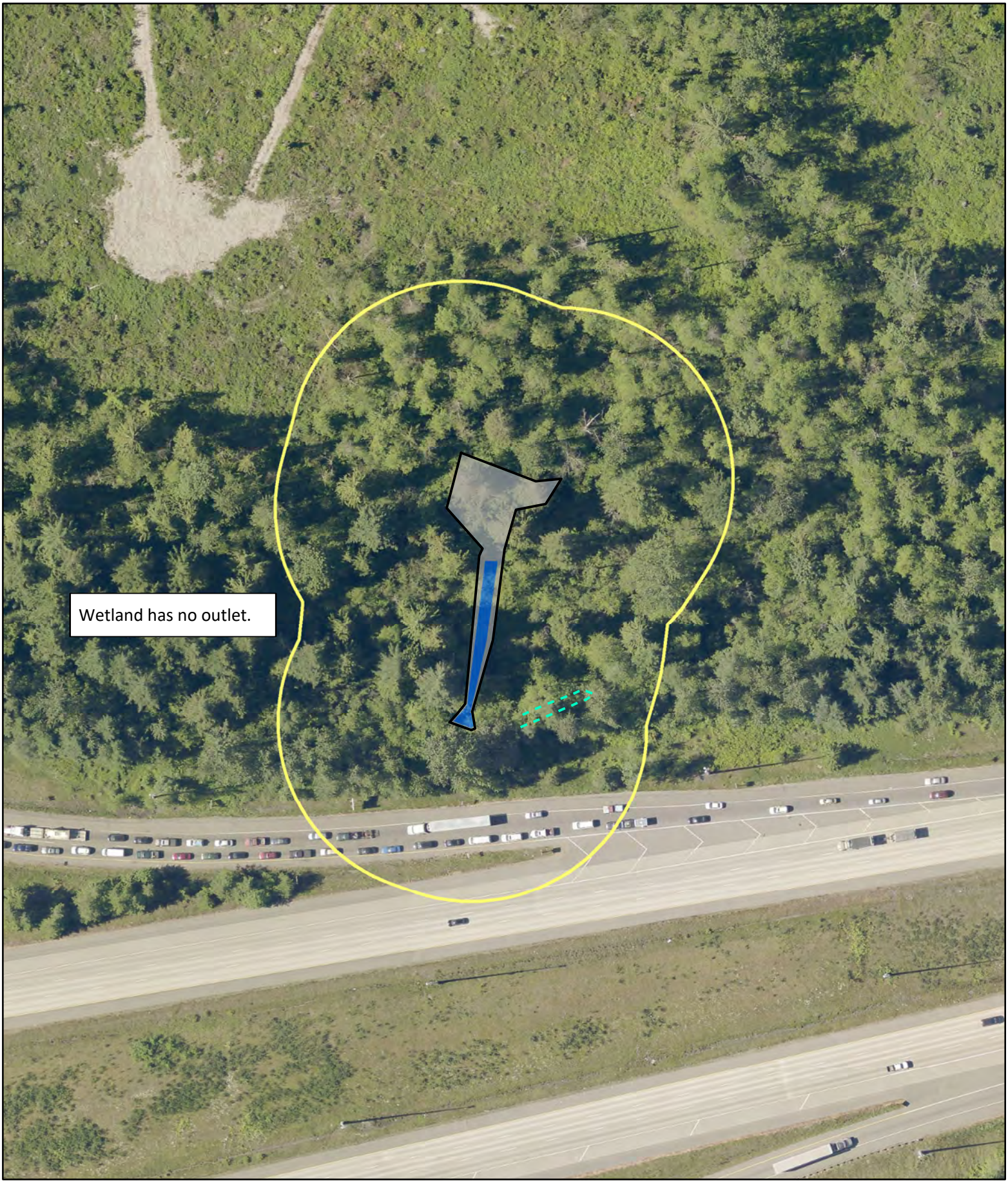
Source: WSDOT, WA DNR
King County

Wetland 14 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland LC-12
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

Wetland 14 (Approx. Boundary)
150-ft Boundary

Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-12
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

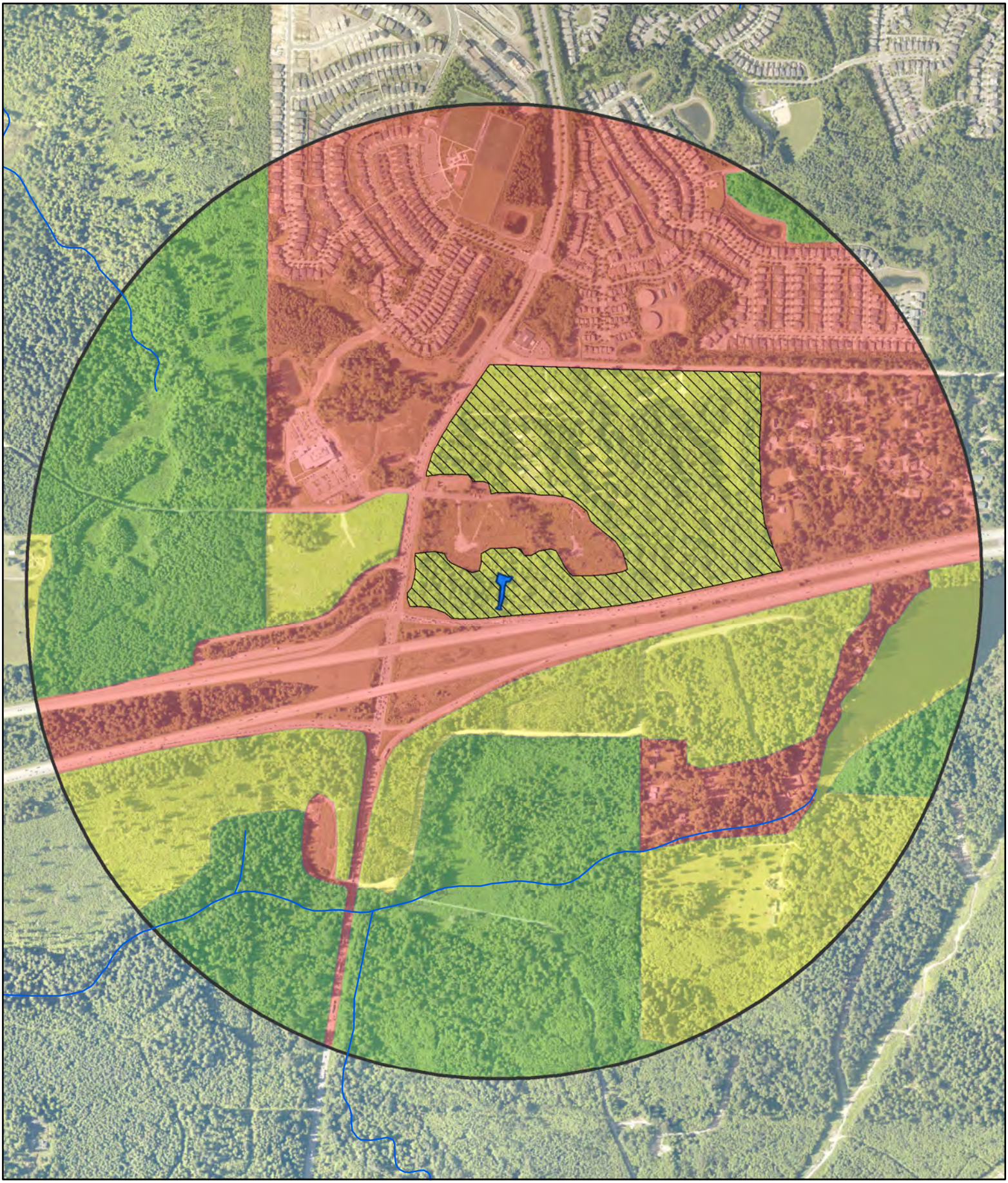
Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 14 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-12
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 14 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

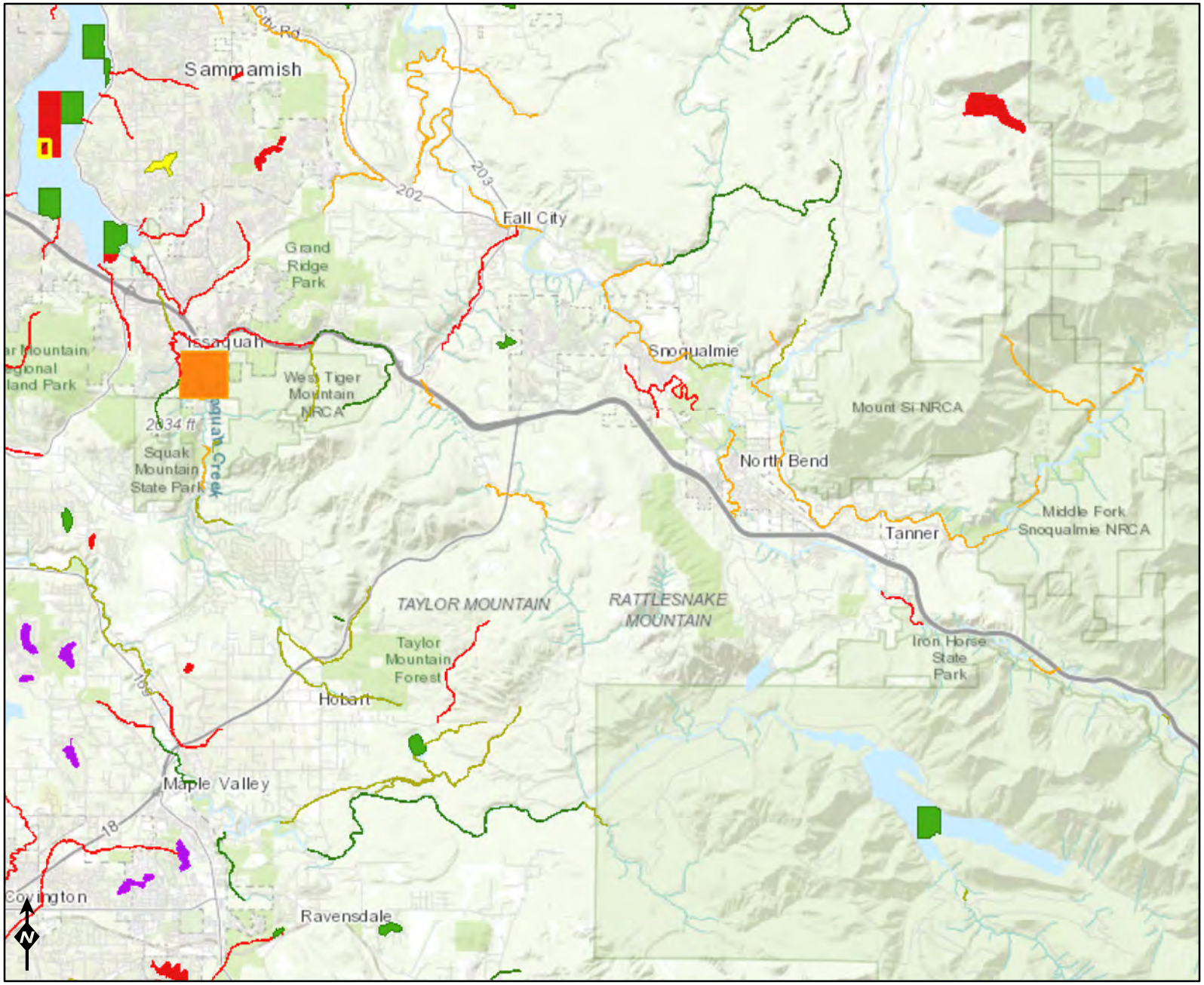
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-12
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

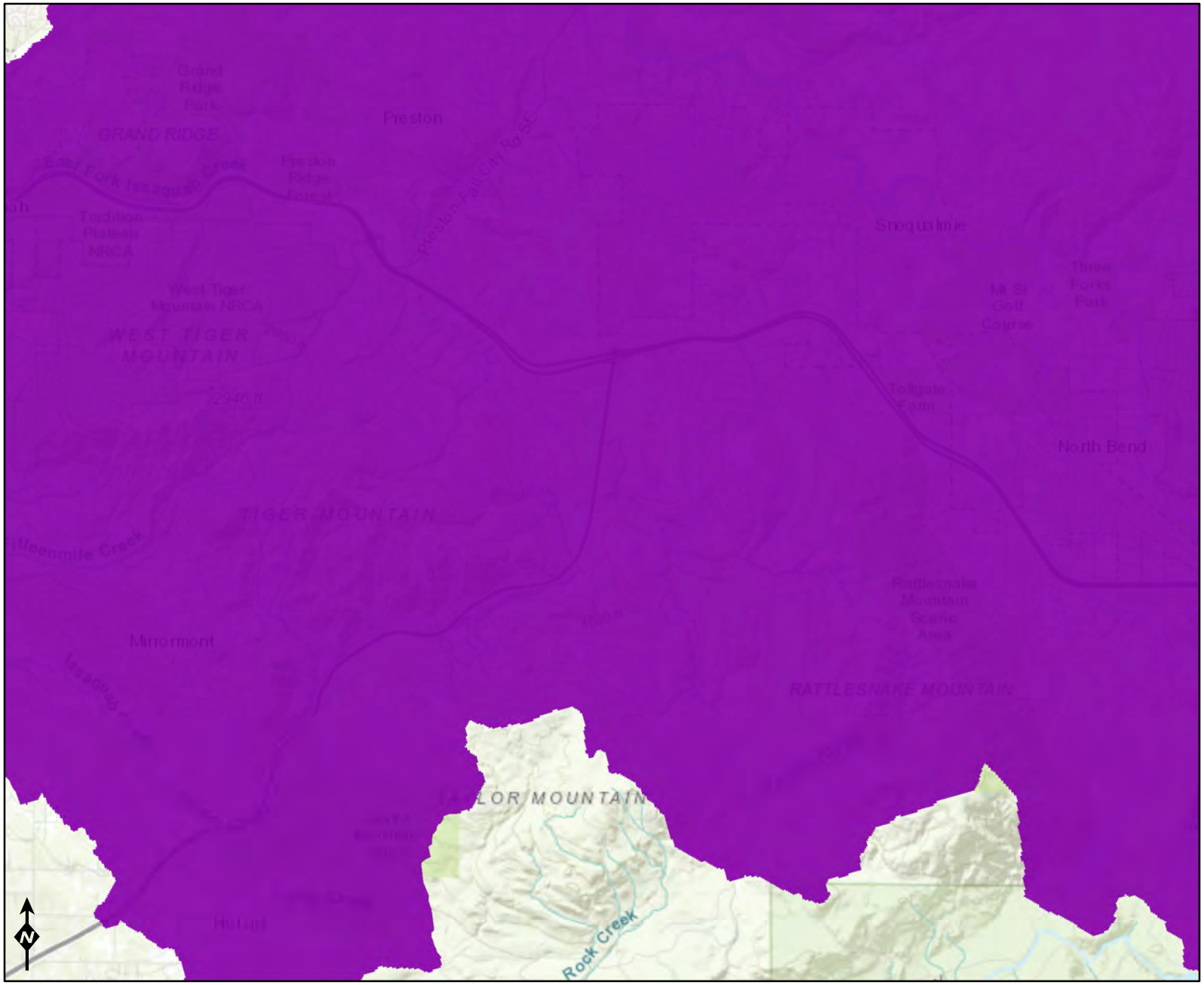
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-13 Date of site visit: 10/4/2018

Rated by T. Parry, K. Moser Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	L	
Landscape Potential	L	L	M	
Value	H	H	M	**Total**
Score Based on Ratings	5	6	6	**17**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-13

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LC-13

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less — points = 3 Slope is > 1% - 2% — points = 2 Slope is > 2% - 5% — points = 1 Slope is greater than 5% — points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 Dense, uncut, herbaceous plants > ½ of area — points = 3 Dense, woody, plants > ½ of area — points = 2 Dense, uncut, herbaceous plants > ¼ of area — points = 1 Does not meet any of the criteria above for plants — points = 0	2
Total for S 1 — Add the points in the boxes above	**3**

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Yes = 1 No = 0	0
Total for S 2 — Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **1 - 2 = M** ☑ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 — Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-13

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	1

Rating of Site Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

Rating of Landscape Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

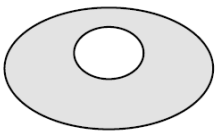
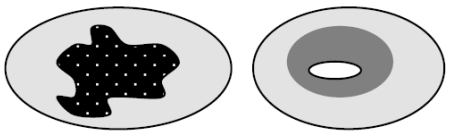
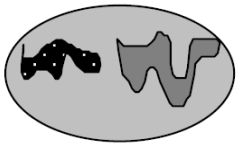
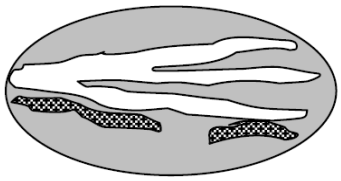
NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-13

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points   	0

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**4**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (9 % moderate & low intensity land uses / 2) = 4.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 26 % undisturbed habitat + (32 % moderate & low intensity land uses / 2) = 42% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number LC-13

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

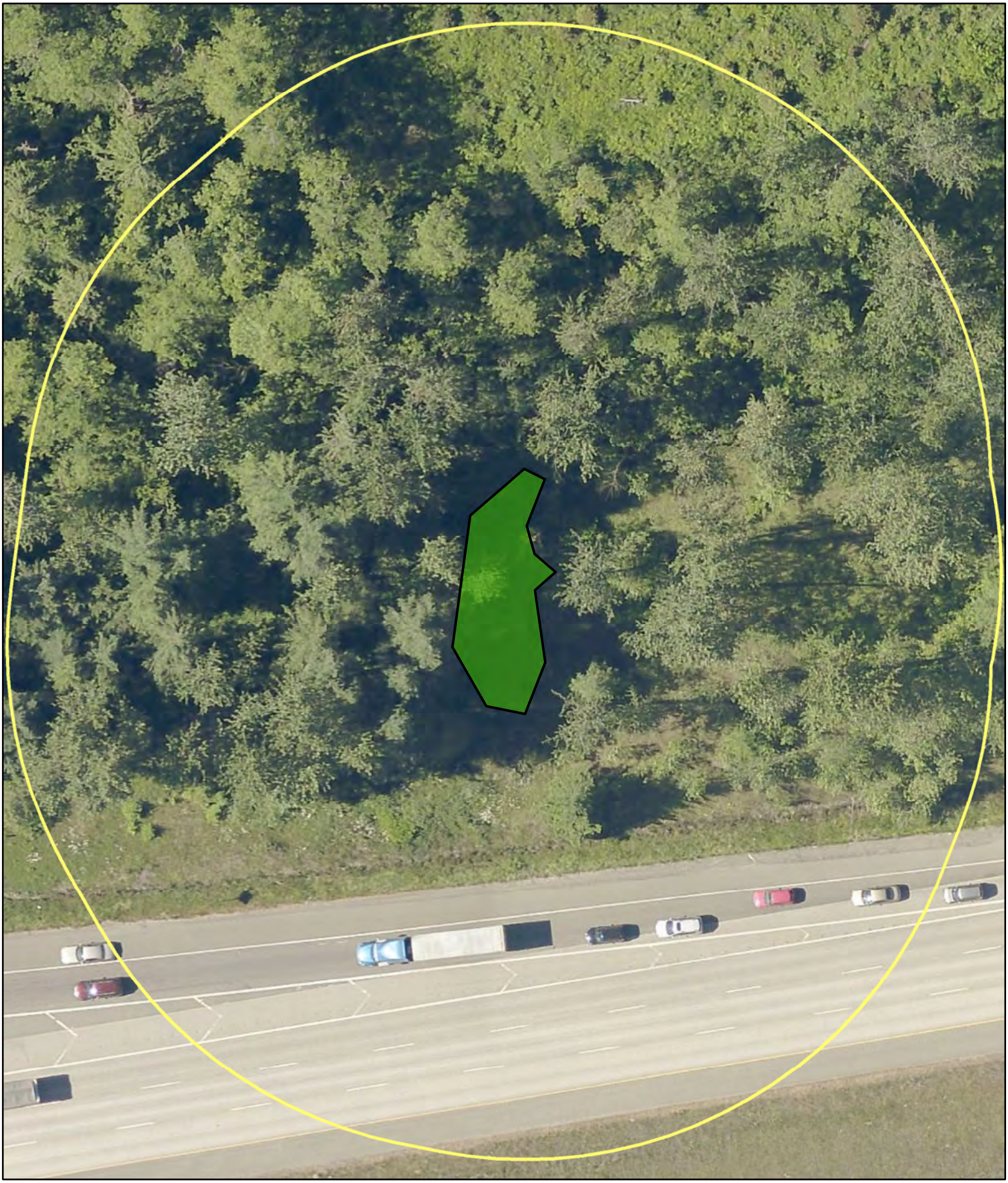
☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form



Parametrix

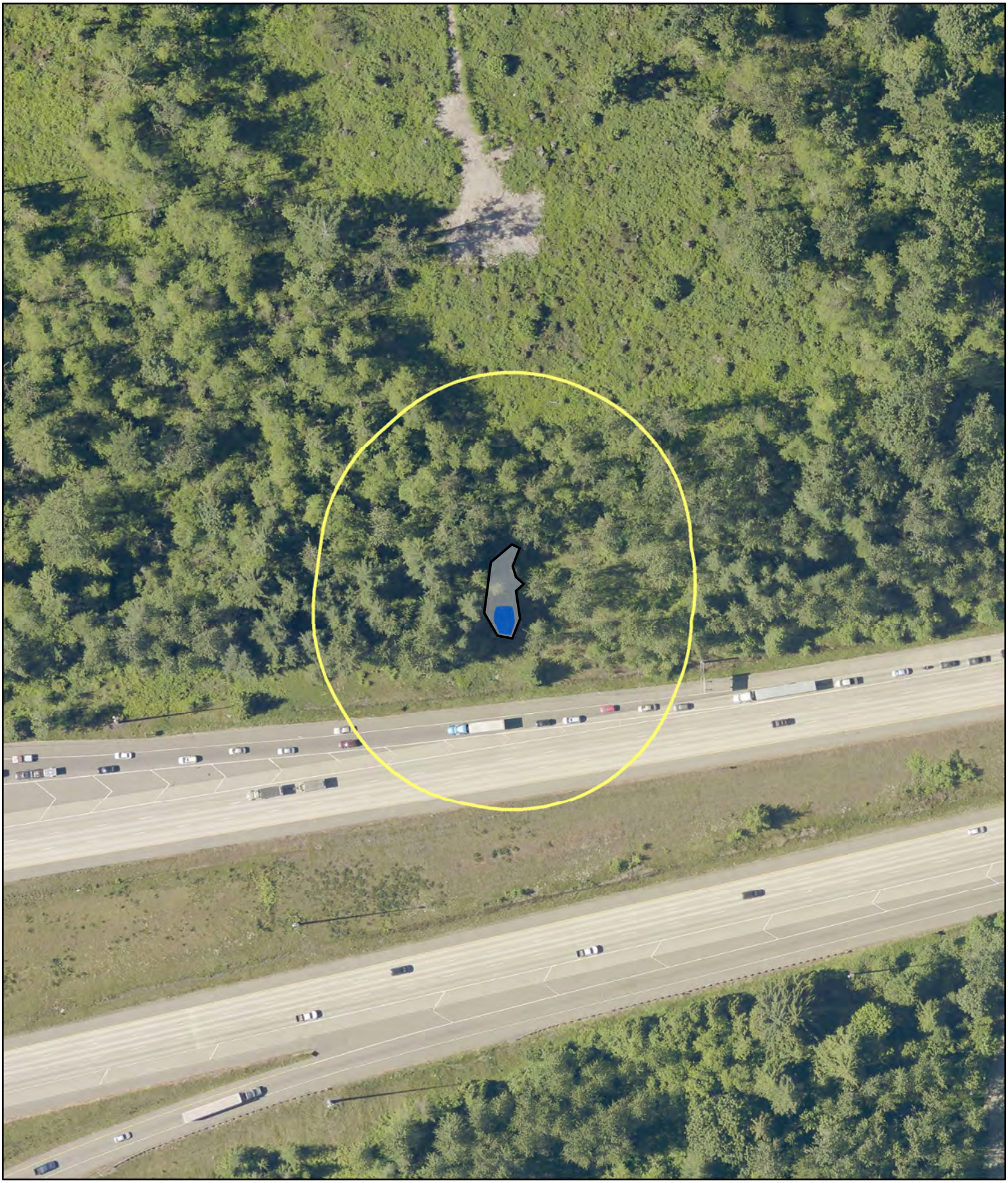
Source: WSDOT, WA DNR
King County

0 15 30 60 Feet

Wetland 15 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-13
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

Wetland 15 (Approx. Boundary)
150-ft Boundary

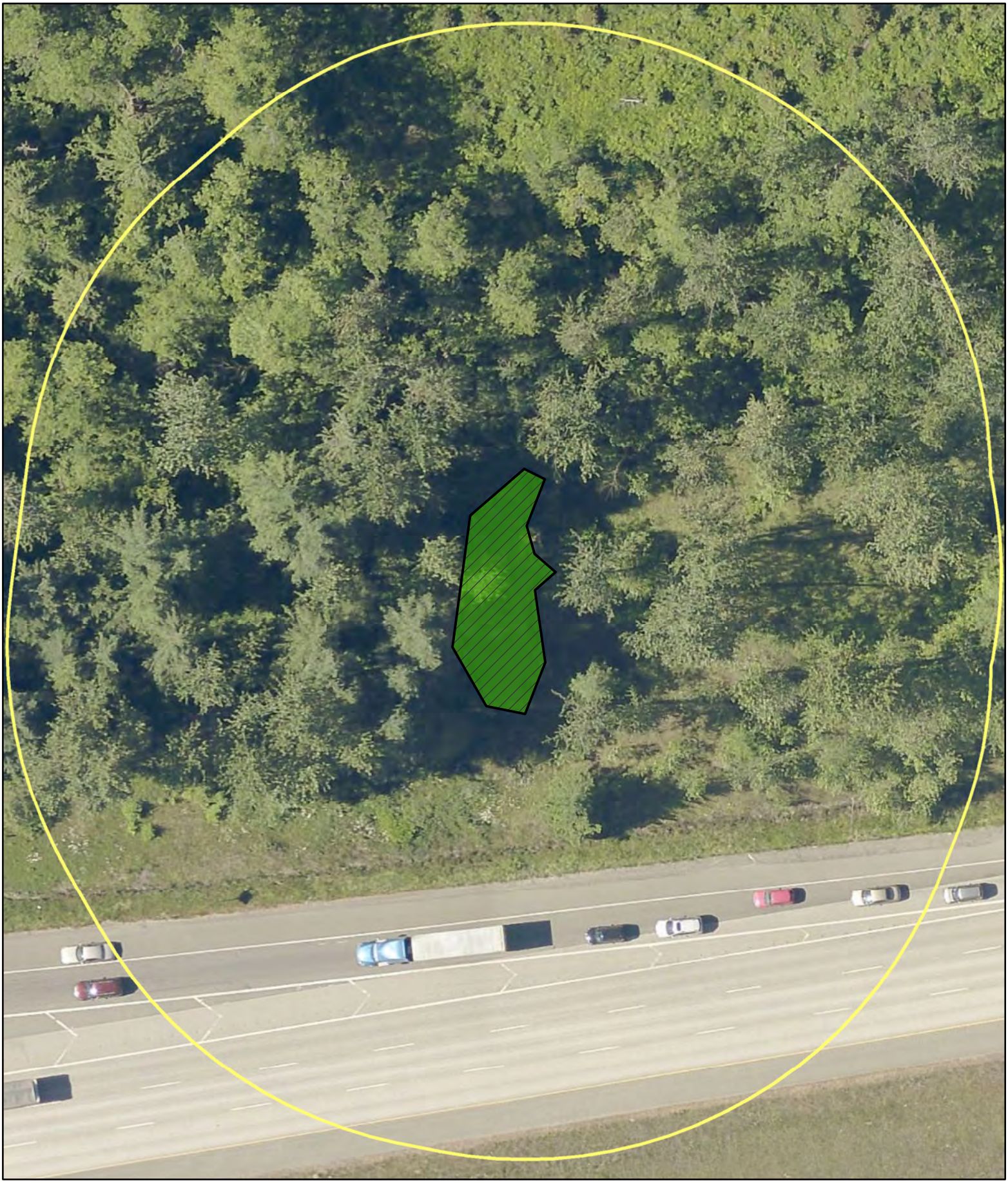
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-13
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

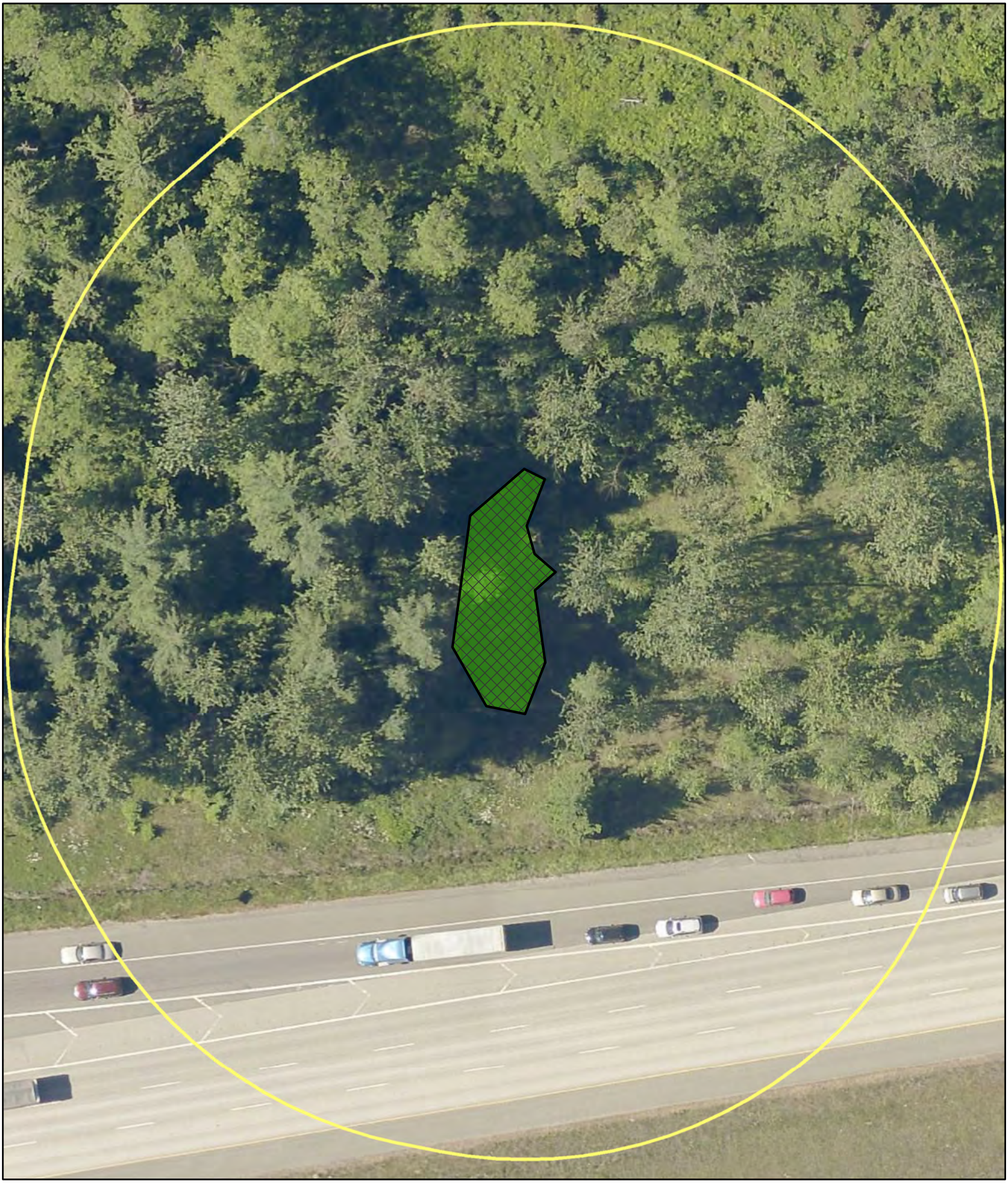
0 15 30 60 Feet

Wetland 15 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-13
Dense Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 15 30 60 Feet

Wetland 15 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-13
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 15 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

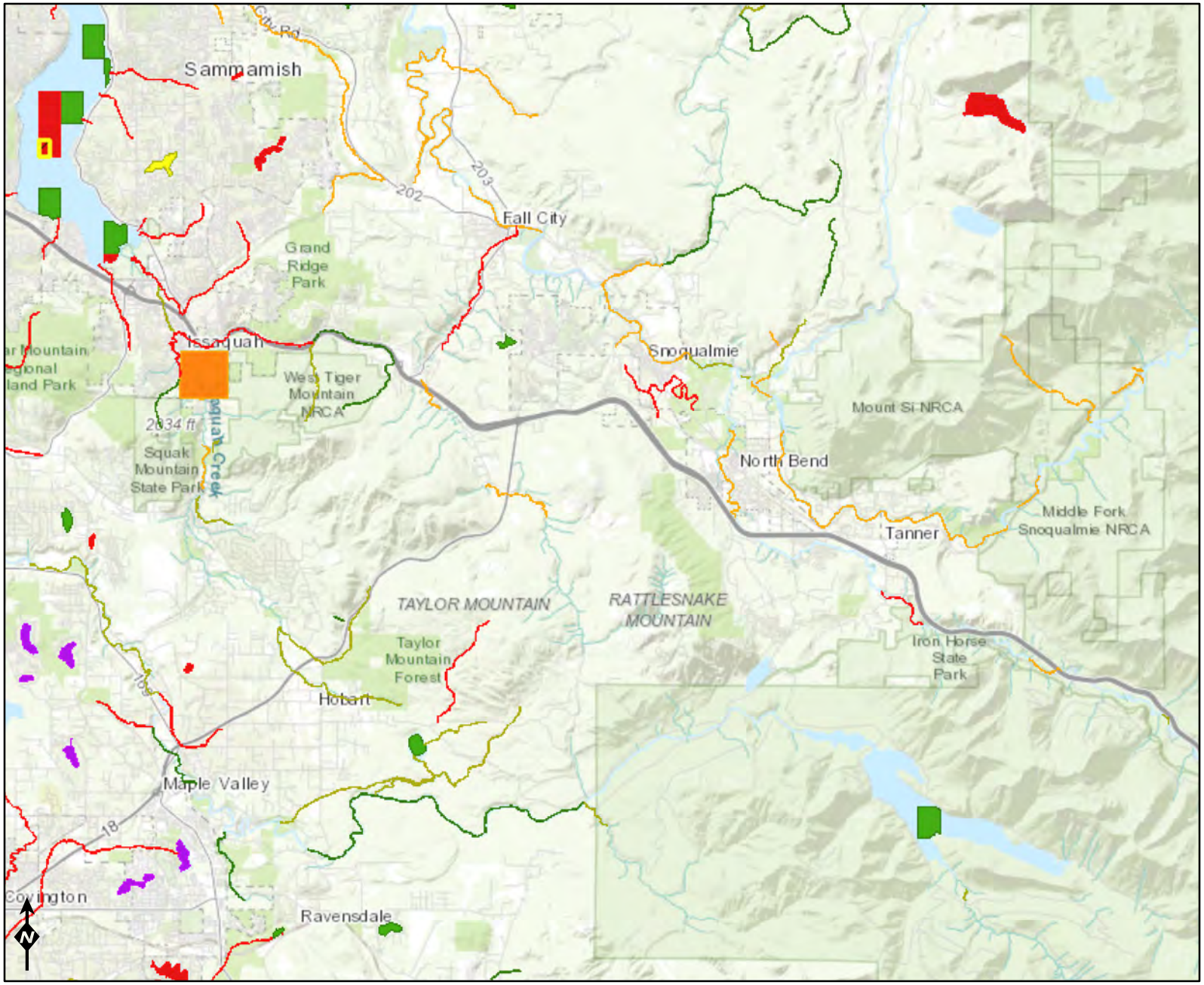
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-13
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

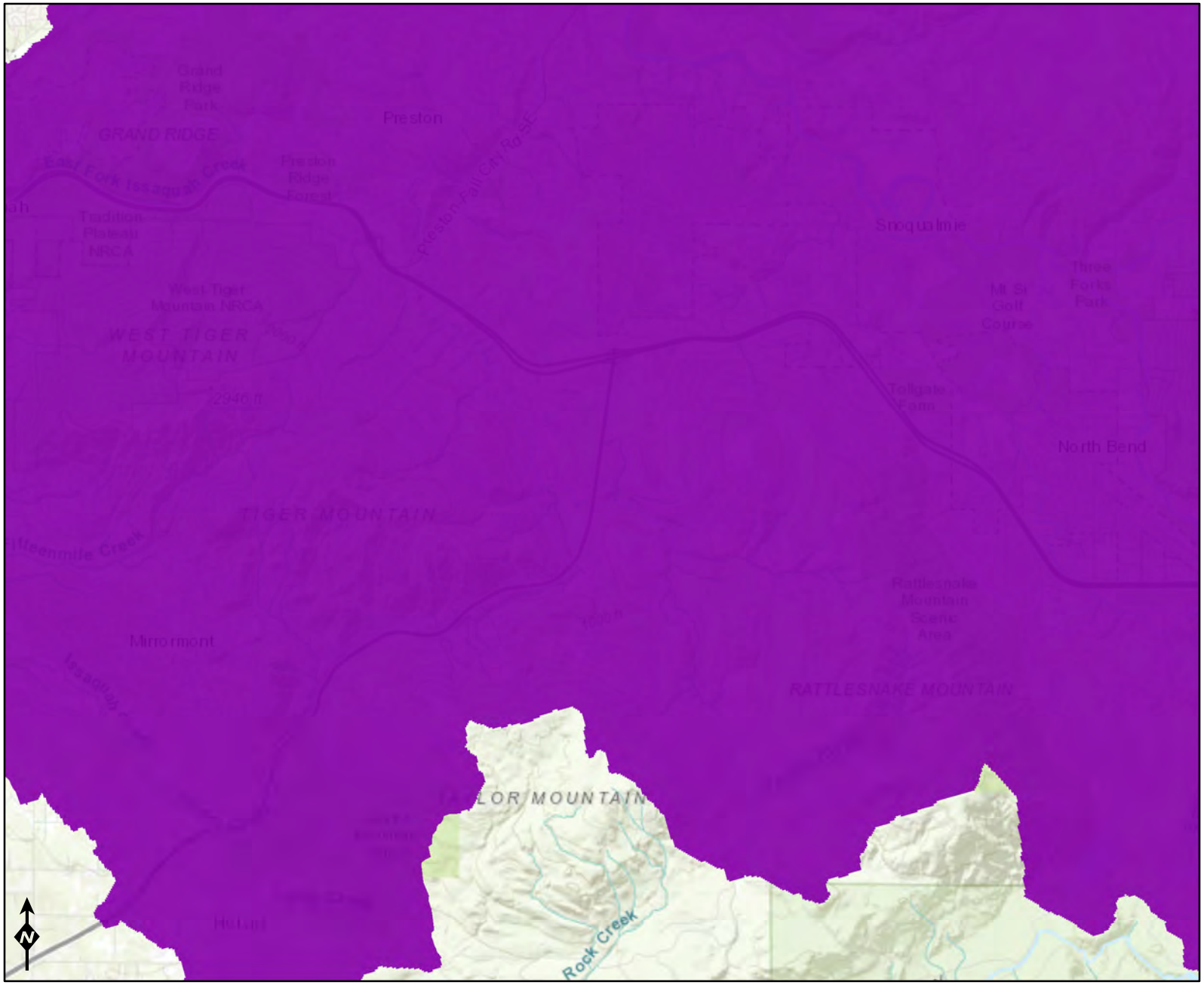
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

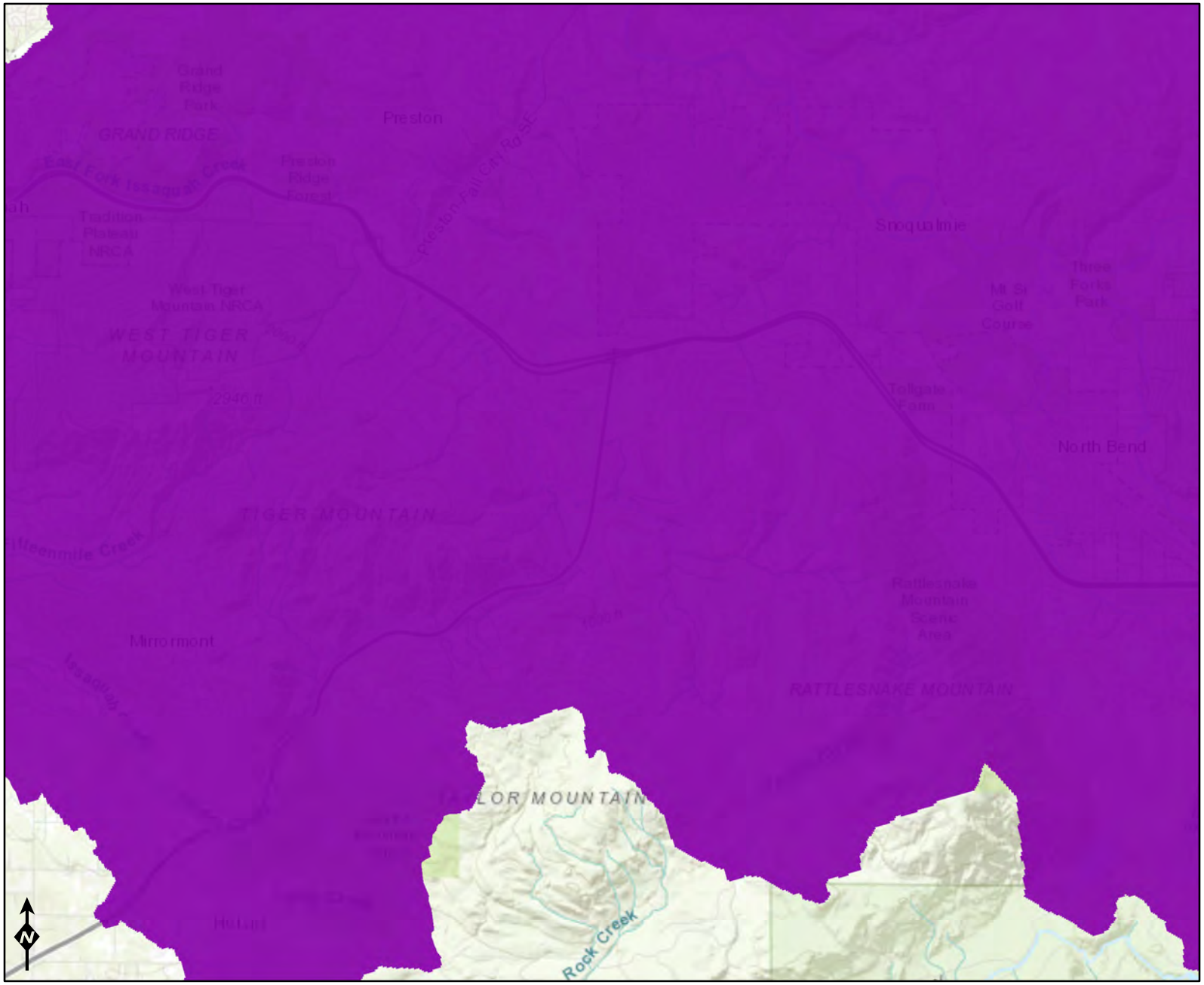
- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-14 Date of site visit: 10/4/2018

Rated by T. Parry, K. Moser Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	M	
Landscape Potential	L	L	M	
Value	H	H	M	**Total**
Score Based on Ratings	5	6	6	**17**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-14

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LC-14

SLOPE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1% - 2% points = 2 Slope is > 2% - 5% points = 1 Slope is greater than 5% points = 0	2
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	2
Total for S 1 Add the points in the boxes above	**4**

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **1 - 2 = M** ☑ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-14

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	1

Rating of Site Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

Rating of Landscape Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

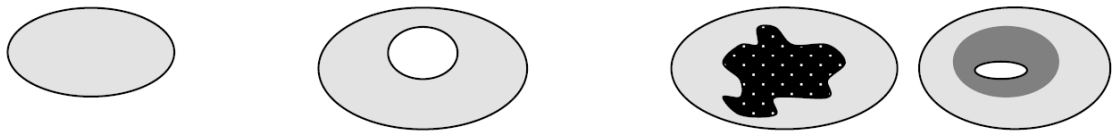
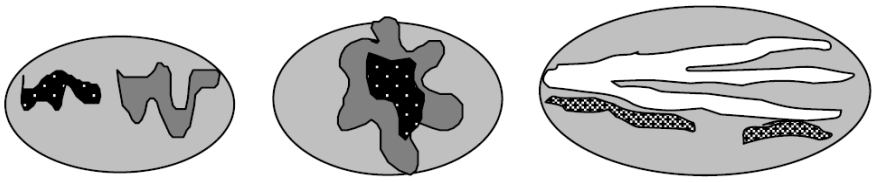
NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-14

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**8**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (9 % moderate & low intensity land uses / 2) = 4.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 23 % undisturbed habitat + (36 % moderate & low intensity land uses / 2) = 41% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number LC-14

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

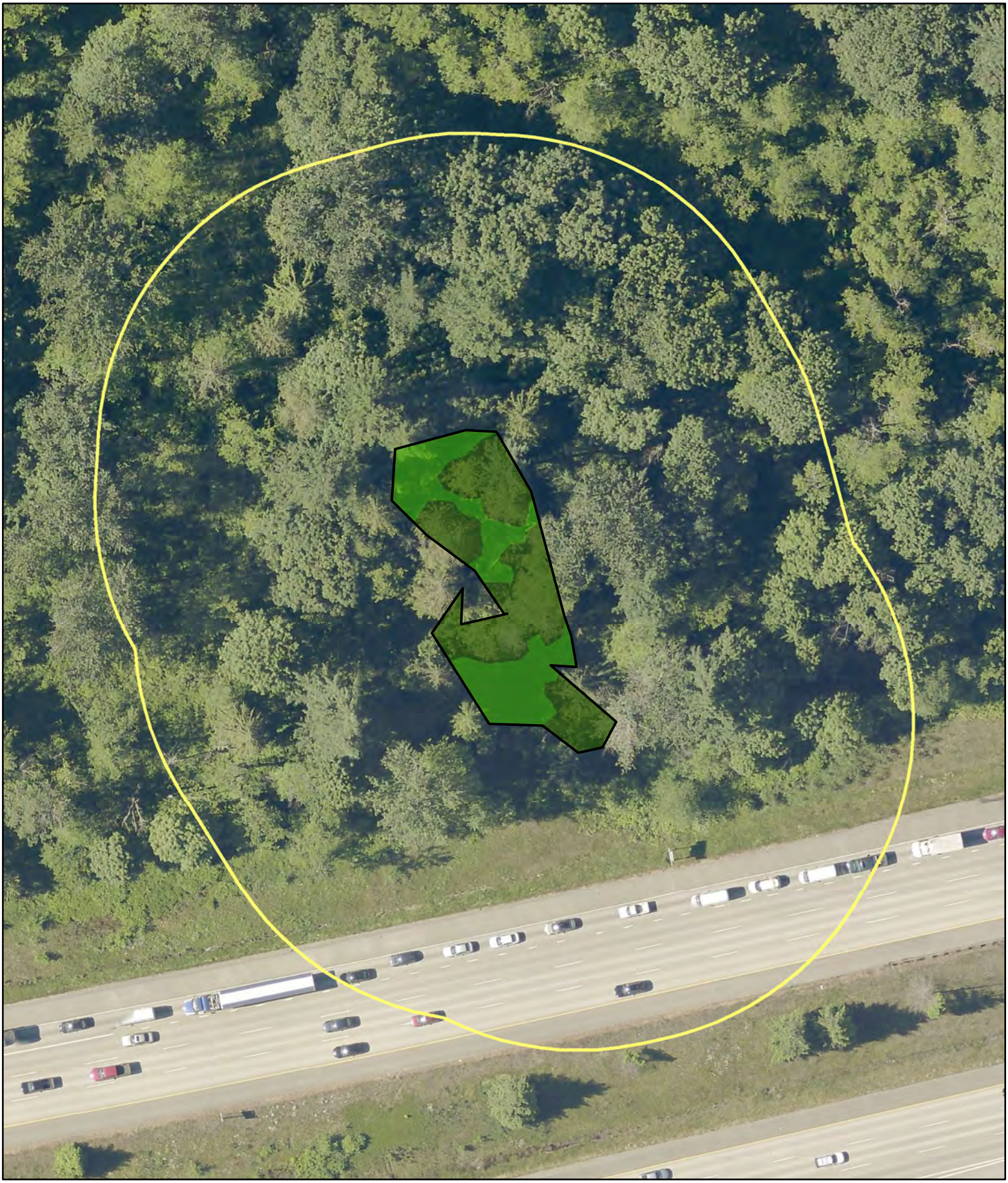
☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form



Parametrix

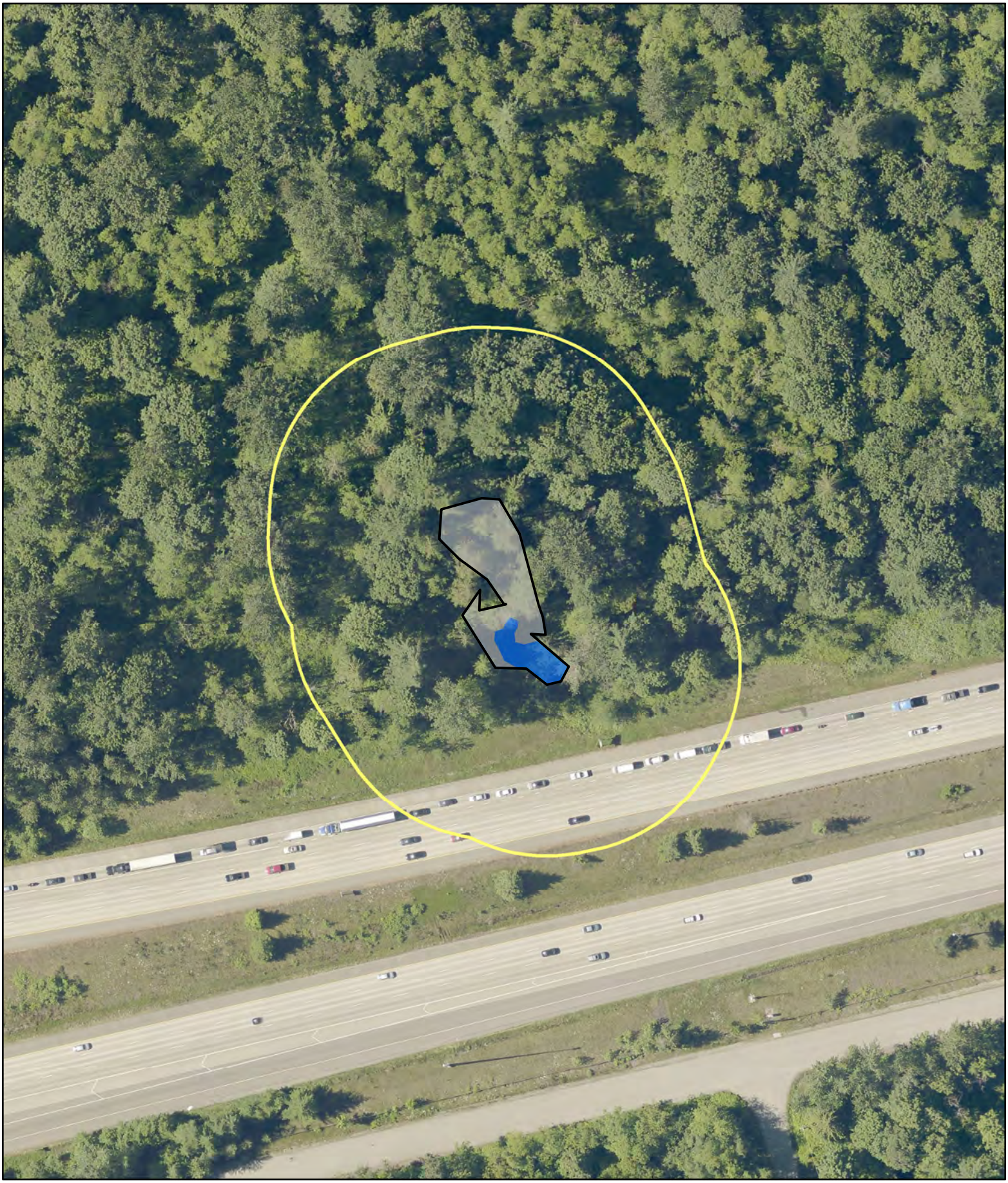
Source: WSDOT, WA DNR
King County

Wetland 17 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland LC-14
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

Wetland 17 (Approx. Boundary)
150-ft Boundary

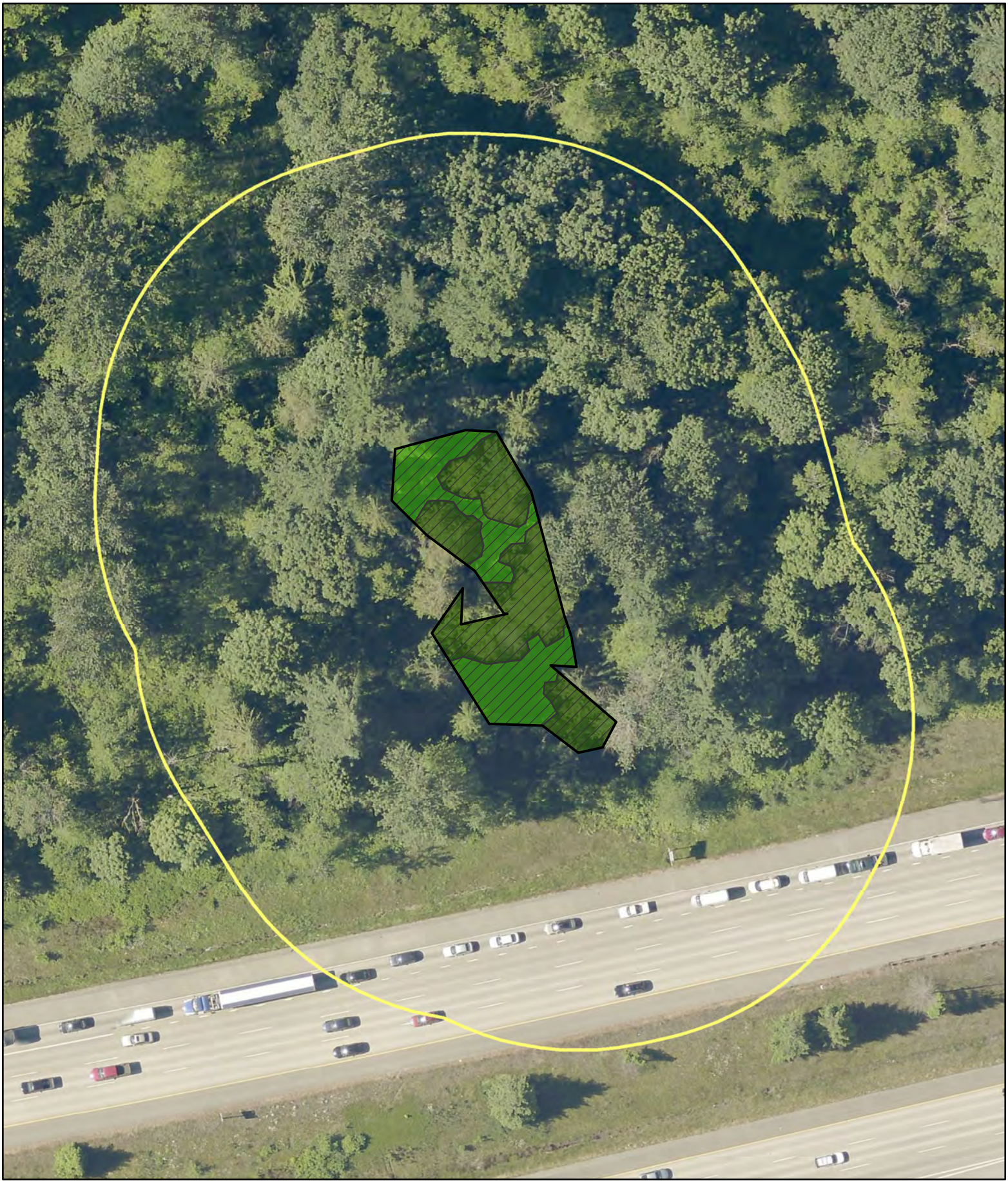
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-14
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

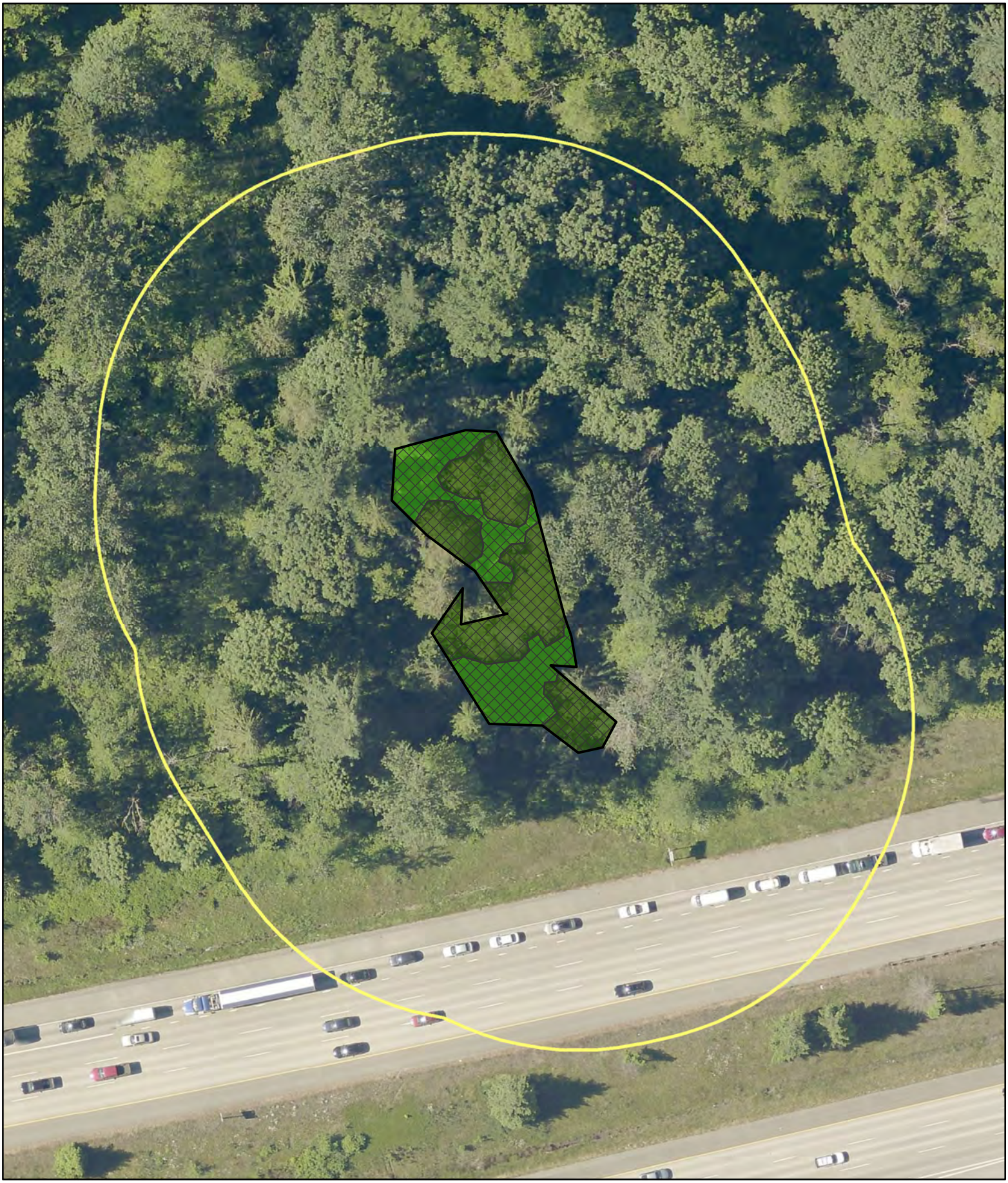
0 25 50 100 Feet

Wetland 17 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-14
Dense Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 25 50 100 Feet

Wetland 17 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-14
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 17 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

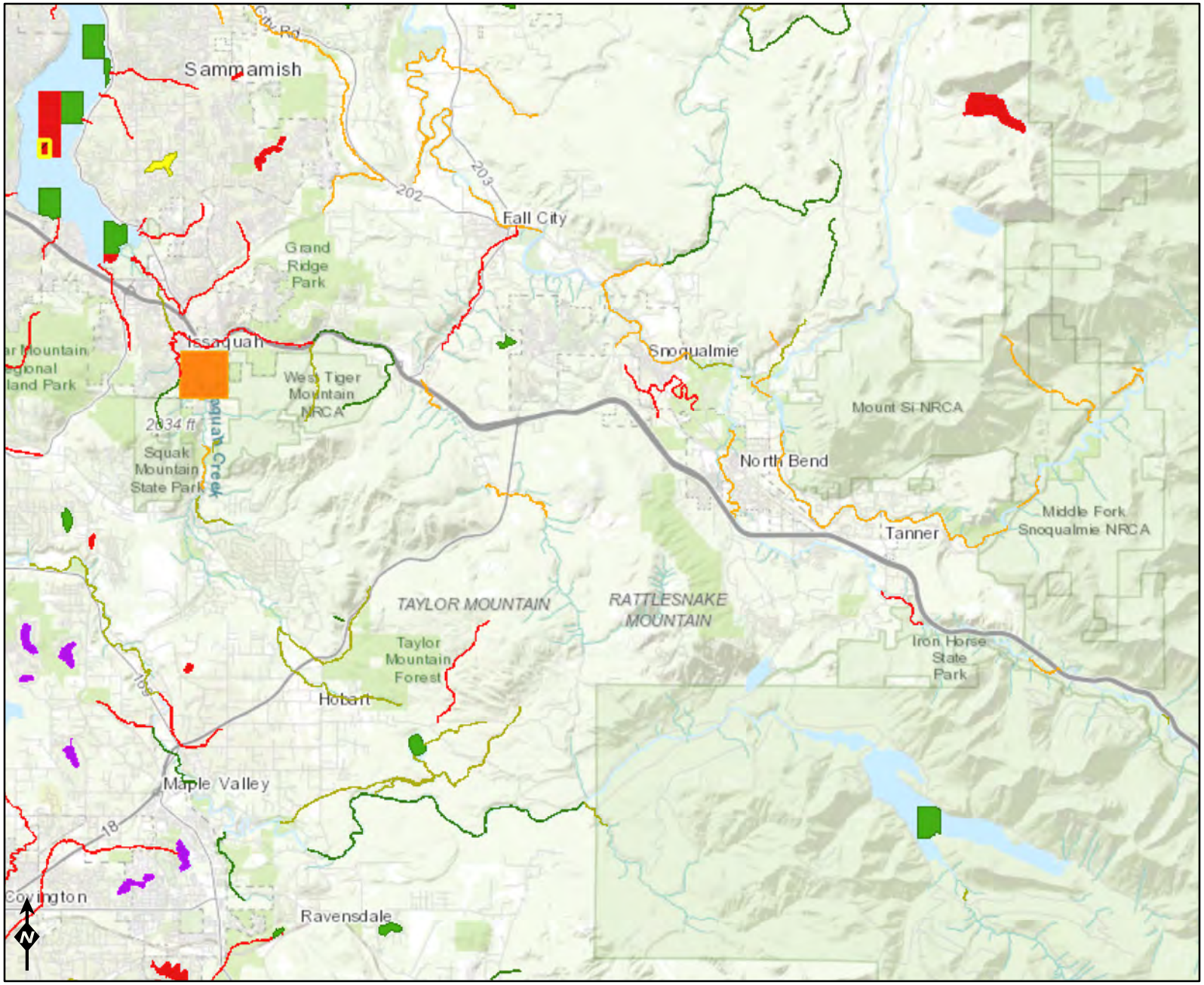
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-14
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

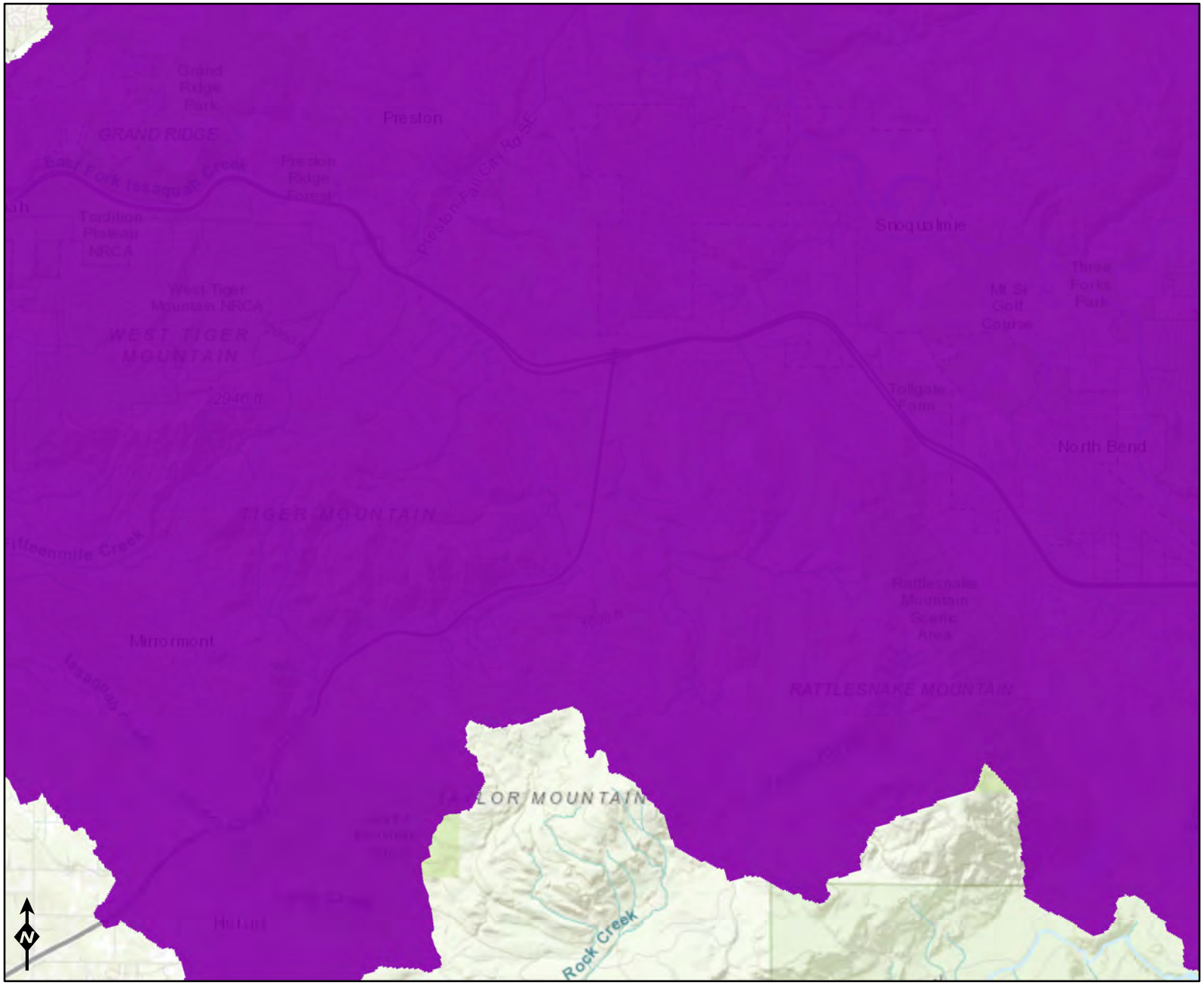
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-15 Date of site visit: 10/4/2018

Rated by T. Parry, K. Moser Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	L	
Landscape Potential	L	L	M	
Value	H	H	M	**Total**
Score Based on Ratings	5	6	5	**16**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-15

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LC-15

SLOPE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less — points = 3 Slope is > 1% - 2% — points = 2 Slope is > 2% - 5% — points = 1 Slope is greater than 5% — points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 Dense, uncut, herbaceous plants > ½ of area — points = 3 Dense, woody, plants > ½ of area — points = 2 Dense, uncut, herbaceous plants > ¼ of area — points = 1 Does not meet any of the criteria above for plants — points = 0	2
Total for S 1 — Add the points in the boxes above	**3**

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Yes = 1 No = 0	0
Total for S 2 — Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **1 - 2 = M** ☑ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 — Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-15

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?		
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.*		1
Dense, uncut, **rigid** plants cover > 90% of the area of the wetland	points = 1	
All other conditions	points = 0	

Rating of Site Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	Yes = 1 No = 0	0

Rating of Landscape Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?		
S 6.1. Distance to the nearest areas downstream that have flooding problems:		2
The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for S 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

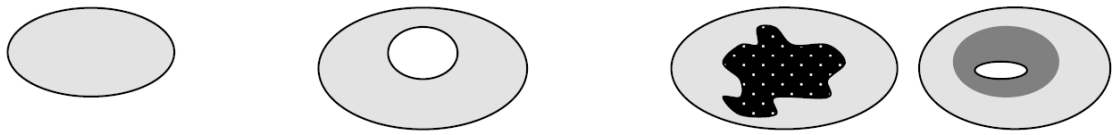
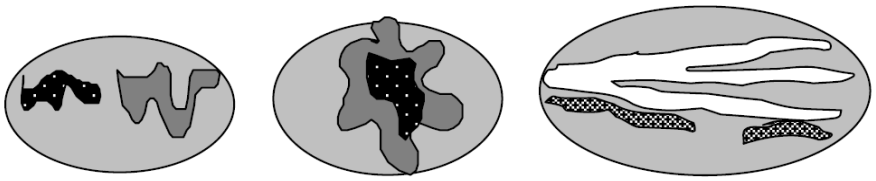
NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-15

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**6**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (9 % moderate & low intensity land uses / 2) = 4.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 24 % undisturbed habitat + (38 % moderate & low intensity land uses / 2) = 43% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number LC-15

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

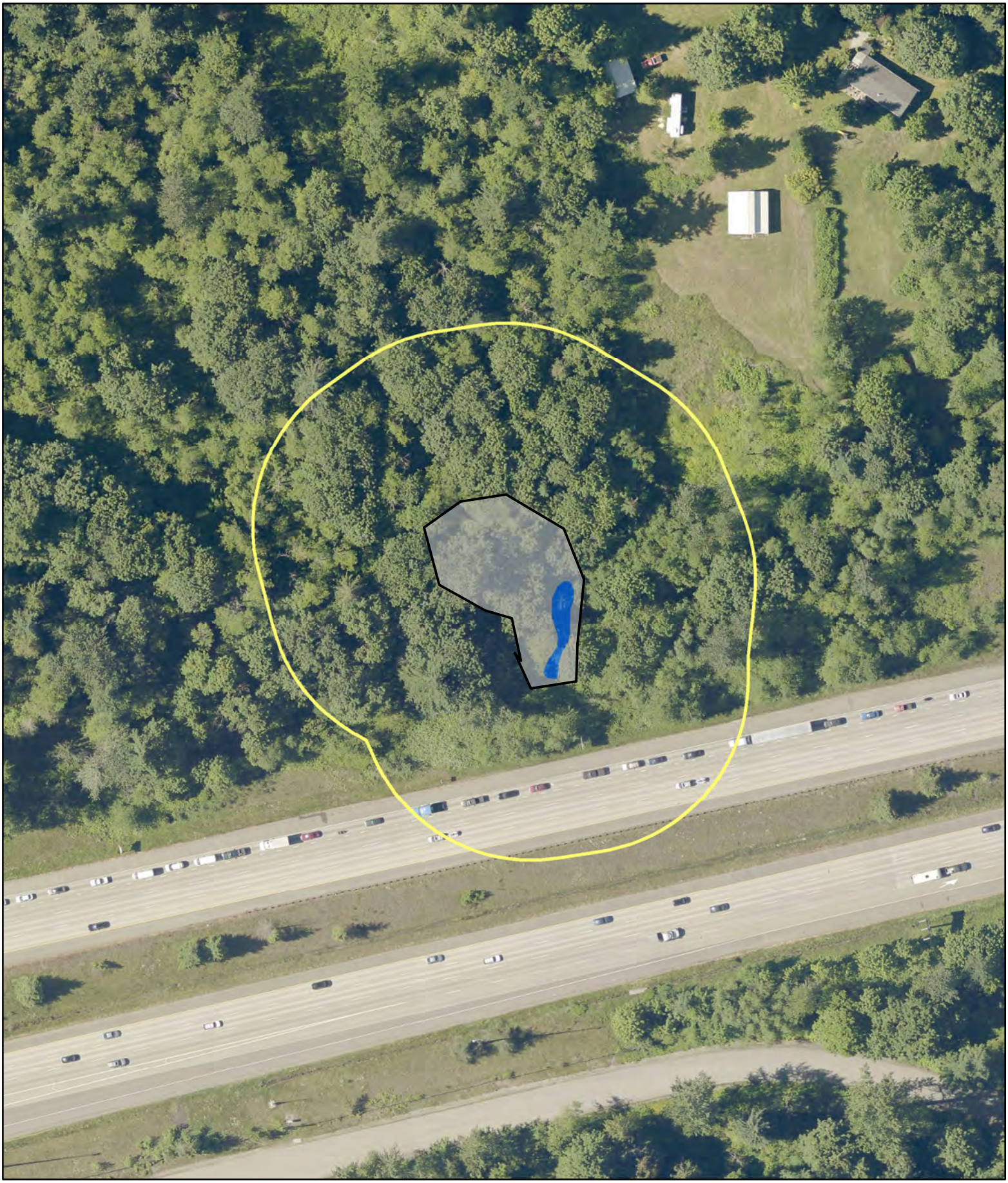
Source: WSDOT, WA DNR
King County

Wetland 19 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland LC-15
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

Wetland 19 (Approx. Boundary)
150-ft Boundary

WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-15
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

0 25 50 100 Feet

Wetland 19 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-15
Dense Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

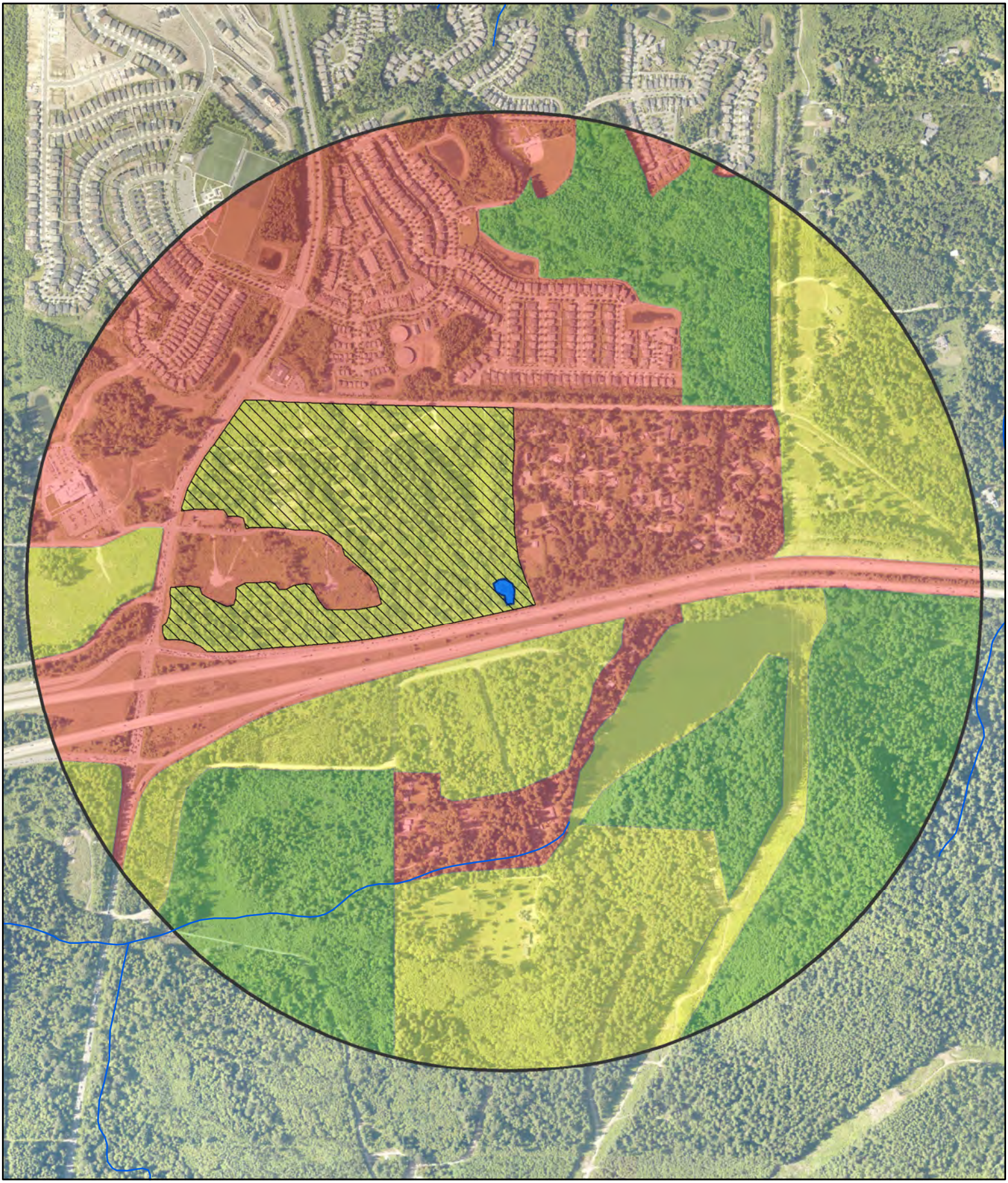
0 25 50 100 Feet

Wetland 19 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-15
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 19 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

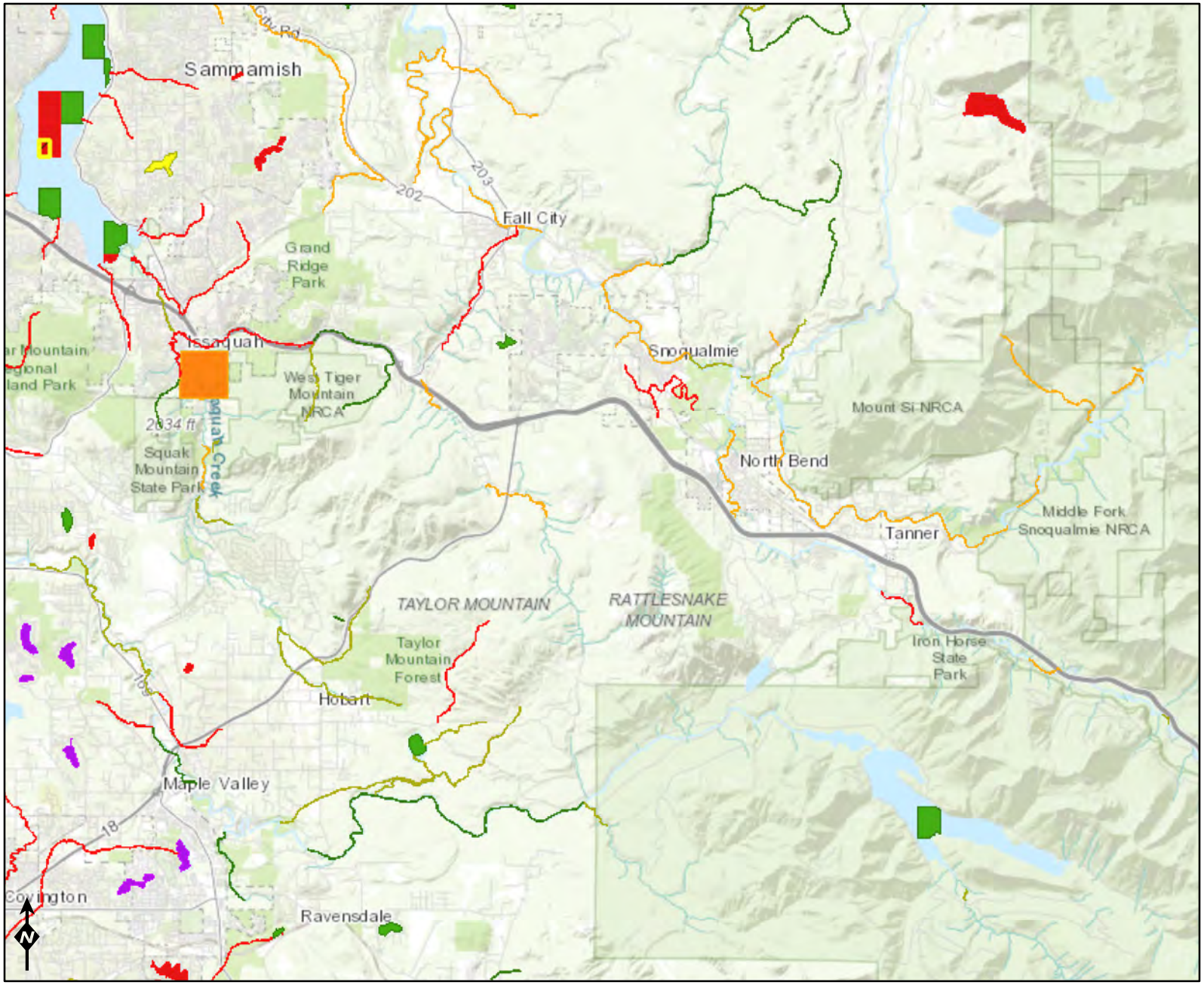
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-15
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

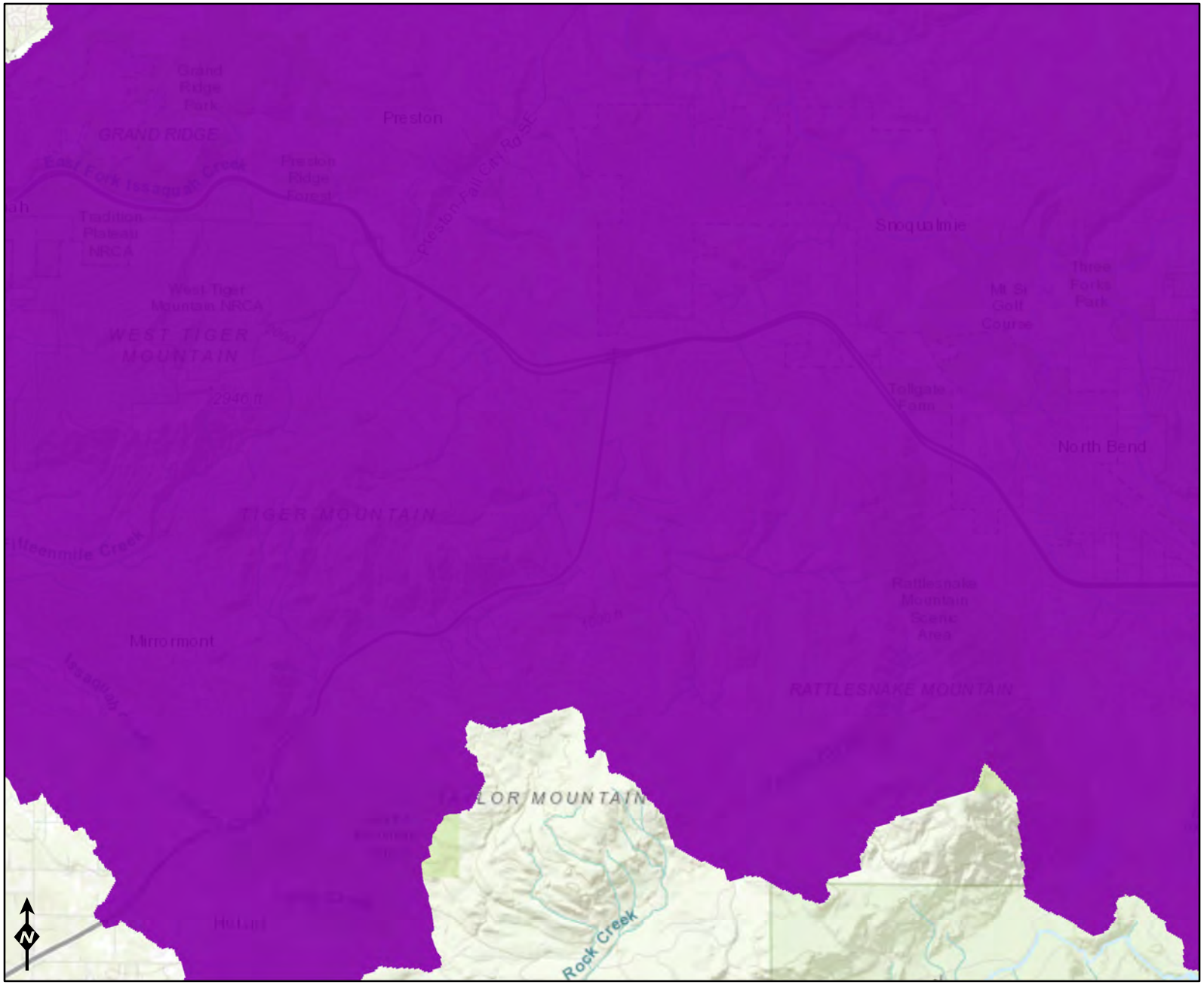
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-16 Date of site visit: 10/4/2018

Rated by T. Parry, K. Moser Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	L	
Landscape Potential	M	M	M	
Value	H	H	M	**Total**
Score Based on Ratings	6	7	5	**18**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-16

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LC-16

SLOPE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1% - 2% points = 2 Slope is > 2% - 5% points = 1 Slope is greater than 5% points = 0	0
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	2
Total for S 1 Add the points in the boxes above	**2**

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Yes = 1 No = 0	1
Total for S 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☑ **1 - 2 = M** ☐ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-16

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?		
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.*		1
Dense, uncut, **rigid** plants cover > 90% of the area of the wetland	points = 1	
All other conditions	points = 0	

Rating of Site Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	Yes = 1 No = 0	1

Rating of Landscape Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?		
S 6.1. Distance to the nearest areas downstream that have flooding problems:		2
The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for S 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

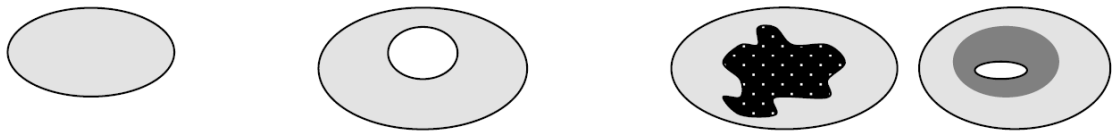
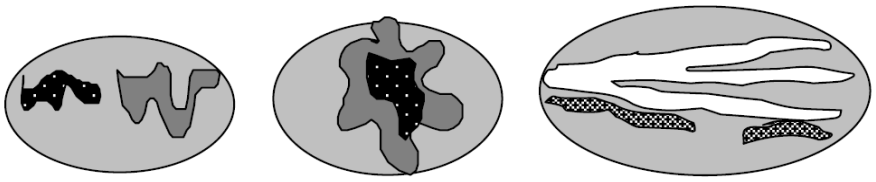
NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-16

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	0
Total for H 1 Add the points in the boxes above	**4**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (9 % moderate & low intensity land uses / 2) = 4.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 25 % undisturbed habitat + (38 % moderate & low intensity land uses / 2) = 44% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number LC-16

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 18 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 37.5 75 150 Feet

Wetland LC-16
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 18 (Approx. Boundary)
150-ft Boundary

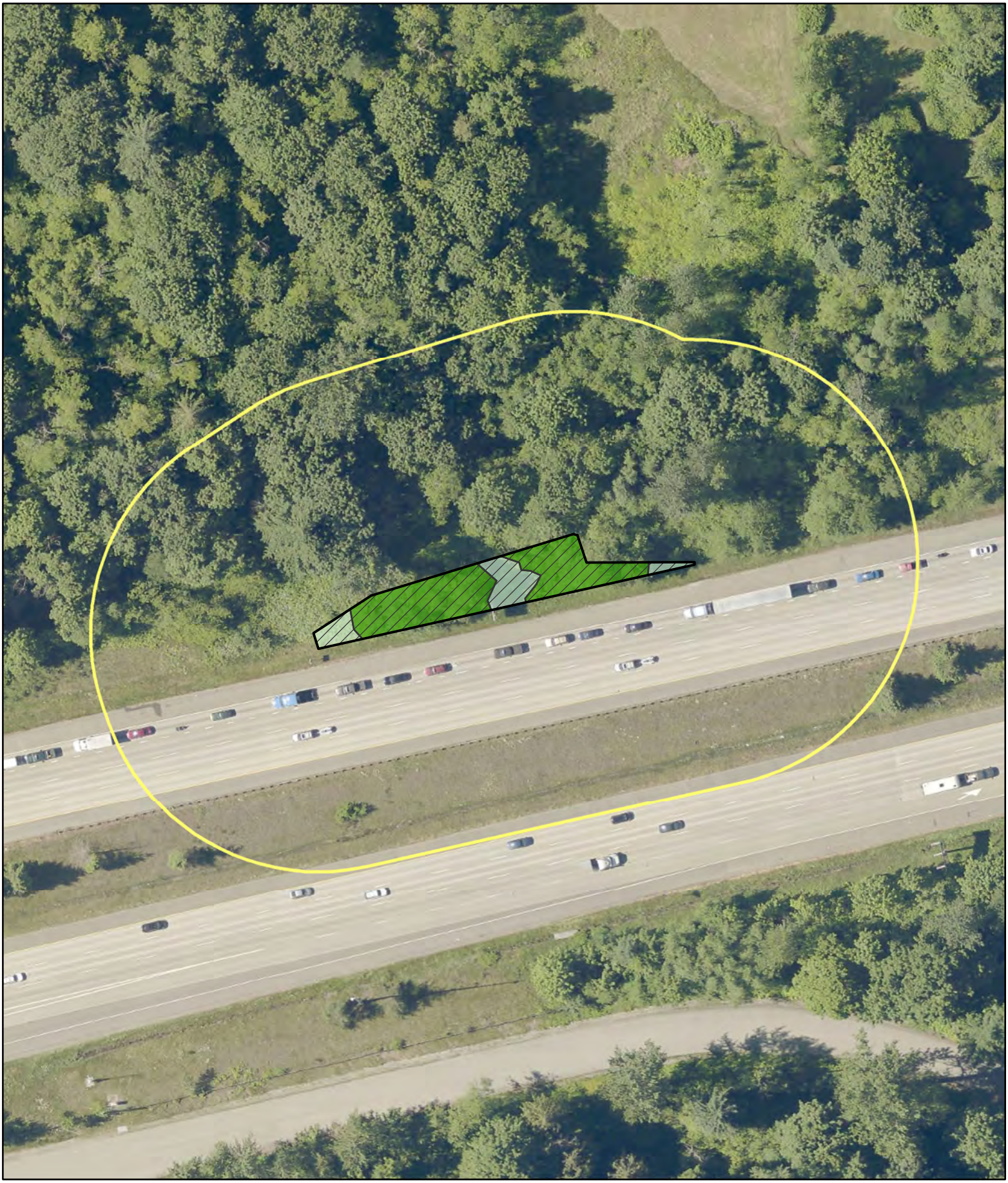
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 62.5 125 250 Feet

Wetland LC-16
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

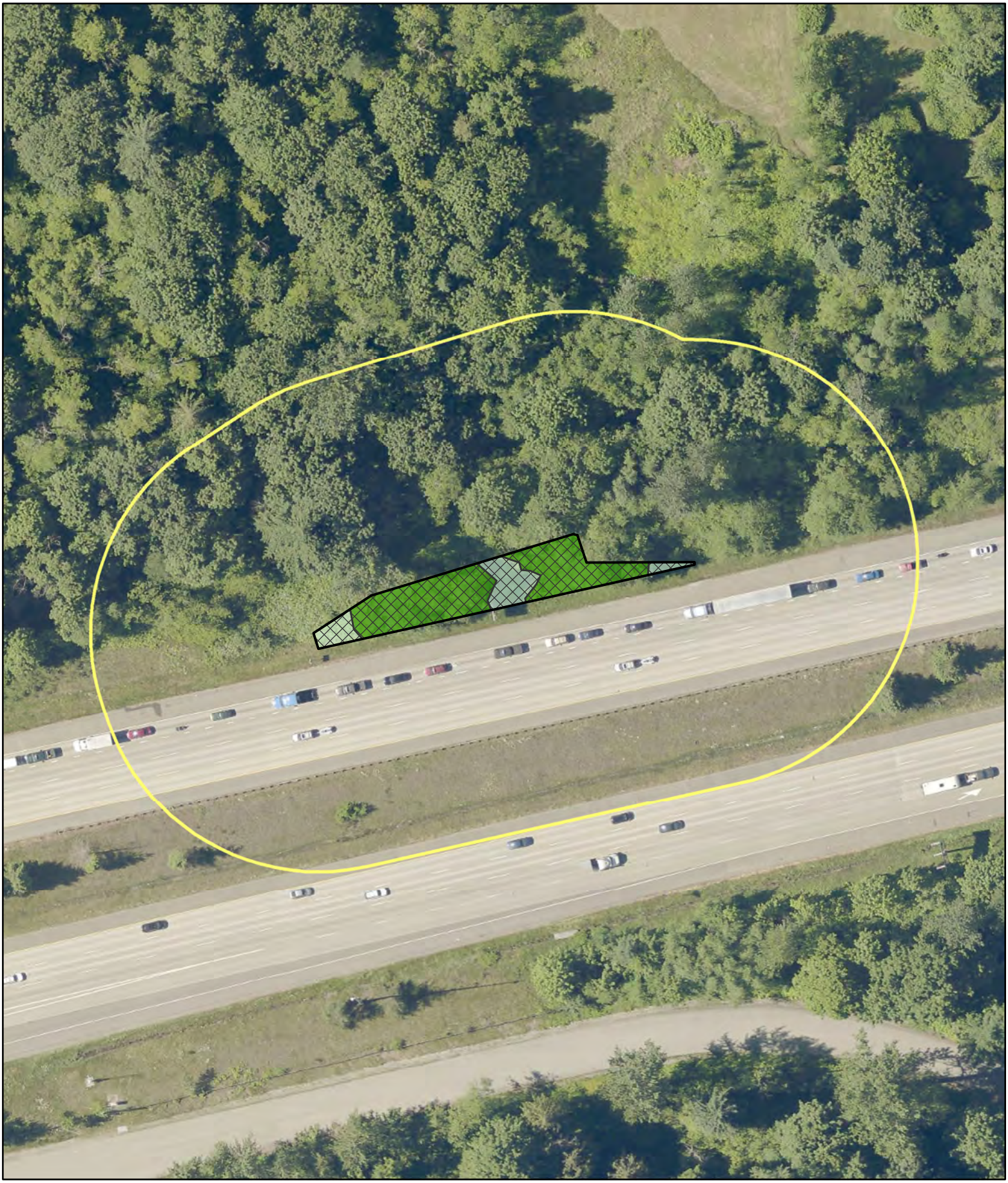
0 37.5 75 150 Feet

Wetland 18 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-16
Dense Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

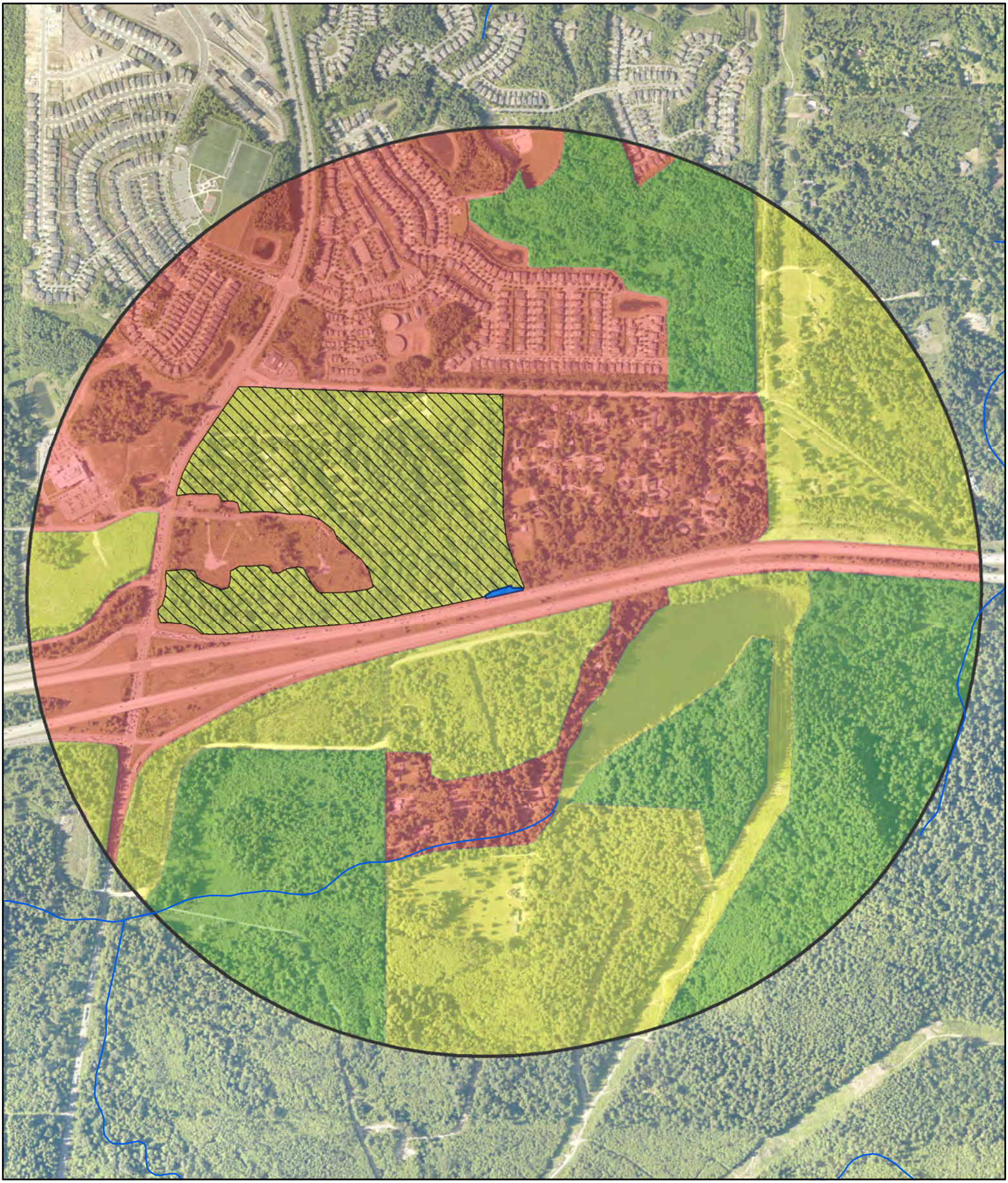
0 37.5 75 150 Feet

Wetland 18 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-16
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 18 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

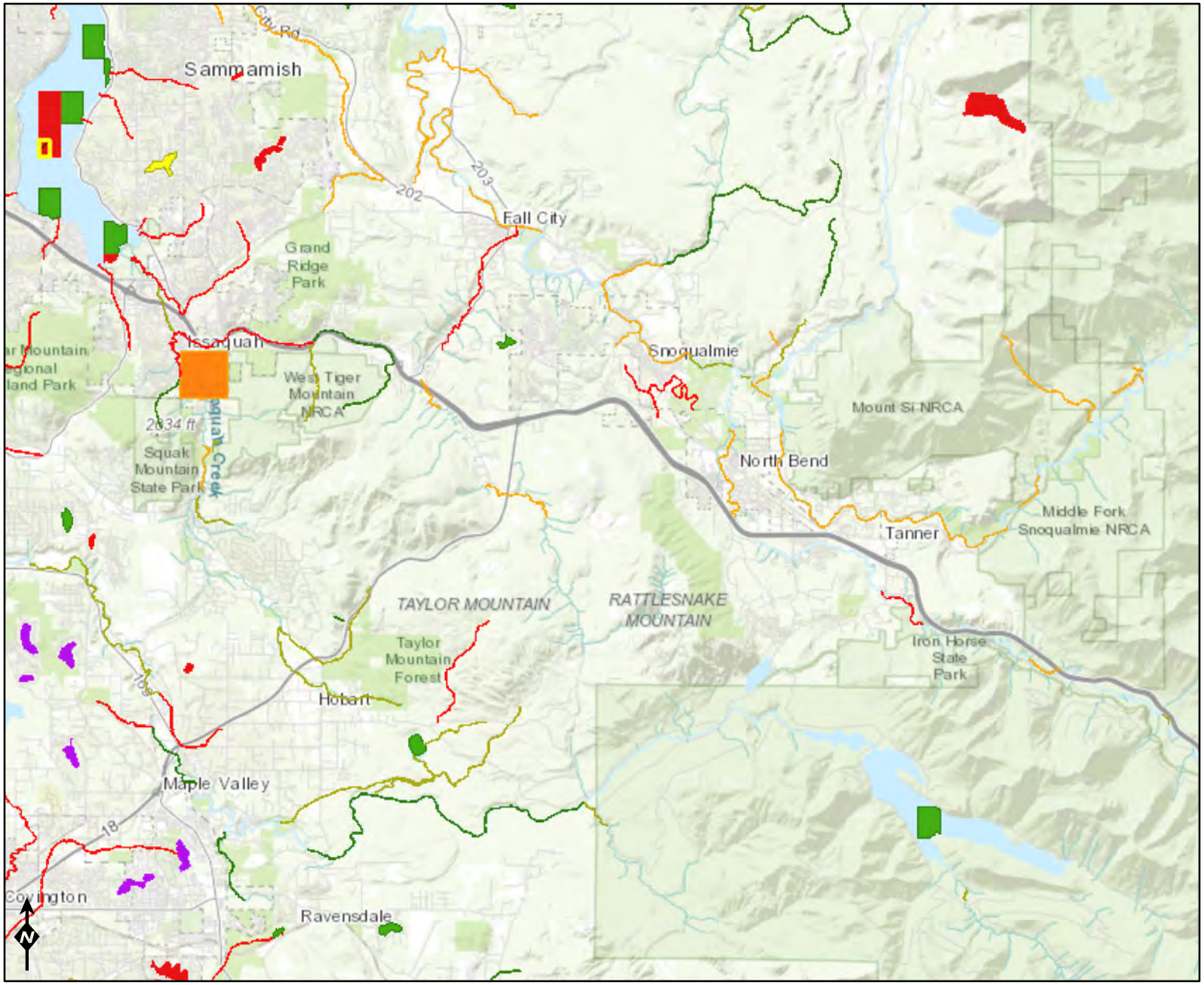
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-16
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

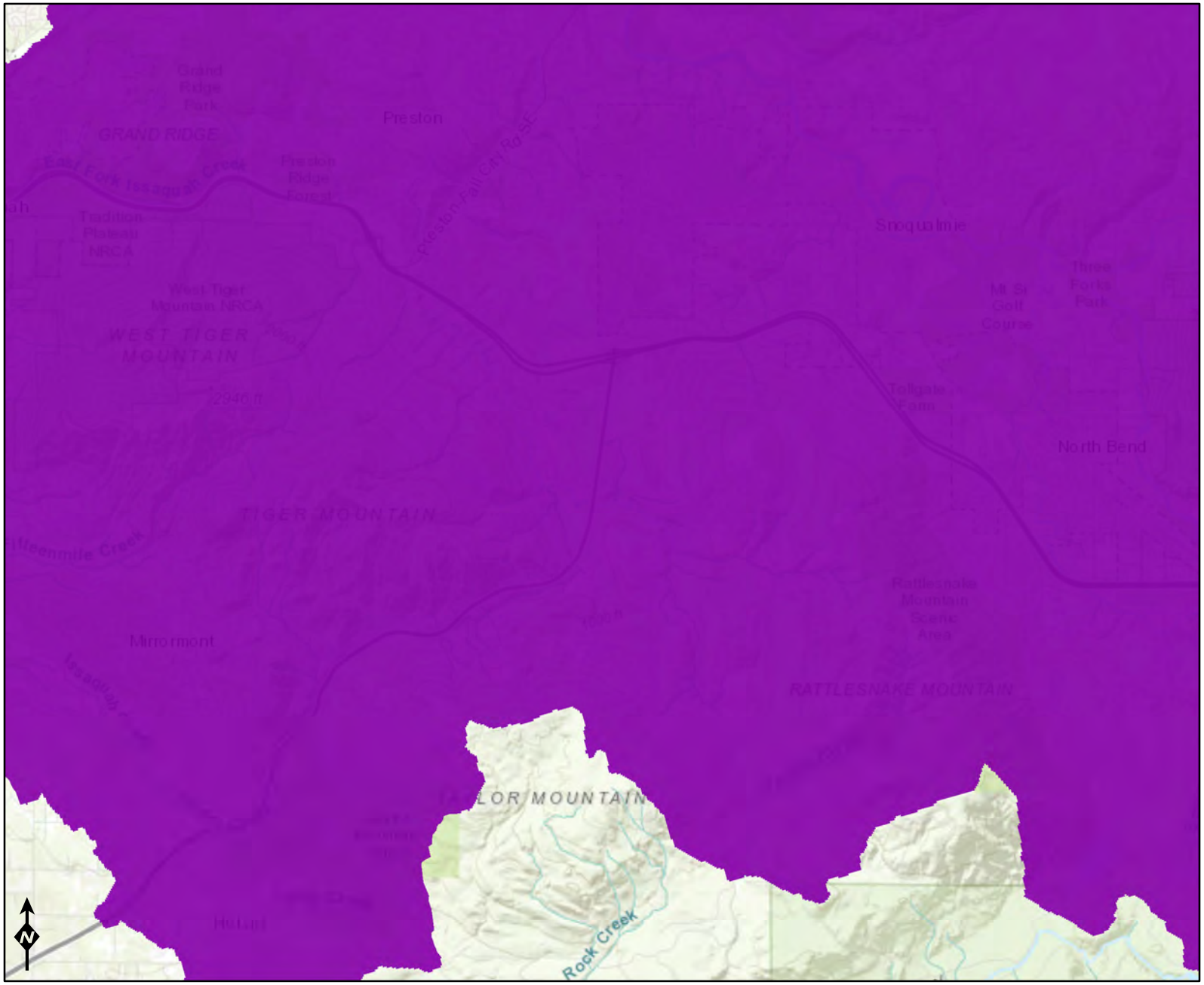
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-17 Date of site visit: 10/4/2018

Rated by T. Parry, K. Moser Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	L	
Landscape Potential	M	M	M	
Value	H	H	M	**Total**
Score Based on Ratings	7	7	5	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-17

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LC-17

SLOPE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1% - 2% points = 2 Slope is > 2% - 5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	6
Total for S 1 Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐ **12 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Roadside debris and oil containers Yes = 1 No = 0	1
Total for S 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☑ **1 - 2 = M** ☐ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-17

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	1

Rating of Site Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	1

Rating of Landscape Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

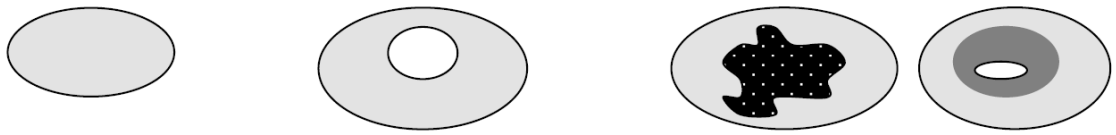
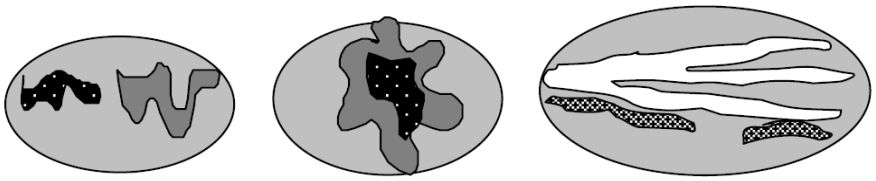
NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-17

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**6**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 0% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 28 % undisturbed habitat + (42 % moderate & low intensity land uses / 2) = 49% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number LC-17

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 20 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 50 100 200 Feet

Wetland LC-17
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 20 (Approx. Boundary)
150-ft Boundary

WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 75 150 300 Feet

Wetland LC-17
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

0 50 100 200 Feet

Wetland 20 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-17
Dense Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

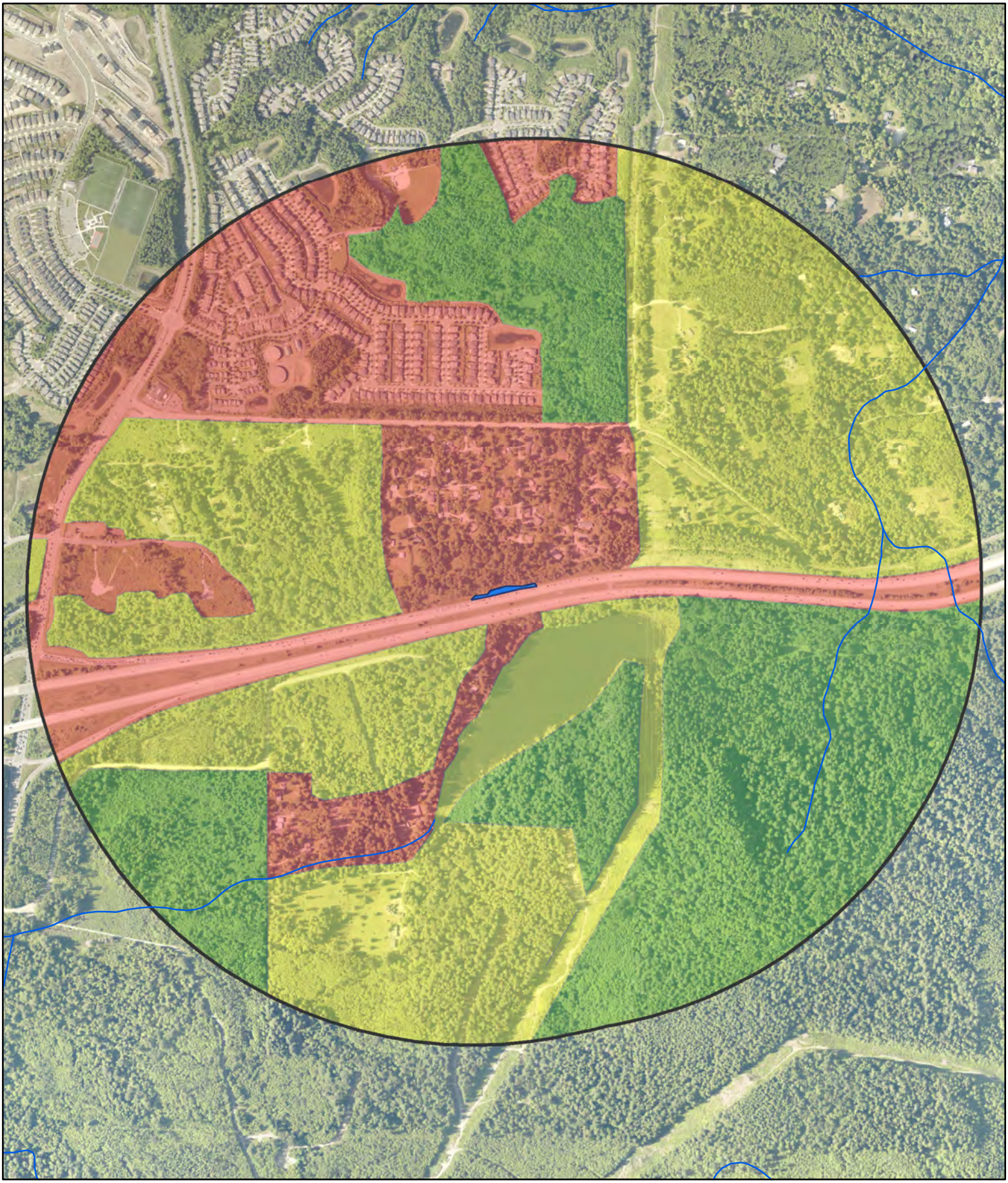
0 50 100 200 Feet

Wetland 20 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-17
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 20 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

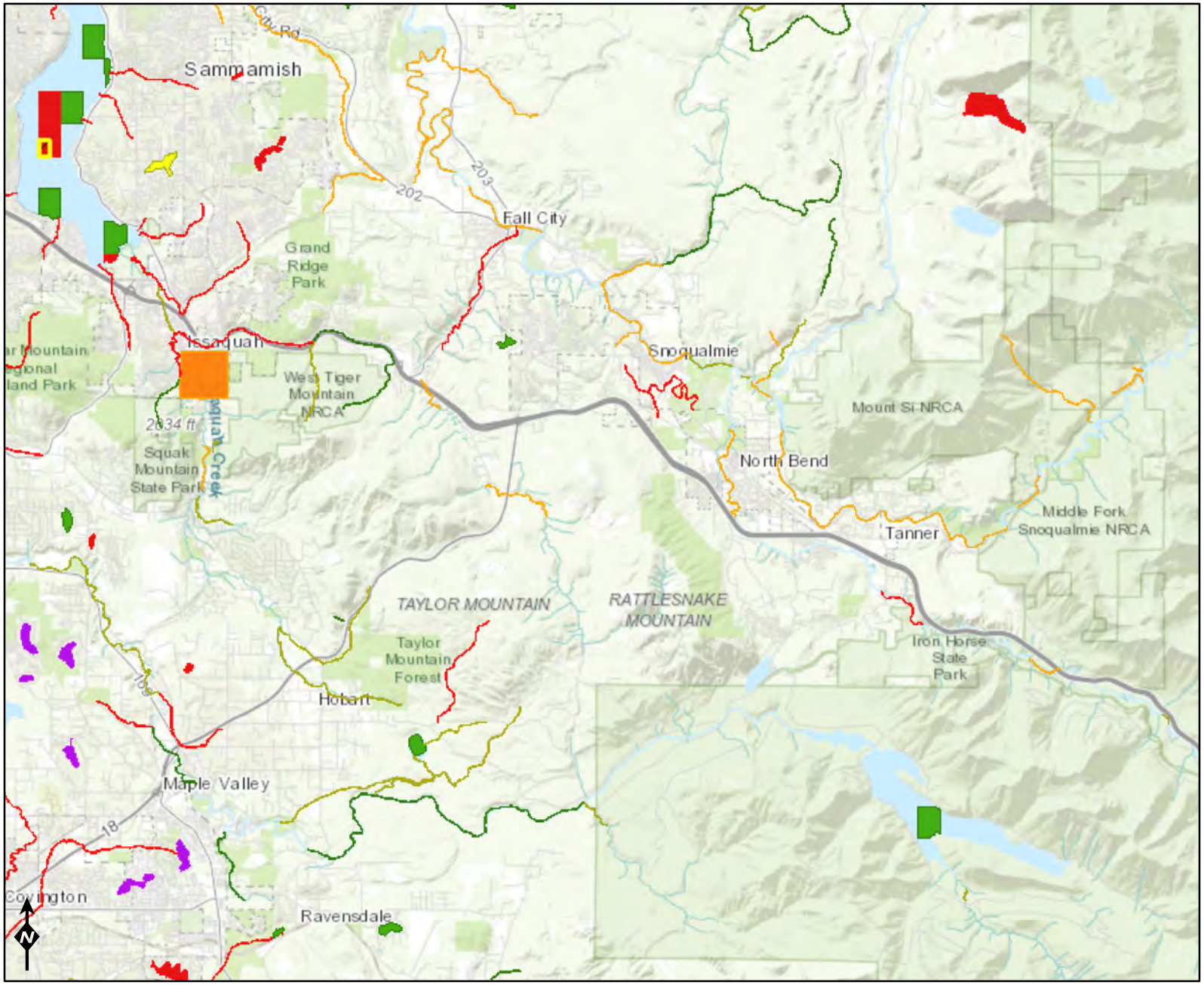
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-17
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

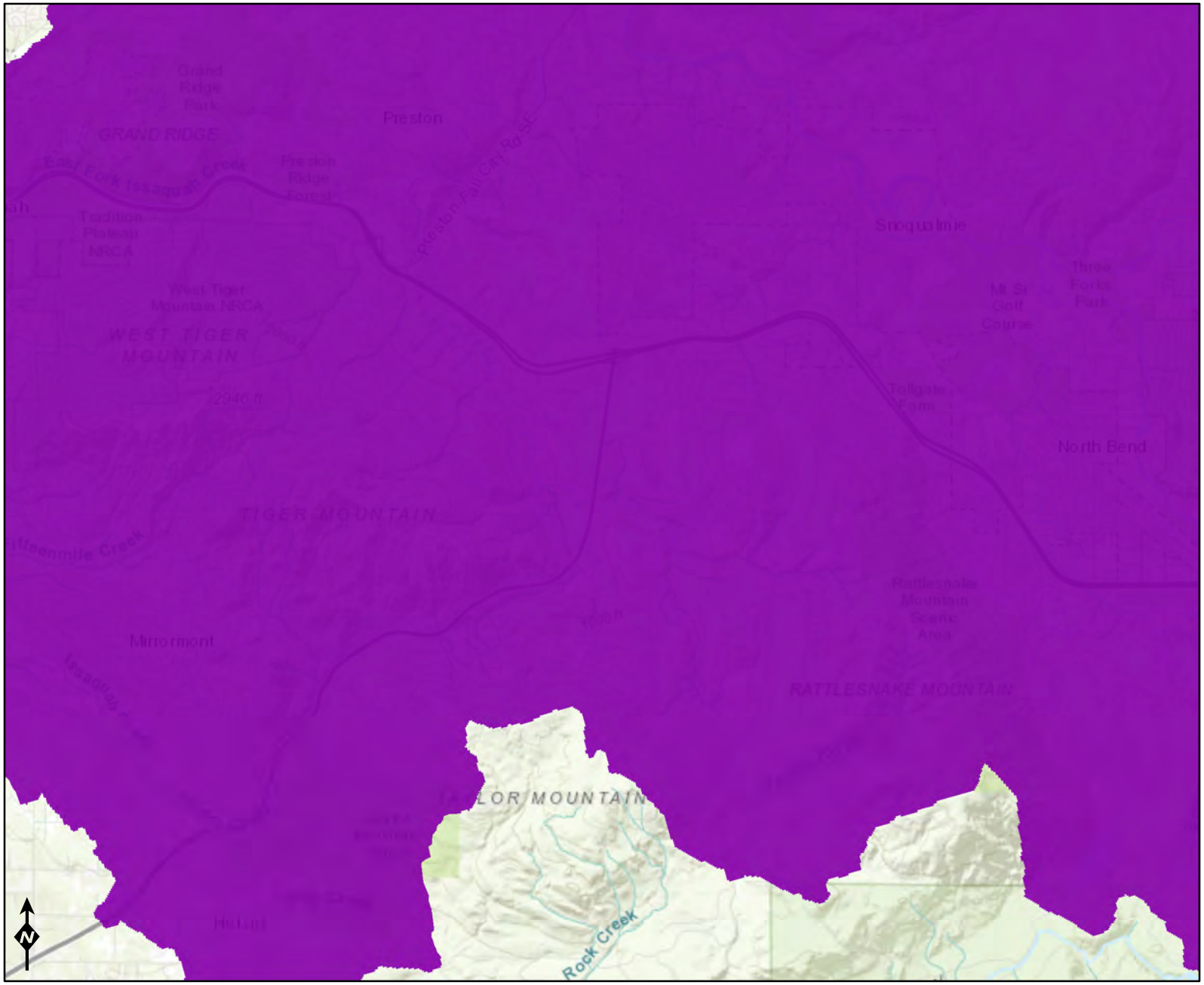
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-18 Date of site visit: 8/27/2018

Rated by T. Parry, J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	M	
Landscape Potential	M	M	M	
Value	H	H	M	**Total**
Score Based on Ratings	6	7	6	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-18

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LC-18

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less — points = 3 Slope is > 1% - 2% — points = 2 Slope is > 2% - 5% — points = 1 Slope is greater than 5% — points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 Dense, uncut, herbaceous plants > ½ of area — points = 3 Dense, woody, plants > ½ of area — points = 2 Dense, uncut, herbaceous plants > ¼ of area — points = 1 Does not meet any of the criteria above for plants — points = 0	2
Total for S 1 — Add the points in the boxes above	**3**

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Yes = 1 No = 0	0
Total for S 2 — Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☑ **1 - 2 = M** ☐ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 — Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-18

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?		
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.*		1
Dense, uncut, **rigid** plants cover > 90% of the area of the wetland	points = 1	
All other conditions	points = 0	

Rating of Site Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?	Yes = 1 No = 0	1

Rating of Landscape Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?		
S 6.1. Distance to the nearest areas downstream that have flooding problems:		2
The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for S 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

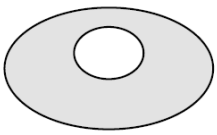
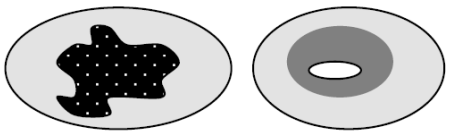
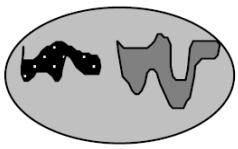
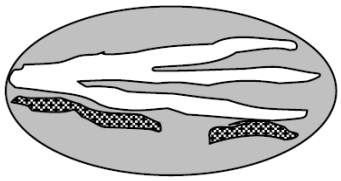
NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-18

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*    **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points   	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 Add the points in the boxes above	**8**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (3 % moderate & low intensity land uses / 2) = 1.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 27 % undisturbed habitat + (35 % moderate & low intensity land uses / 2) = 44.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number LC-18

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

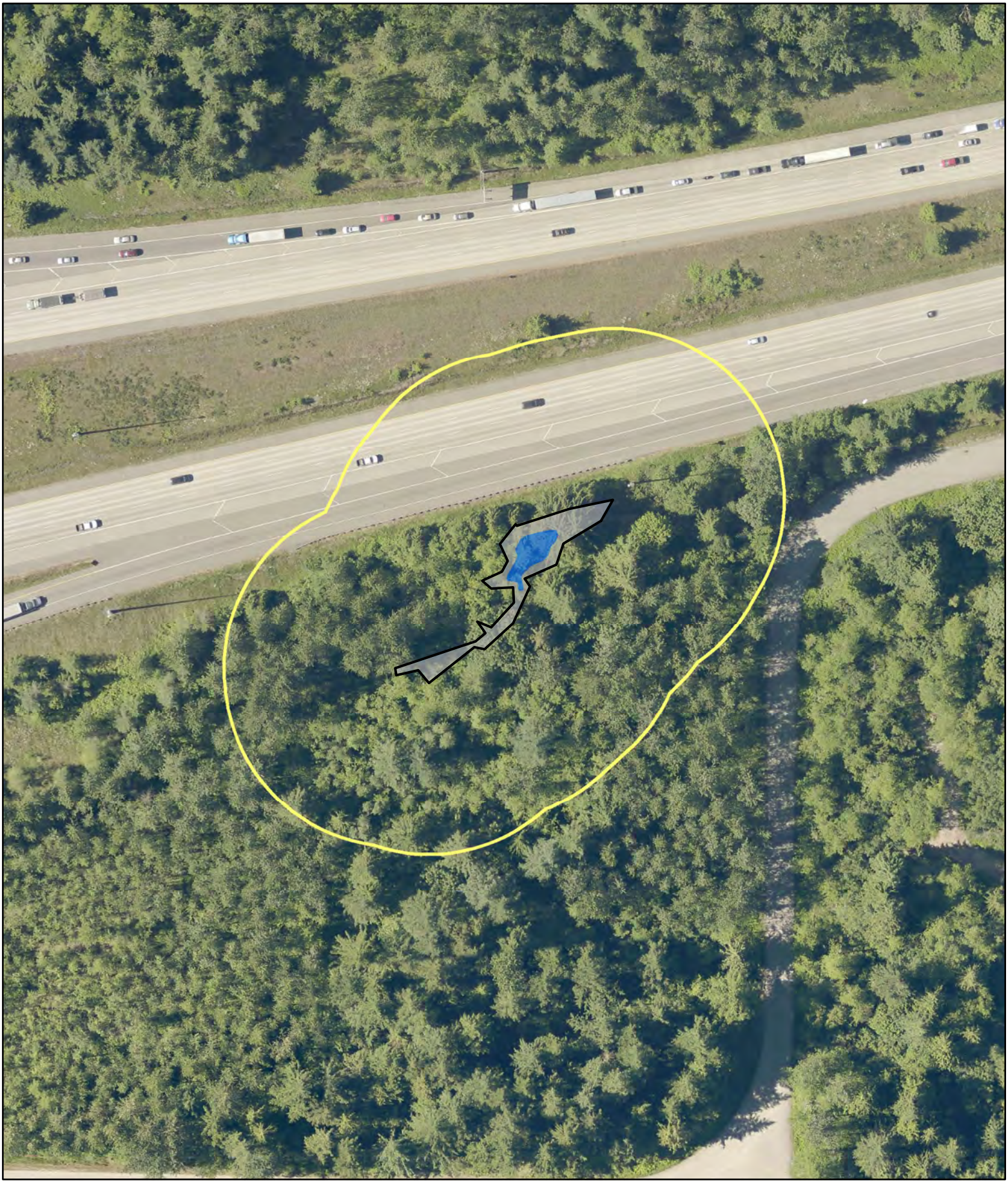
Source: WSDOT, WA DNR
King County

Wetland 12 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland LC-18
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

Wetland 12 (Approx. Boundary)
150-ft Boundary

WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-18
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

0 25 50 100 Feet

Wetland 12 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-18
Dense Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

0 25 50 100 Feet

Wetland 12 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-18
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 12 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

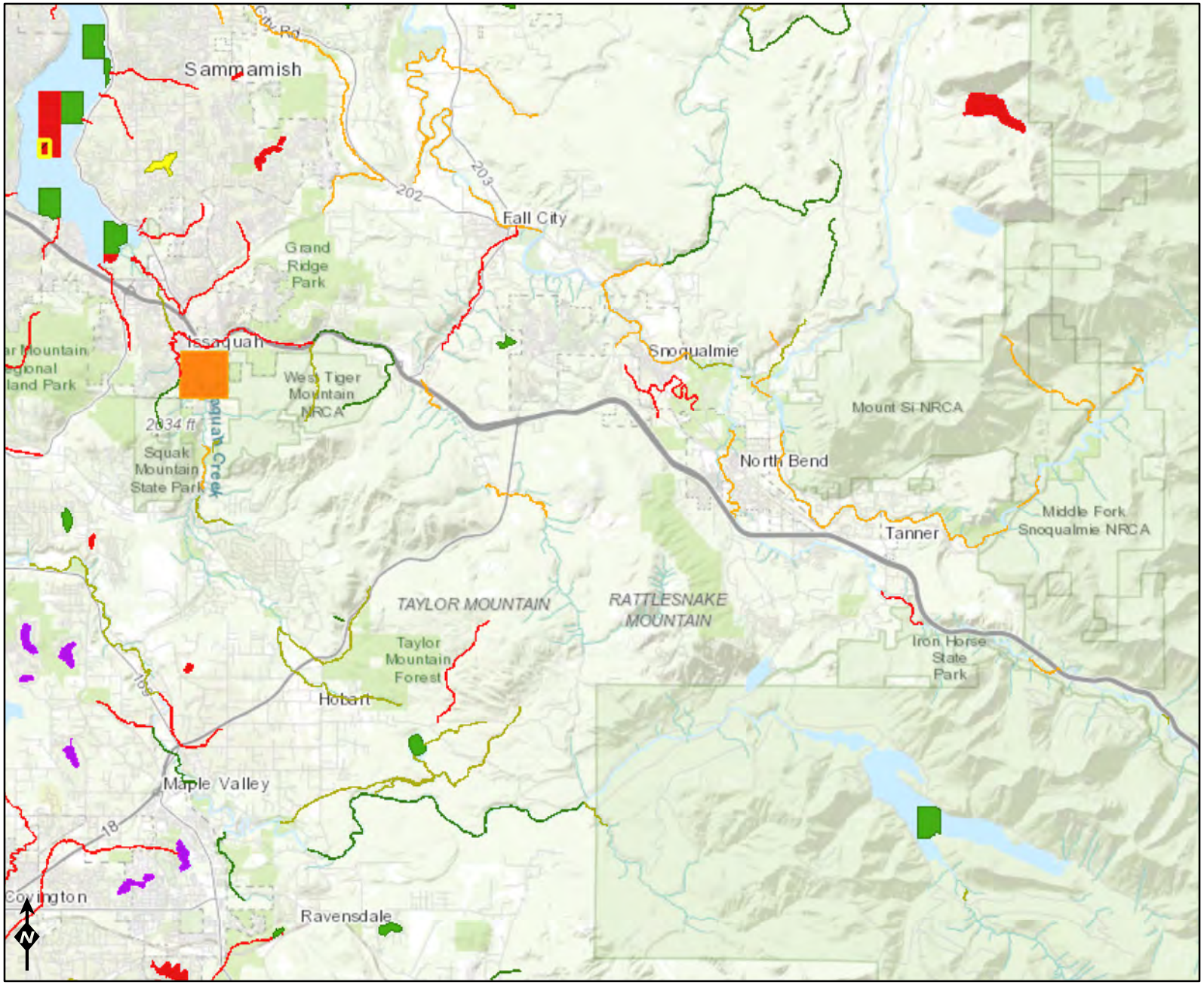
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-18
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

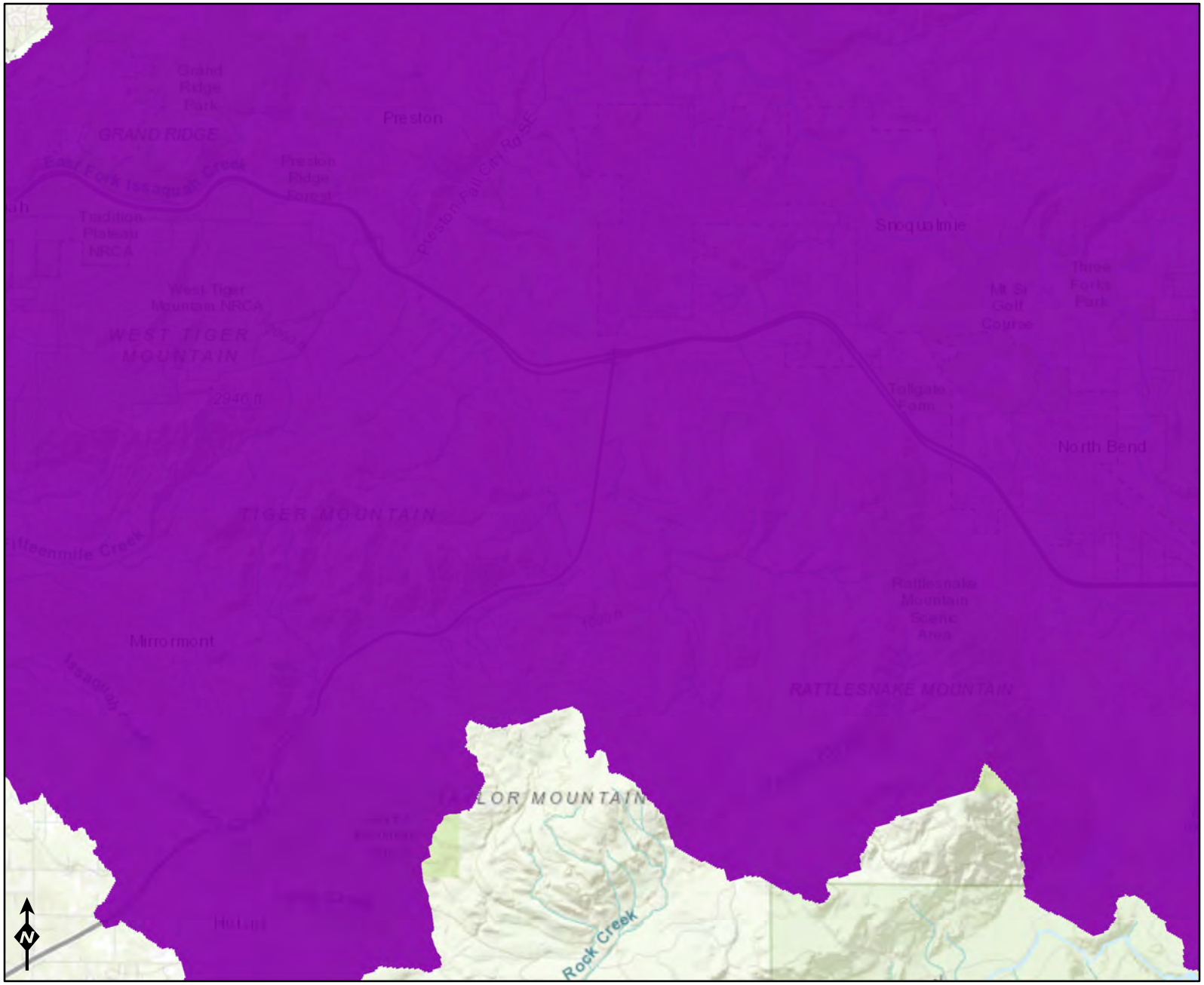
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-19 Date of site visit: 8/27/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- **X** **Category II** - Total score = 20 - 22
- ____ **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	M	
Landscape Potential	M	M	M	
Value	H	H	H	**Total**
Score Based on Ratings	7	7	7	**21**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-19

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-19

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	0
Total for D 1 Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-19

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

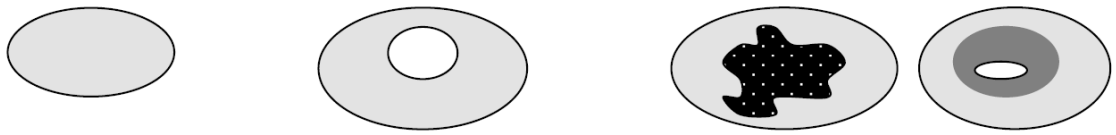
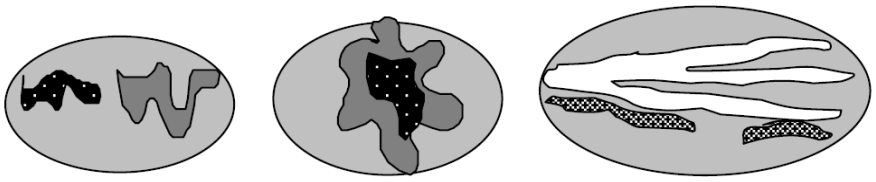
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 — Add the points in the boxes above	**8**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (3 % moderate & low intensity land uses / 2) = 1.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 34 % undisturbed habitat + (32 % moderate & low intensity land uses / 2) = 50% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	**2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 11 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 50 100 200 Feet

Wetland LC-19
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 11 (Approx. Boundary)
150-ft Boundary

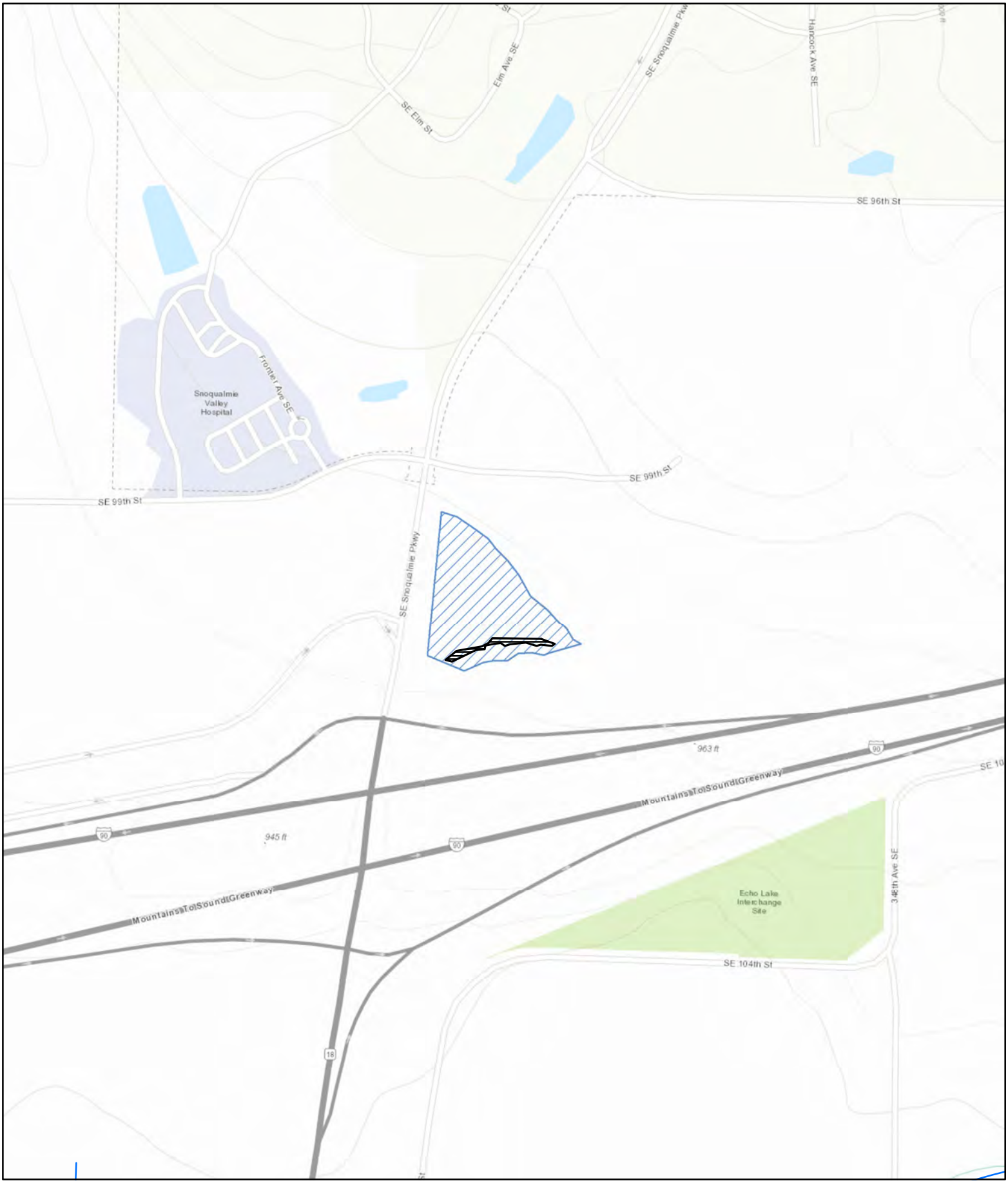
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 62.5 125 250 Feet

Wetland LC-19
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

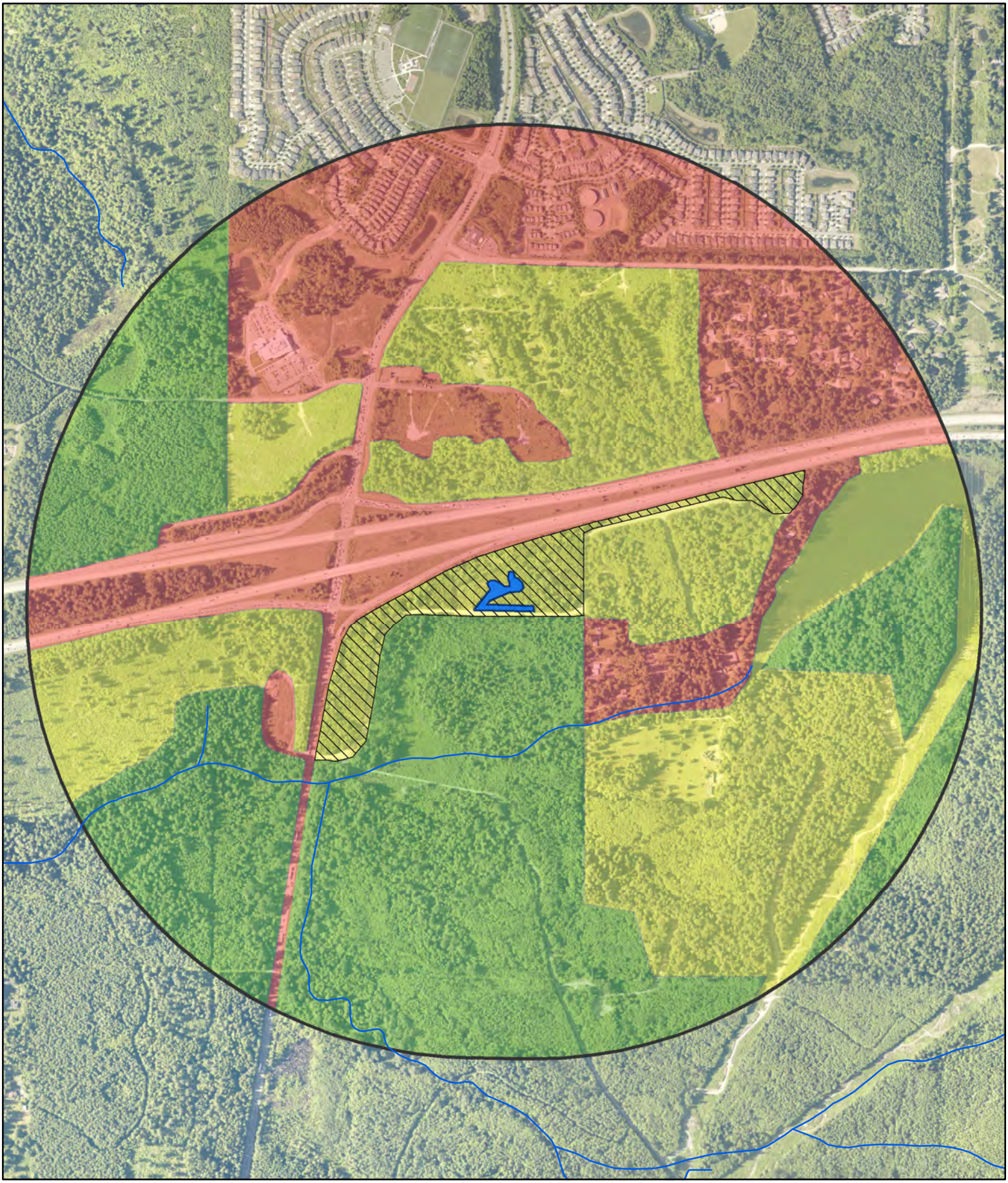
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 13 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-19
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 11 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

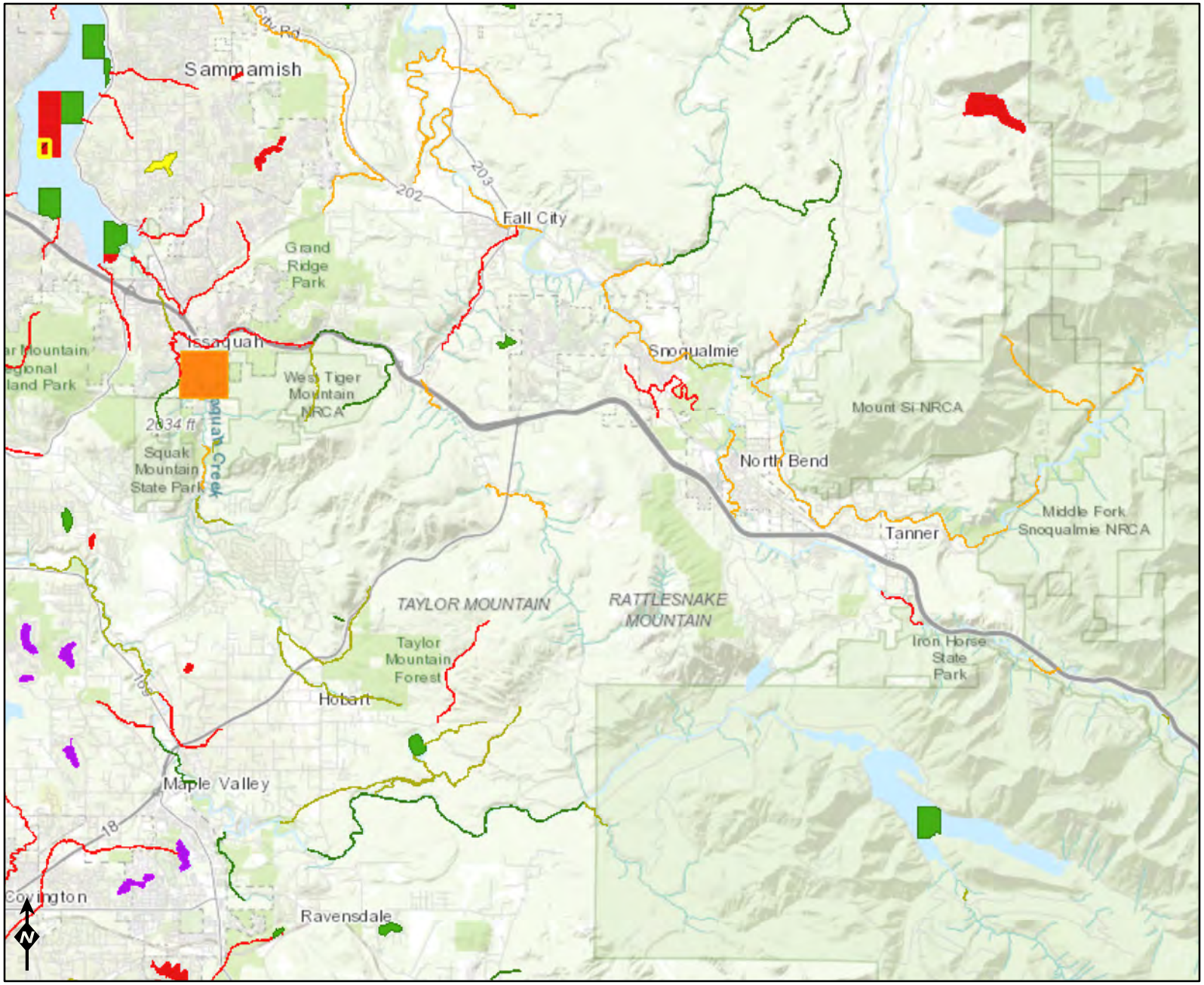
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-19
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

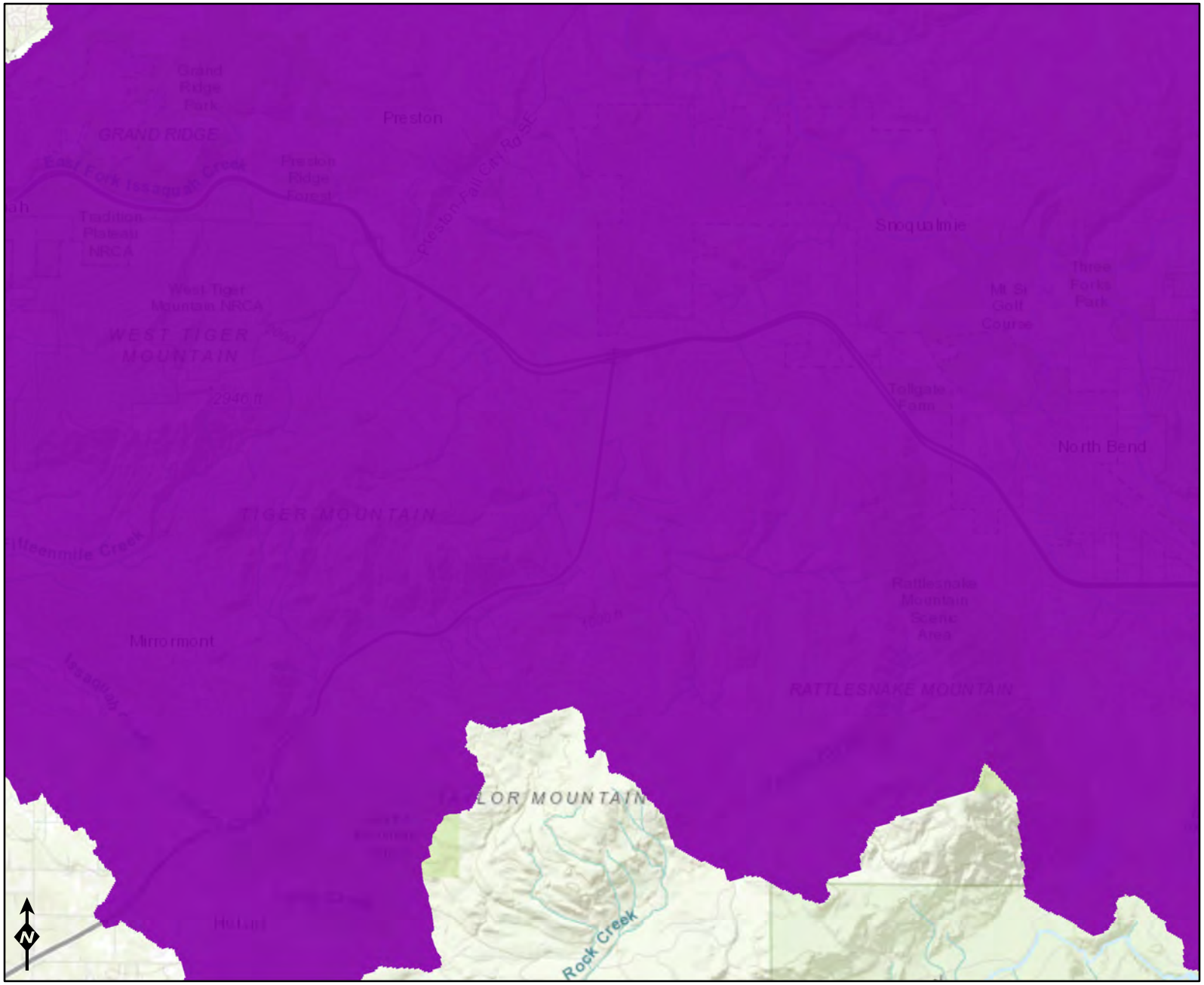
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

Wetland name or number 20

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-20 Date of site visit: 8/27/2018

Rated by T. Parry, J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	L	M	
Landscape Potential	M	M	M	
Value	H	H	H	**Total**
Score Based on Ratings	6	6	7	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-20

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LC-20

SLOPE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1% - 2% points = 2 Slope is > 2% - 5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	2
Total for S 1 Add the points in the boxes above	**3**

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☑ **1 - 2 = M** ☐ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-20

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	1

Rating of Landscape Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

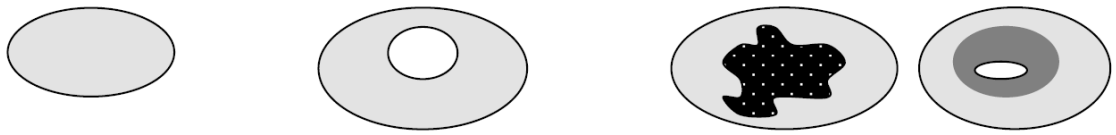
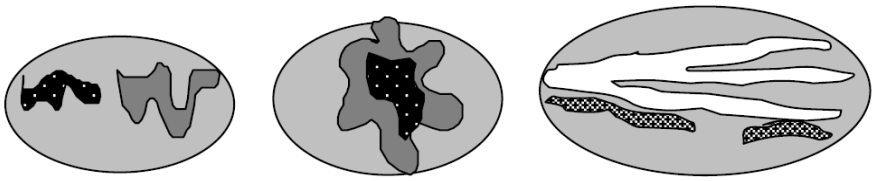
NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-20

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**9**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (3 % moderate & low intensity land uses / 2) = 1.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 34 % undisturbed habitat + (33 % moderate & low intensity land uses / 2) = 50.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number LC-20

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

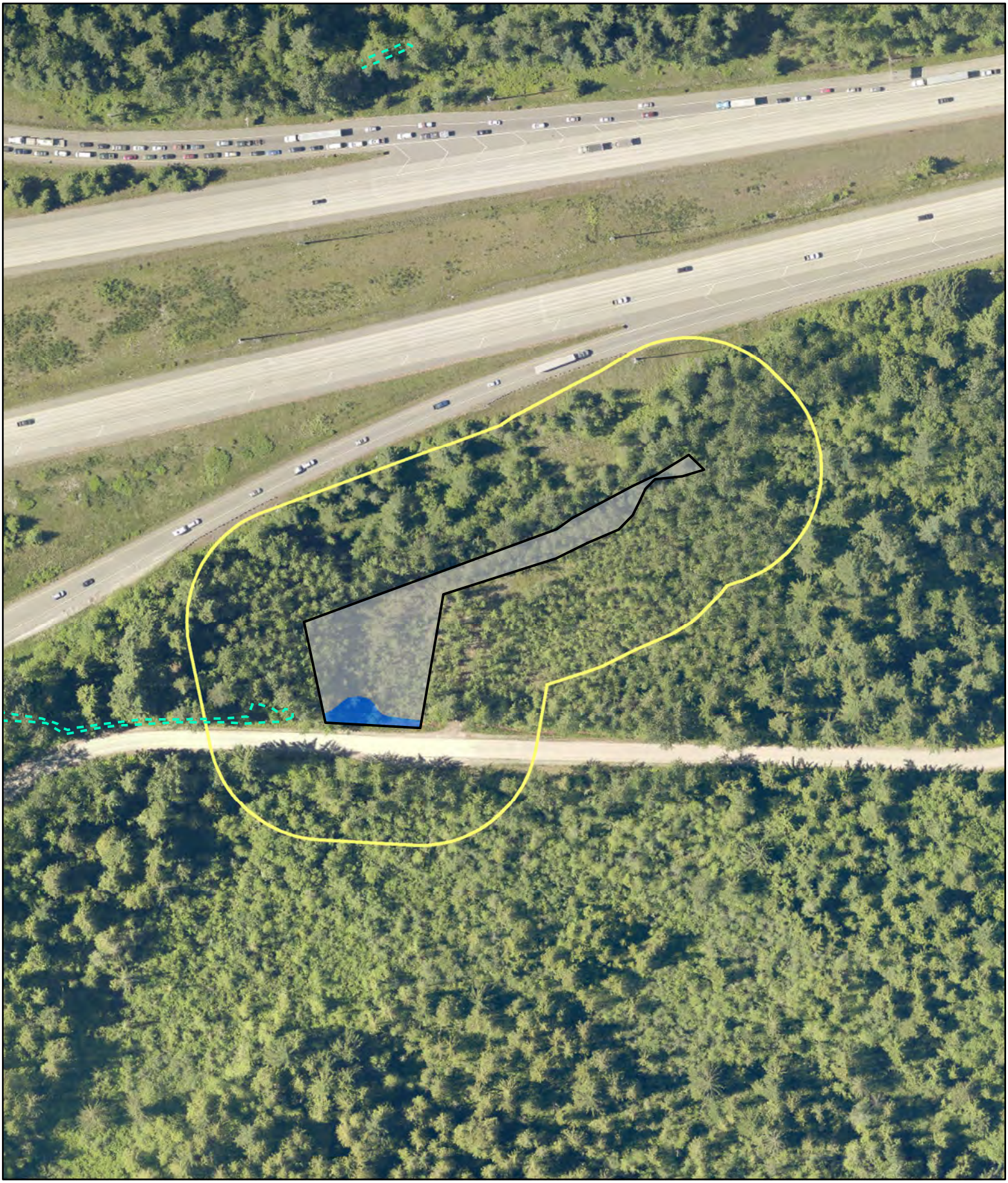
Source: WSDOT, WA DNR
King County

Wetland 10 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 50 100 200 Feet

Wetland LC-20
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

Wetland 10 (Approx. Boundary)
150-ft Boundary

WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 75 150 300 Feet

Wetland LC-20
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

0 50 100 200 Feet

Wetland 10 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-20
Dense Plant Cover
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

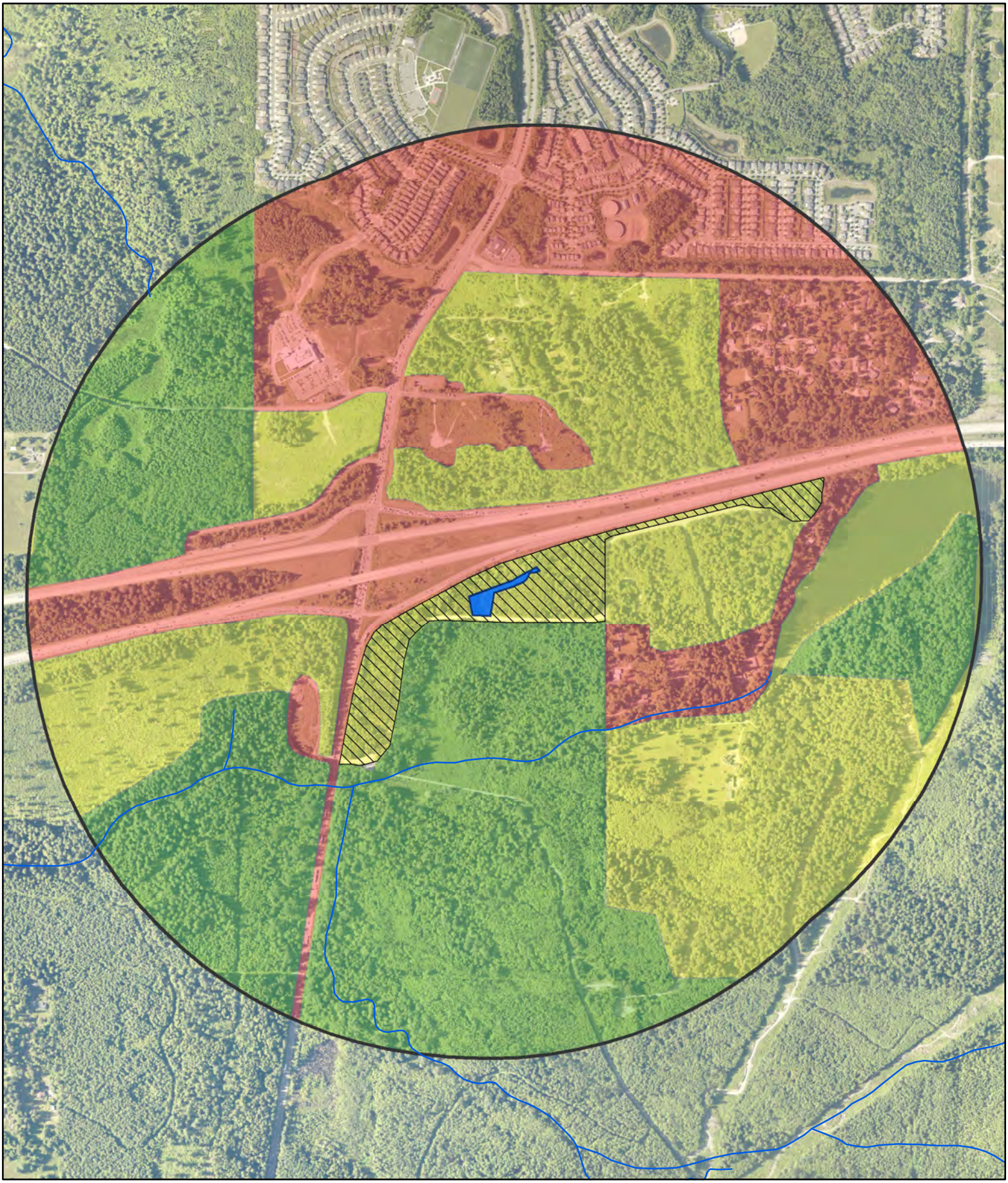
0 50 100 200 Feet

Wetland 10 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-20
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 10 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

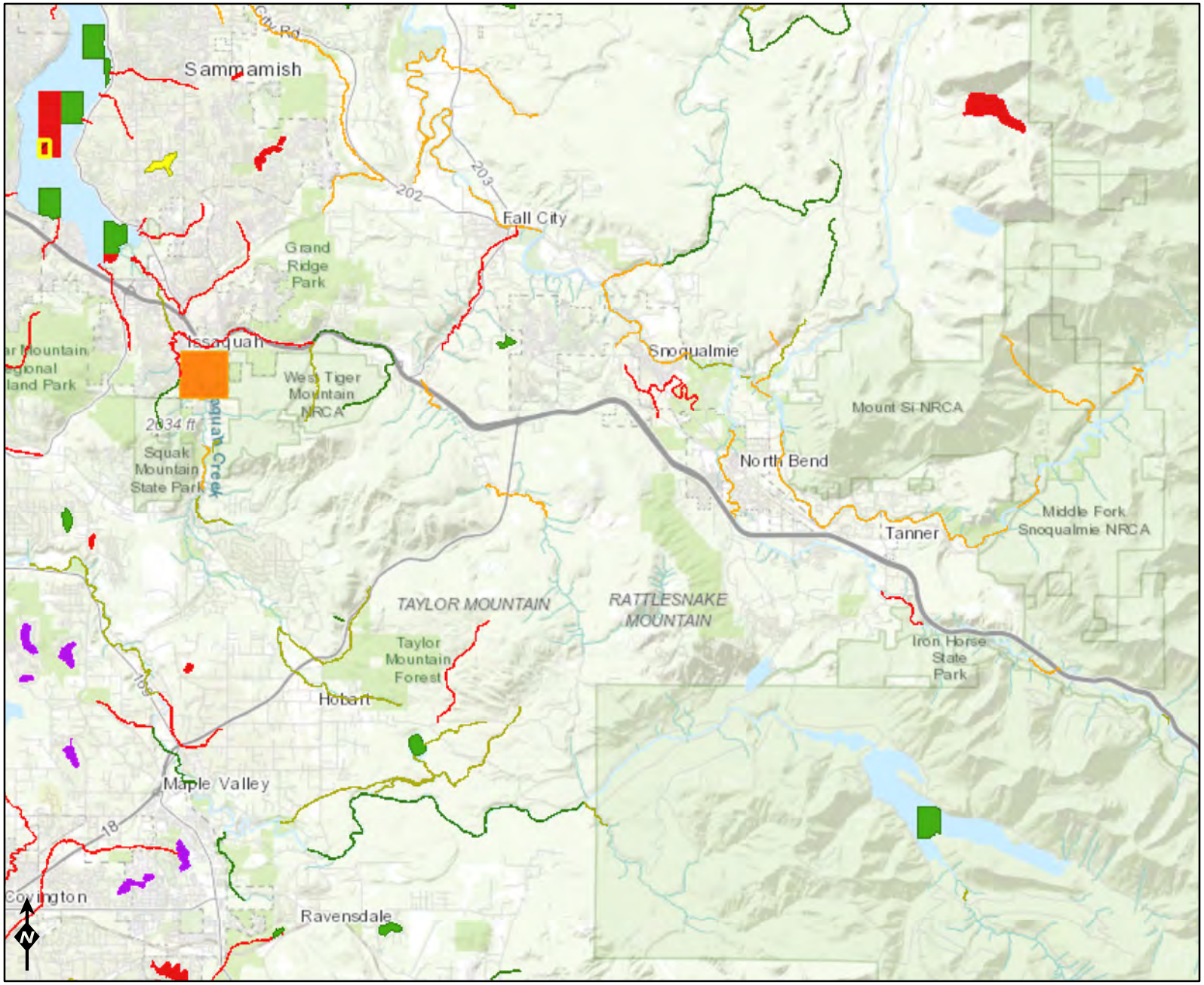
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-20
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

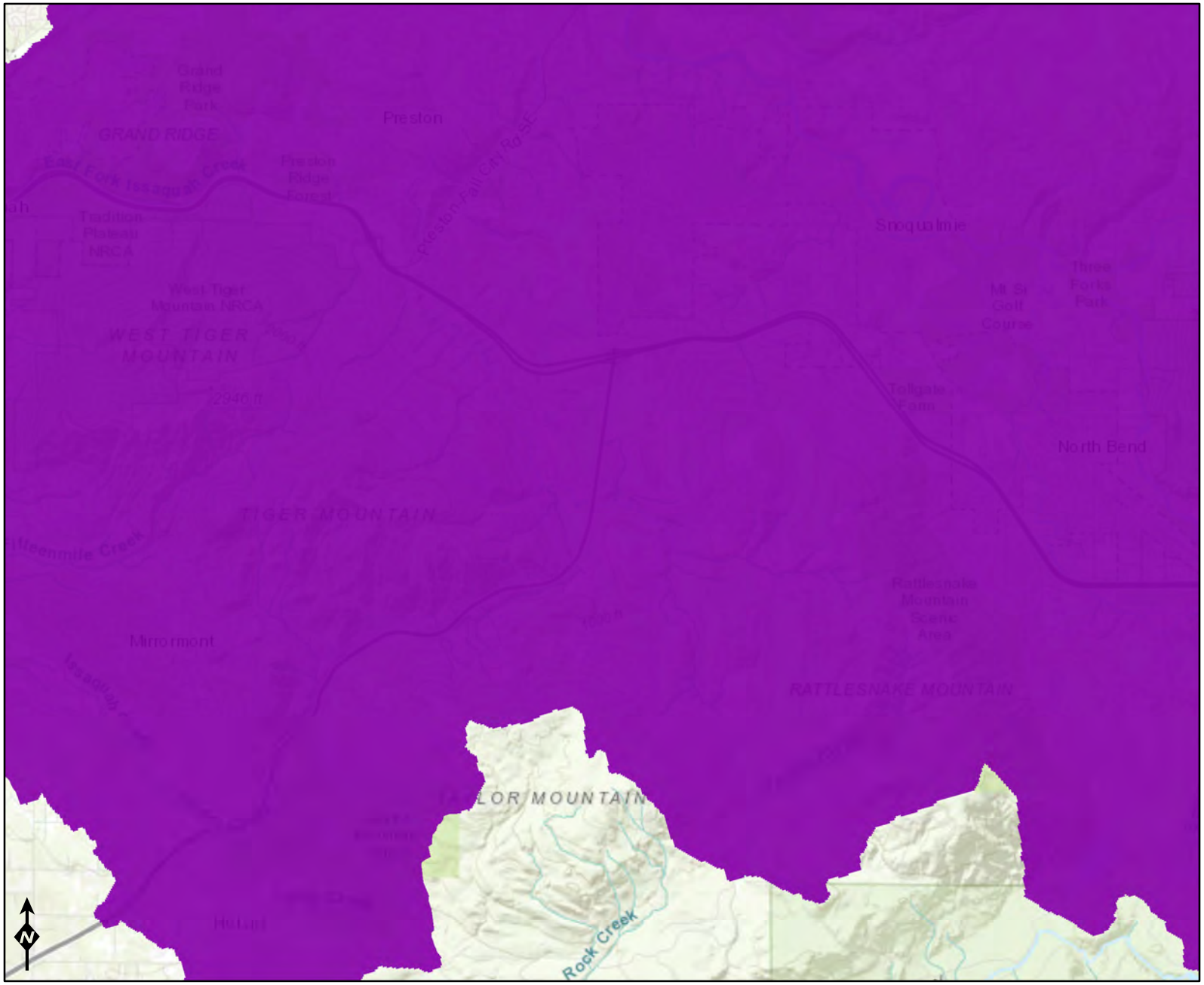
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-21 Date of site visit: 8/27/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- **X** **Category II** - Total score = 20 - 22
- ____ **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	M	
Landscape Potential	M	M	M	
Value	H	H	H	**Total**
Score Based on Ratings	7	6	7	**20**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-21

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-21

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	**9**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-21

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		0
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☐**6 - 11 = M** ☑**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

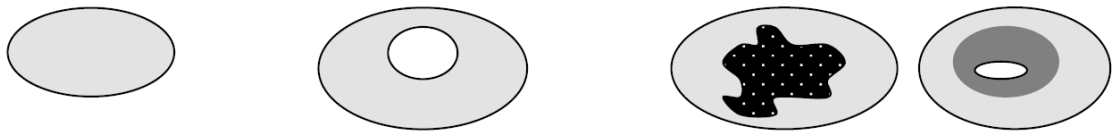
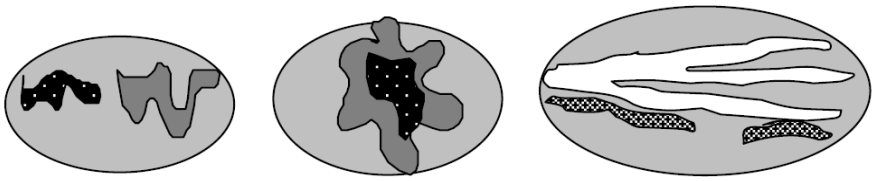
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**8**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (3 % moderate & low intensity land uses / 2) = 1.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 36 % undisturbed habitat + (34 % moderate & low intensity land uses / 2) = 53% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

0 25 50 100 Feet

Wetland 9 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-21
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 9 (Approx. Boundary)
150-ft Boundary

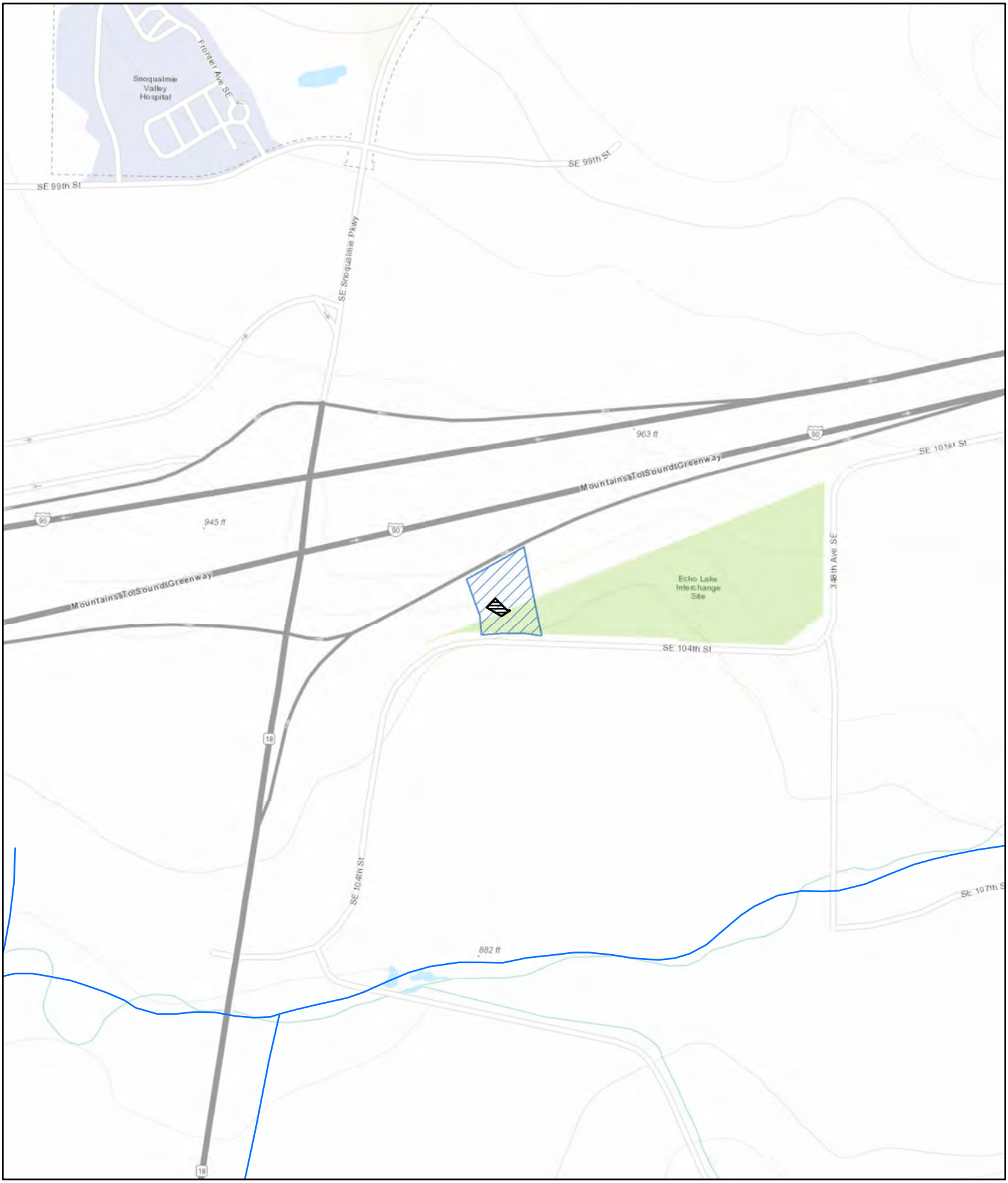
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-21
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

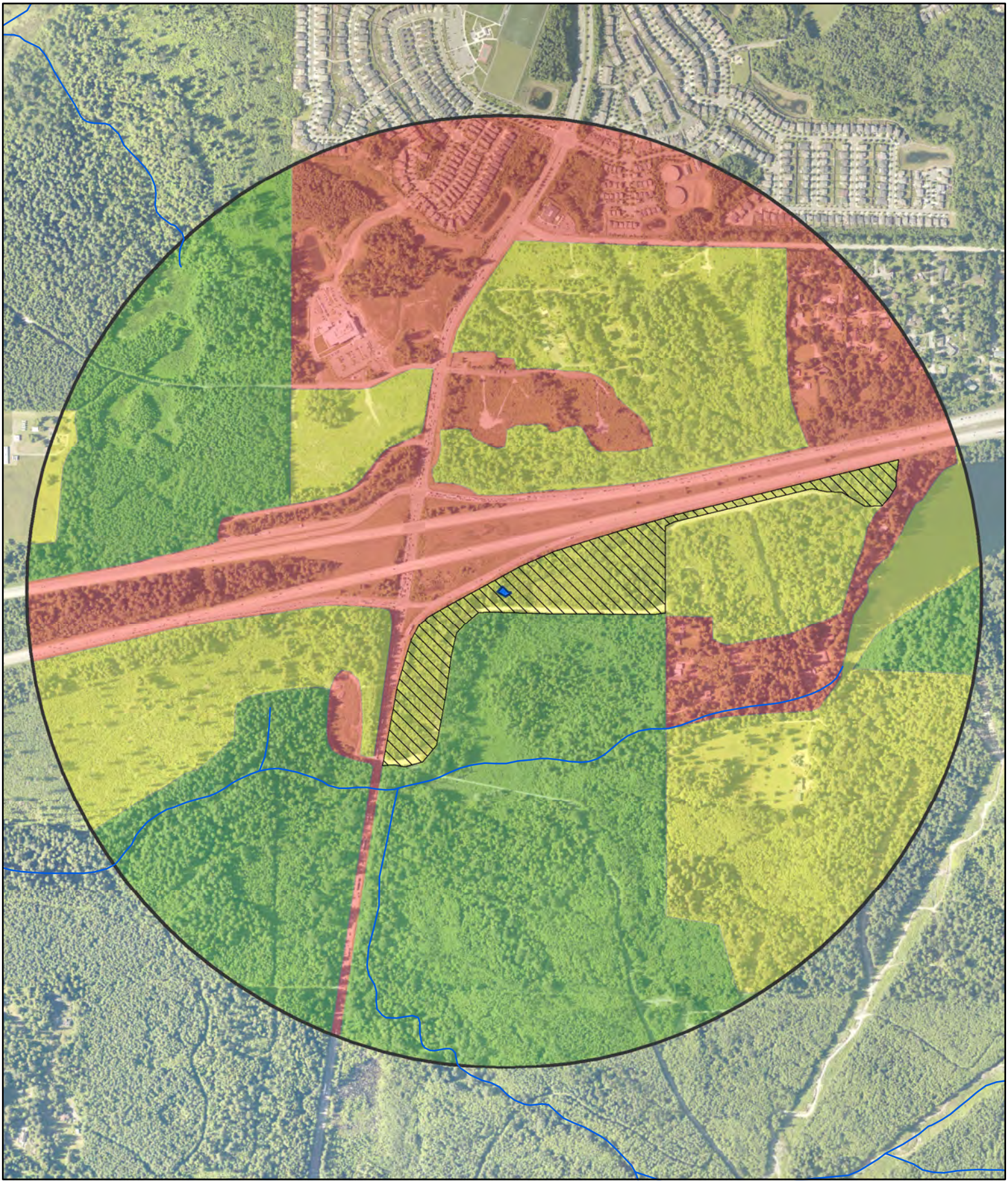
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 9 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-21
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 9 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

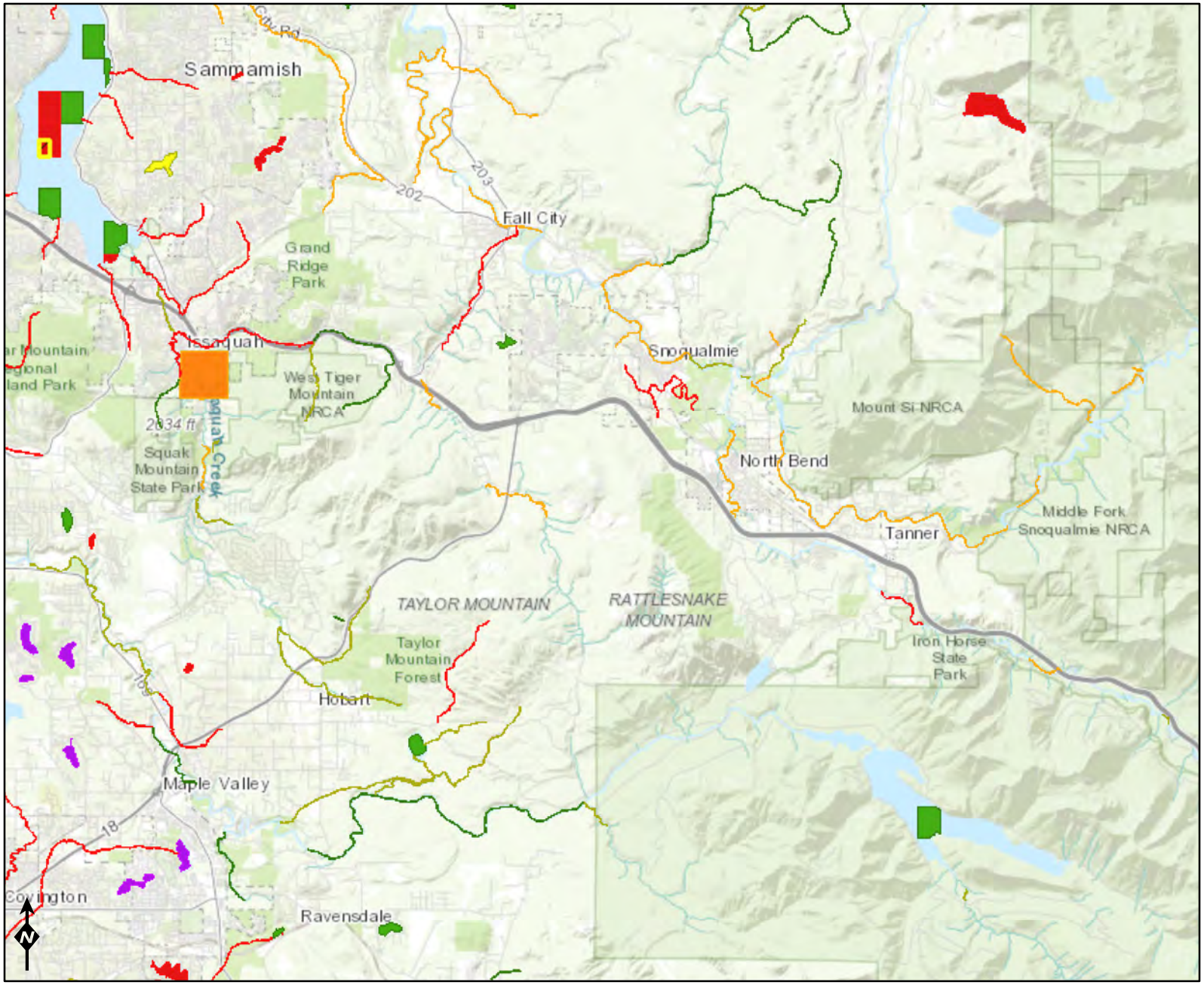
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-21
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

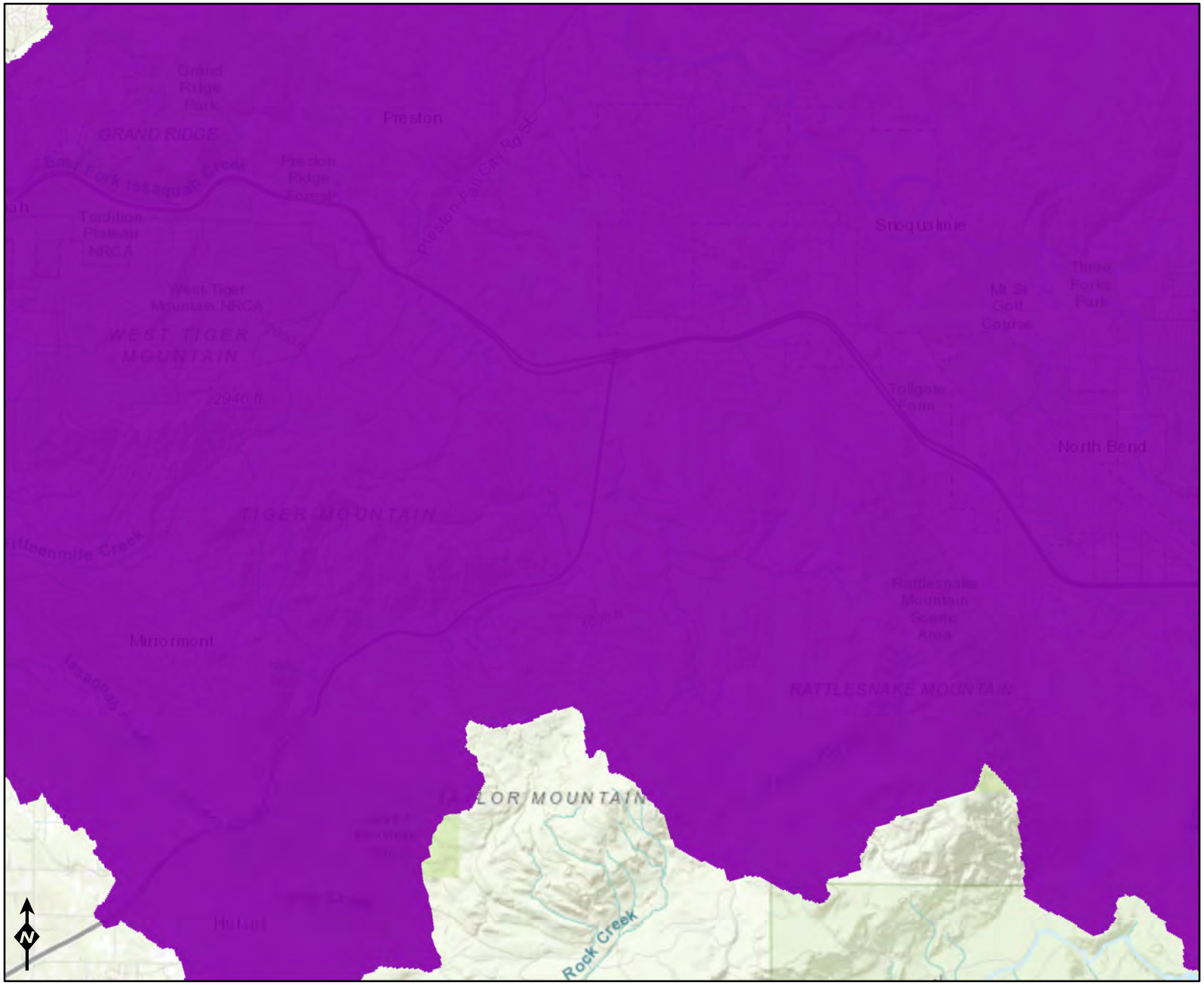
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-22 Date of site visit: 8/27/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- **X** **Category II** - Total score = 20 - 22
- ____ **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	M	
Landscape Potential	M	M	M	
Value	H	H	H	**Total**
Score Based on Ratings	7	7	7	**21**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-22

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-22

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1 Add the points in the boxes above	**9**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-22

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

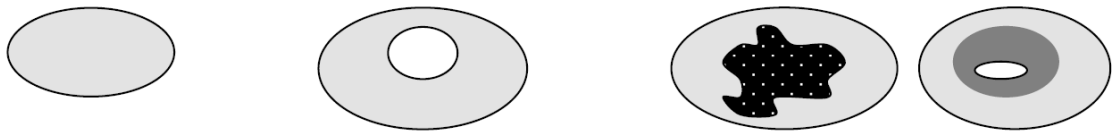
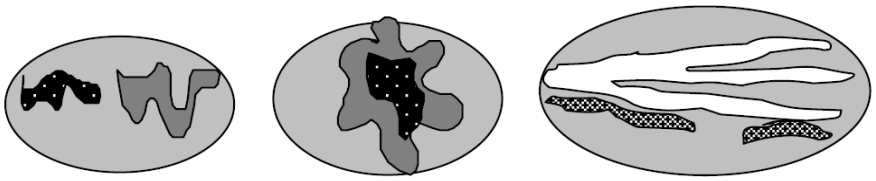
Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-22

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**9**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (3 % moderate & low intensity land uses / 2) = 1.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 40 % undisturbed habitat + (34 % moderate & low intensity land uses / 2) = 57% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

0 25 50 100 Feet

Wetland 8 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-22
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 8 (Approx. Boundary)
150-ft Boundary

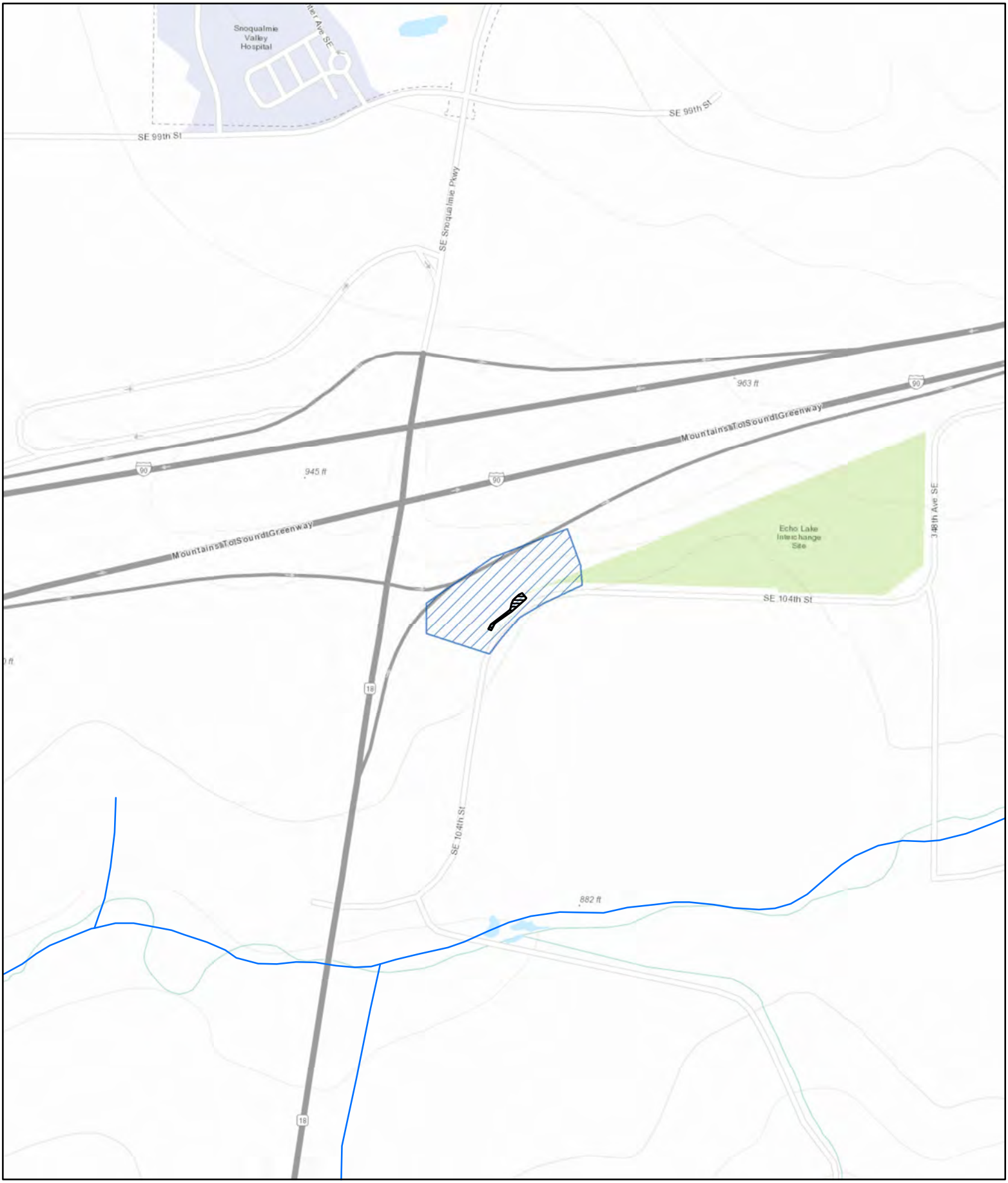
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-22
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

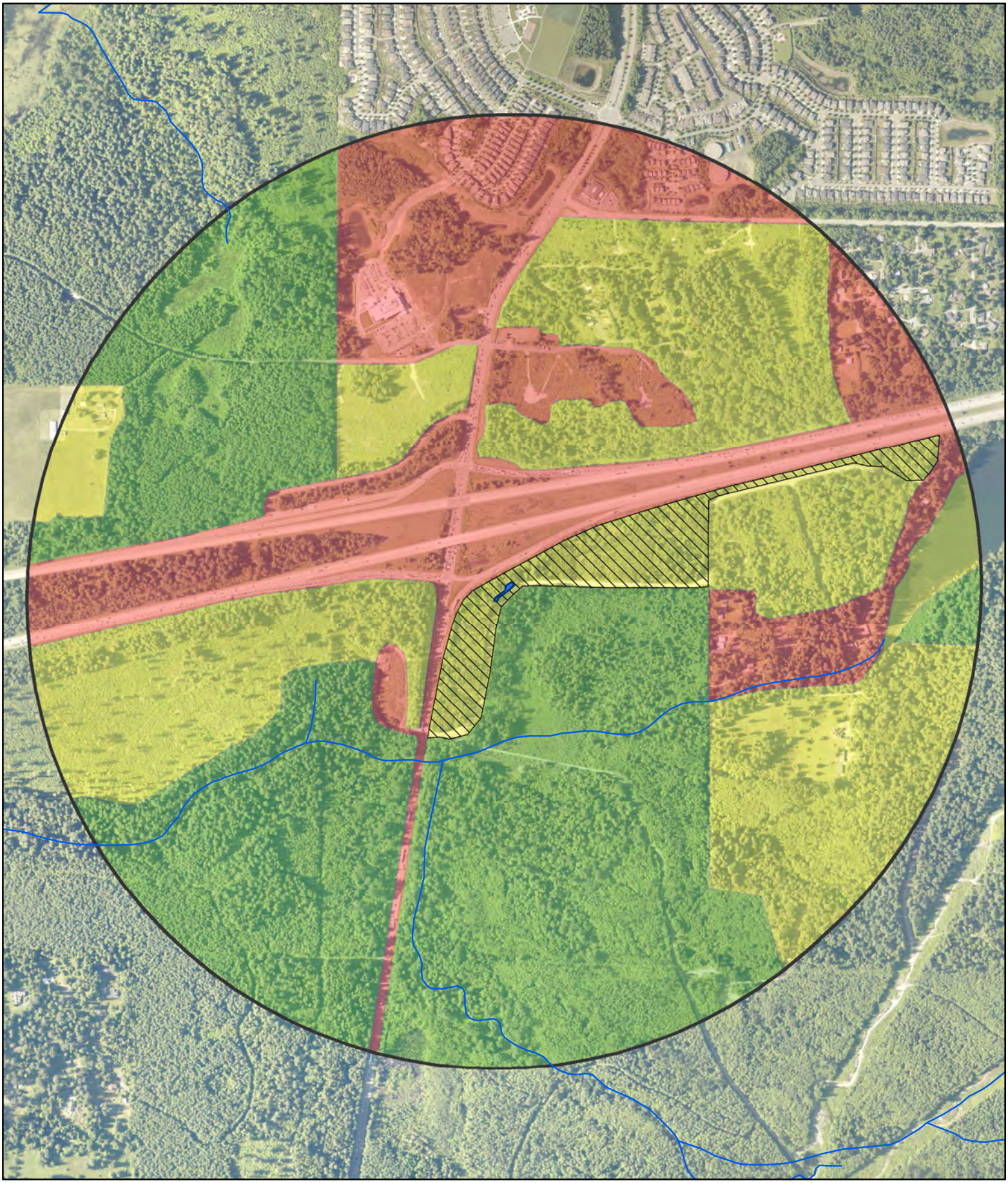
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 8 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-22
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 8 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

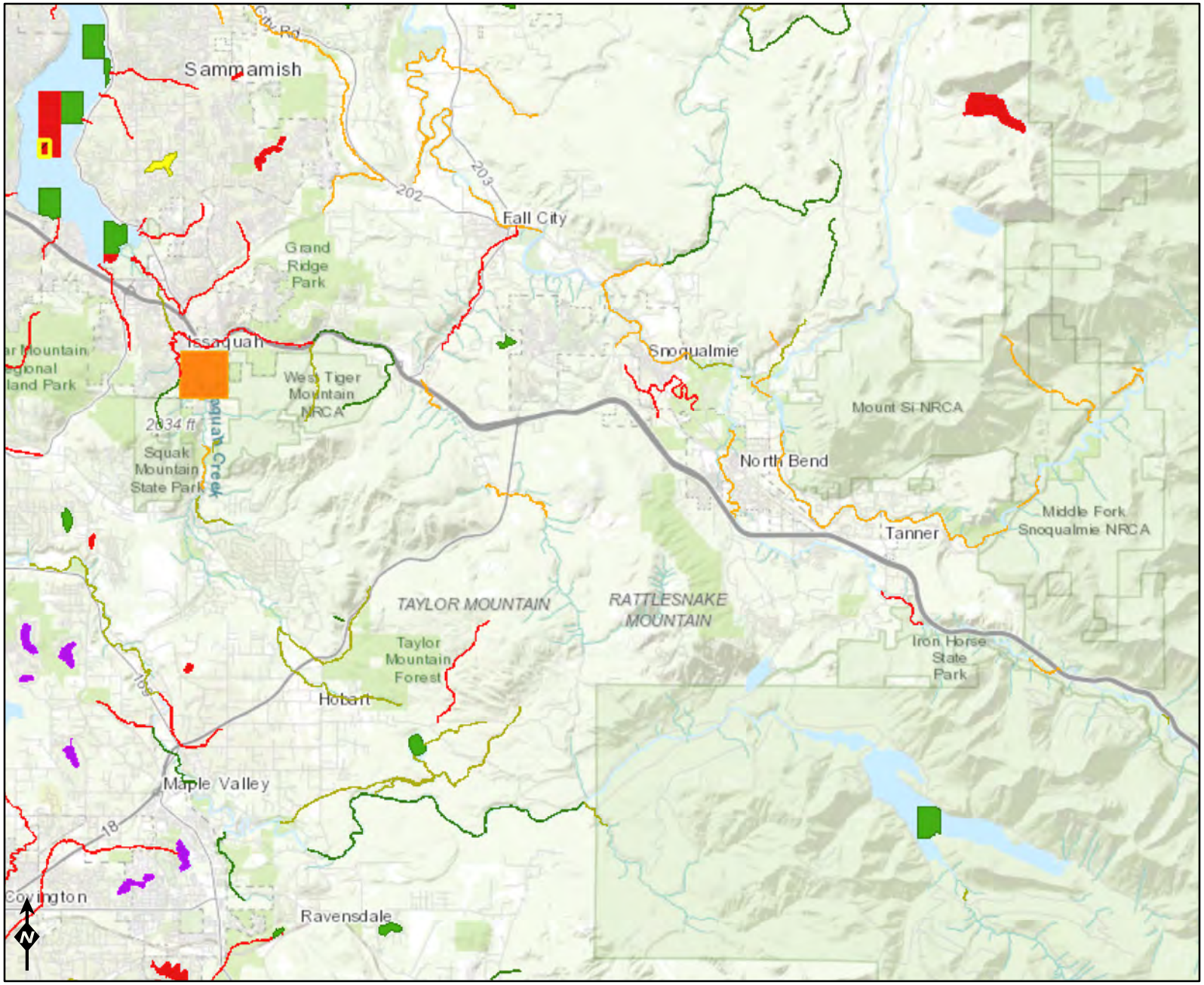
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-22
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

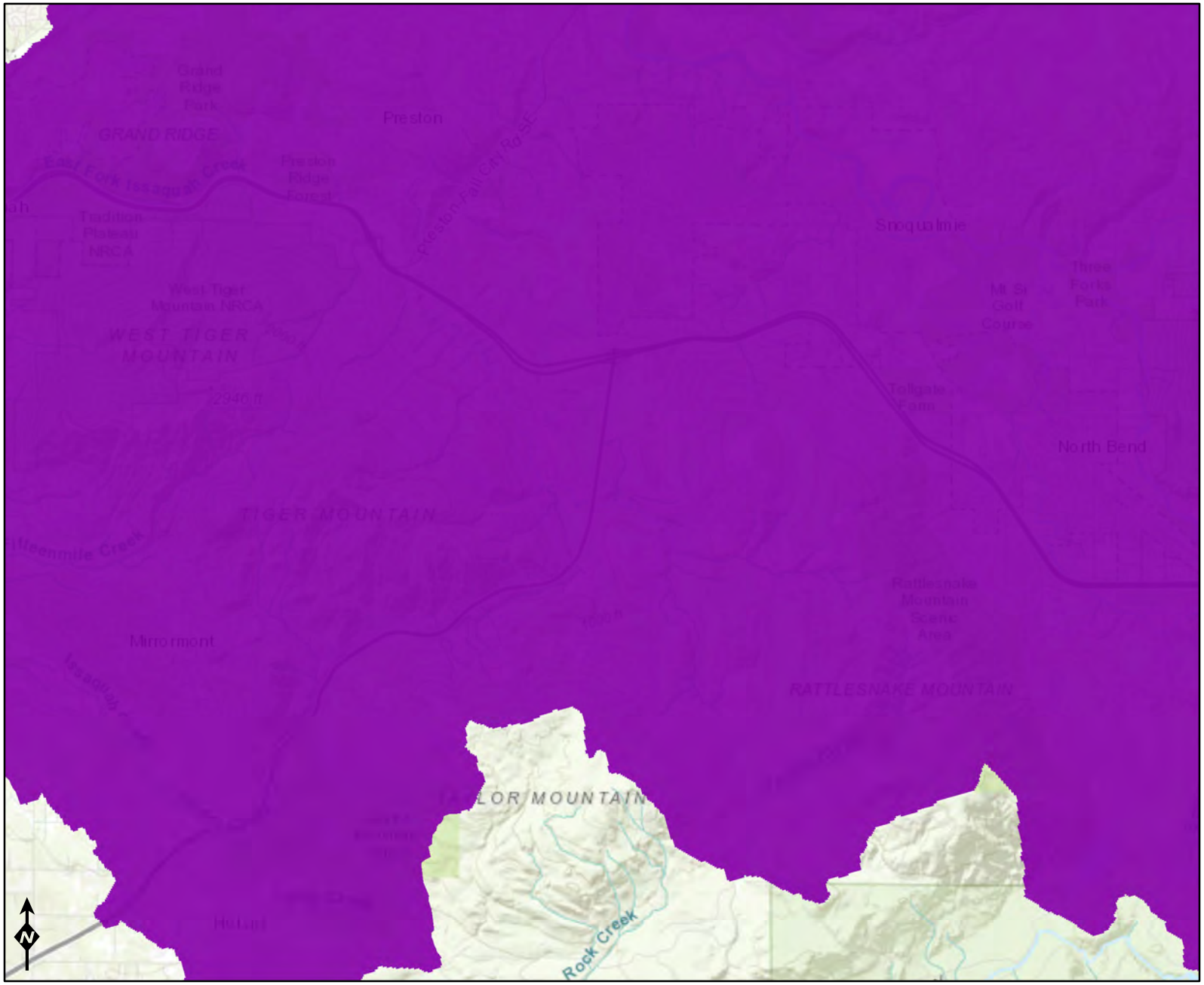
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-23 Date of site visit: 6/20/2019

Rated by Jennie Husby Trained by Ecology? ☑ Yes ☐ No Date of training 4/1/2015

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map WSDOT Statewide 2017 1ft 4band wsps 83h

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- ____ **Category II** - Total score = 20 - 22
- X **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	L	
Landscape Potential	M	M	M	
Value	H	L	M	**Total**
Score Based on Ratings	7	4	5	**16**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number LC-23

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	1
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	1
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	5

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☑ The wetland is on a slope (*slope can be very gradual*),
☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number LC-23

SLOPE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1% - 2% points = 2 Slope is > 2% - 5% points = 1 Slope is greater than 5% points = 0	2
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	6
Total for S 1 Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Particulates in vehicle exhaust and stormwater Yes = 1 No = 0	1
Total for S 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☑ **1 - 2 = M** ☐ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	**3**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-23

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	1

Rating of Landscape Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	**0**

Rating of Value If score is: ☐ **2 - 4 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

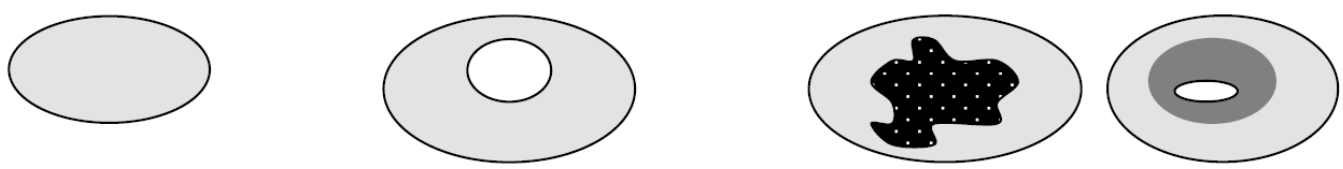
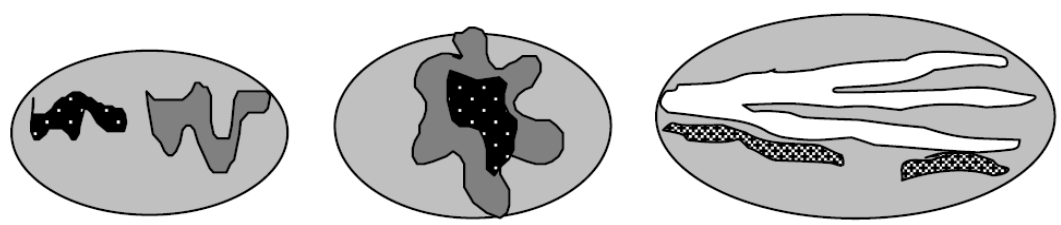
NOTES and FIELD OBSERVATIONS:
Wetland is located in a median between SR 18 and the I-90 onramap on a <1-2% slope that flows to an unvegetated ditch. Water flows south through the ditch and exits through a culvert under the I-90 ramp to the east. Sources of hydrology are likely stormwater sheet flow, precipitation, and overflow from the ditch. A restrictive soil layer of compact roadfill is present within 12in of the soil surface.

Wetland name or number LC-23

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☐ Seasonally flooded or inundated — 3 types present: points = 2 ☑ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	0
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

Wetland name or number LC-23

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	**4**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 0% If total accessible habitat is: > $^{1}/_{3}$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 43 % undisturbed habitat + (30 % moderate & low intensity land uses / 2) = 58% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number LC-23

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☑ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☑ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions***. SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Wetland Rating for Western Washington 2014 Update

wetland

dense, uncut, herbaceous

PEM

PSS

0 5 10 20
Feet

Washington State
Department of Transportation

N

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
Wetland LC-23

Cowardin Plant Classes Map
Questions H 1.1, H 1.4,
Plant Cover Map
Questions S 1.3, S 4.1

Fig1_S_Cowardin&PlantCover

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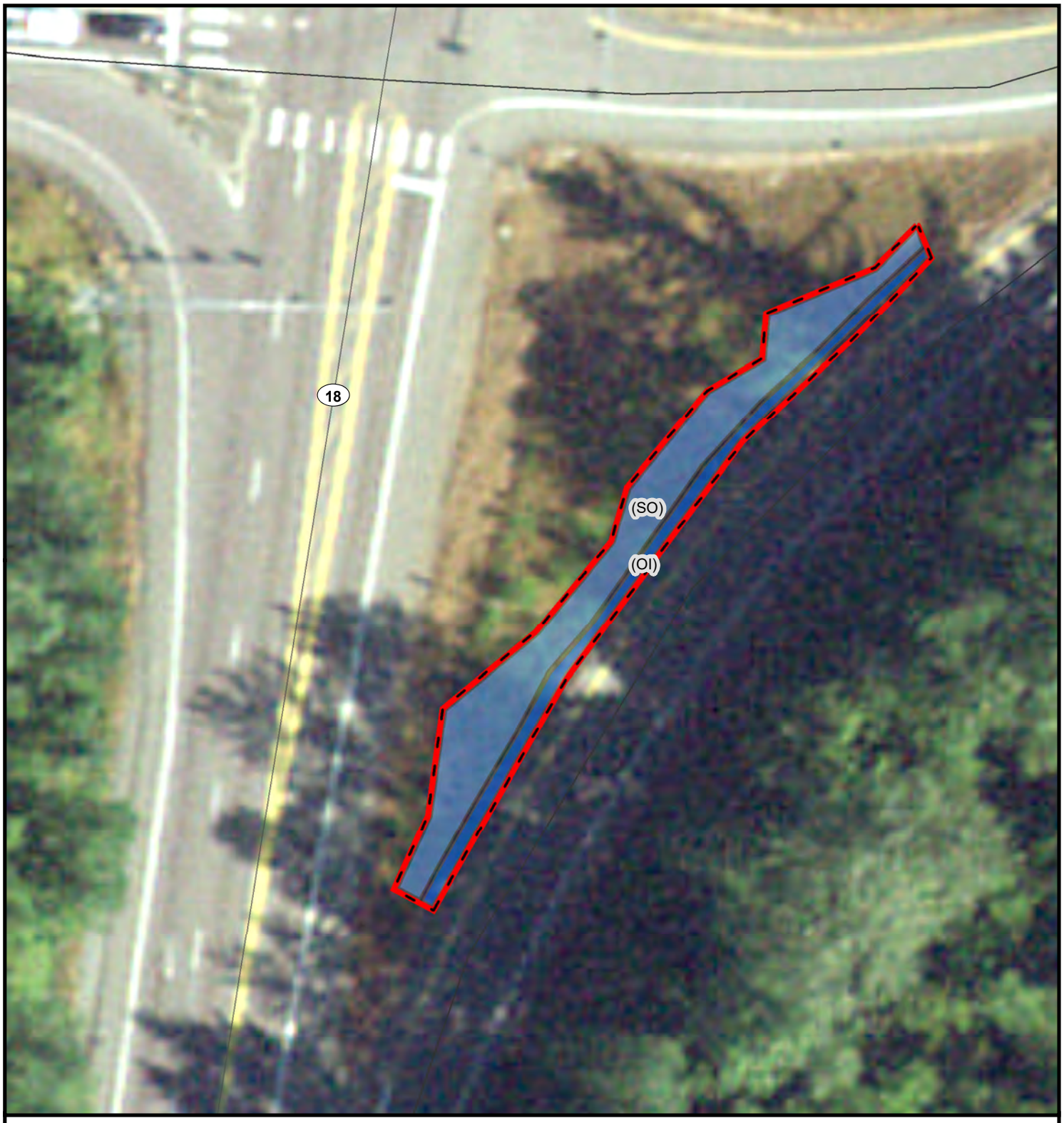
Figure 1



0 12.5 25 50
Feet

wetland

occasionally inundated (OI)

saturated only (SO)

Wetland Rating for Western Washington 2014 Update

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
Wetland LC-23

Hydroperiods Map
Question H 1.2

Washington State Department of Transportation

Fig2_S_Hydroperiods

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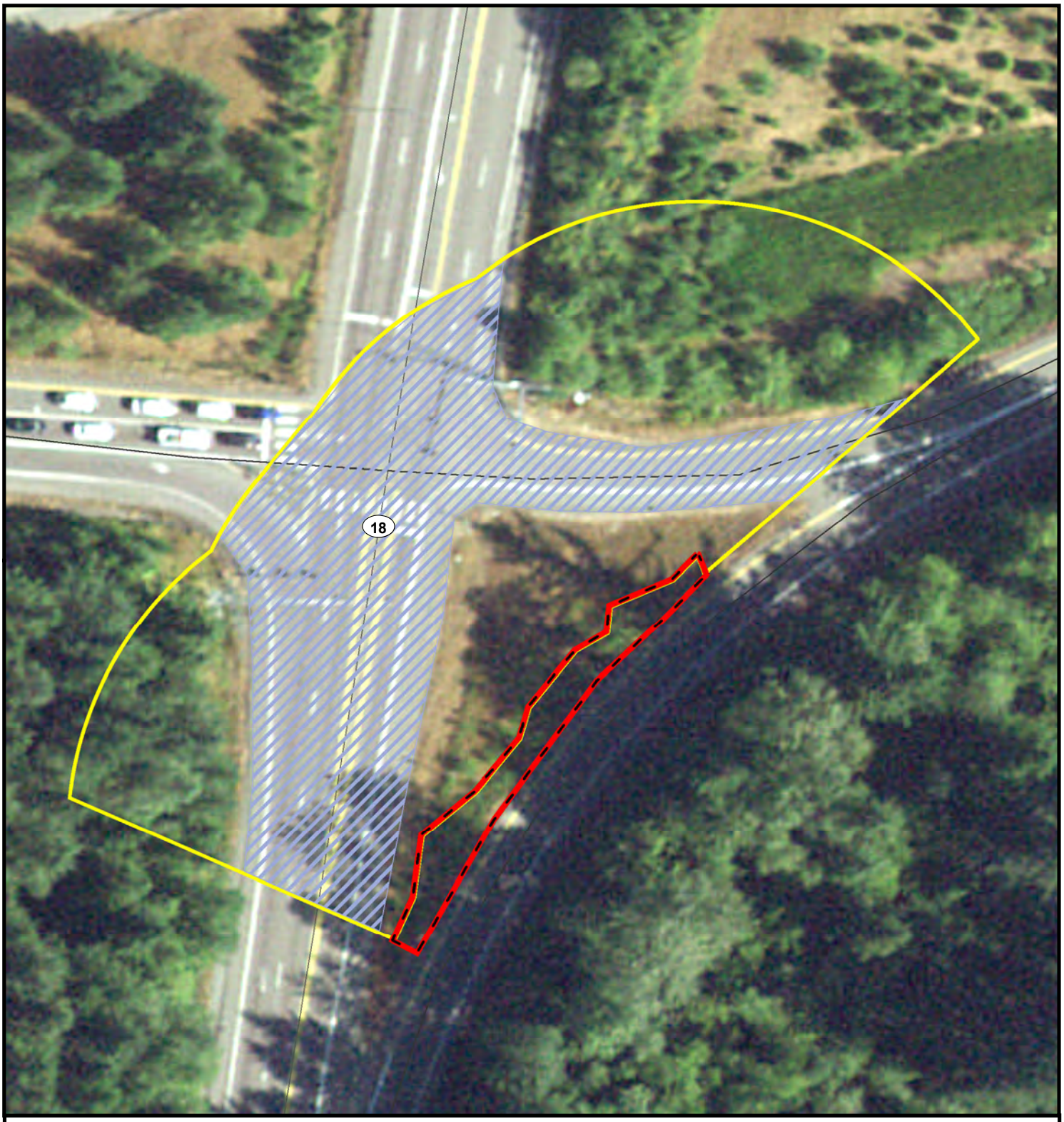
N

Figure 2



Wetland Rating for Western Washington 2014 Update

N

150ft uphill of wetland

wetland

pollutant and excess runoff generating surfaces

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project Wetland LC-23

Washington State Department of Transportation

150 ft Polygon Map Questions S 2.1, S 5.1

Fig3_S_150ftPolygon

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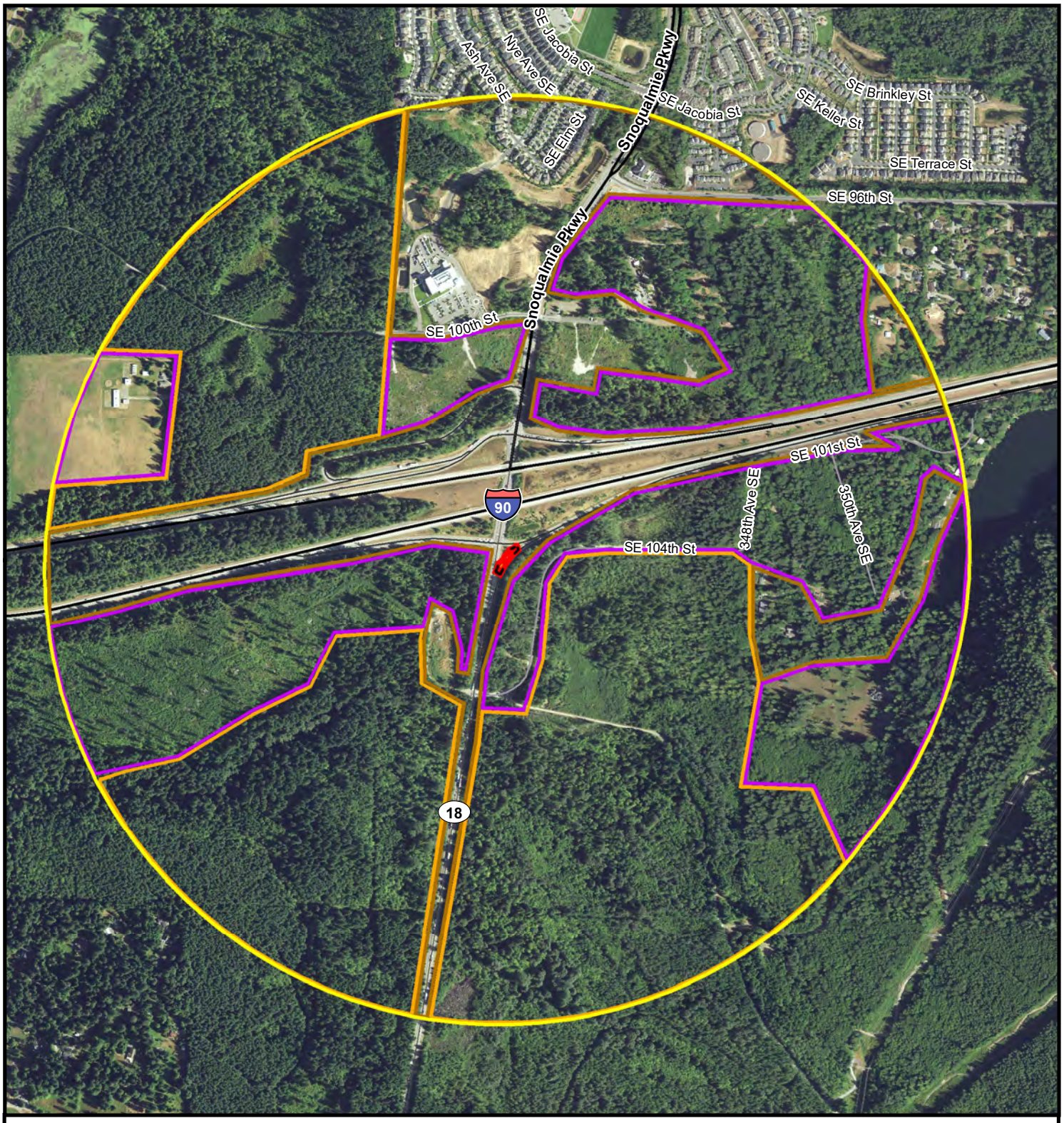
0 37.5 75 150

Feet

Figure 3



Wetland Rating for Western Washington 2014 Update

N

- 1km Buffer
- wetland
- separate - undisturbed
- separate - moderate to low intensity
- high intensity

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project Wetland LC-23

1 Km Polygon Map
Questions H 2.1, H 2.2, H 2.3

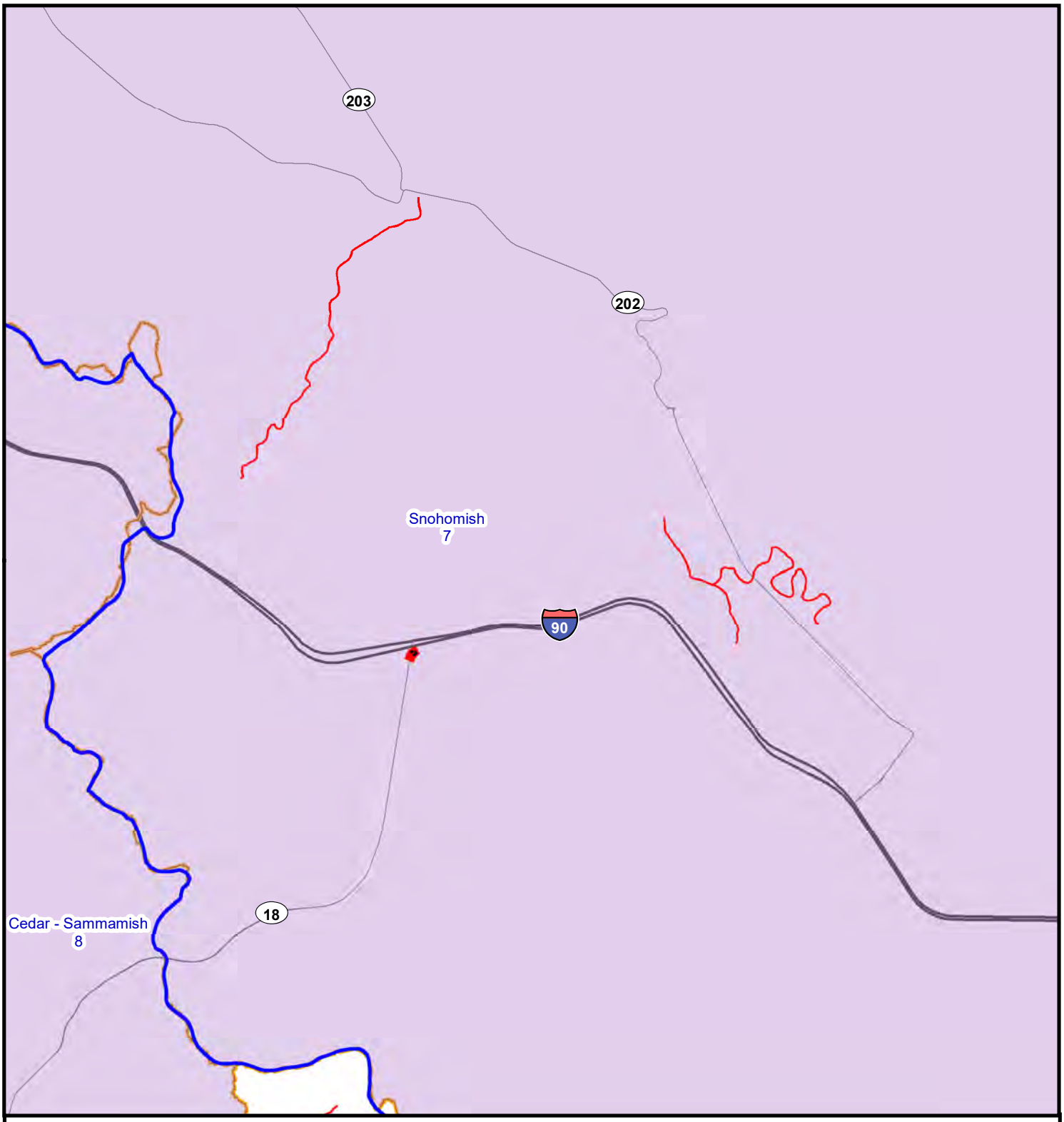
Washington State Department of Transportation

0 0.25 0.5 1
Kilometers

Fig4_S_1KmPolygon2

Date Saved: 7/24/2019 2:53:55 PM

Figure 4



Wetland Rating for Western Washington 2014 Update

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
Wetland LC-23

303(d) listed waters in basin & TMDL's for WRIA Map Questions S 3.1, S 3.2, S 3.3

N

0 0.5 1 2
Miles

Washington State Department of Transportation

Representation: Wetland_slope

- wetland
- Category 5 Impaired Waters
- Approved TMDLs
- WRIA (1:24K)

Fig5_S_303(d)&TMDLs

Date Saved: 7/24/2019 2:59:29 PM

Figure 5

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-24 Date of site visit: 7/30/2019

Rated by R. Boyle Trained by Ecology? ☑ Yes ☐ No Date of training 18-Oct

HGM Class used for rating Riverine & Fresh Water Tidal Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map Statewide_2017_1ft_4band_wsps_83h

OVERALL WETLAND CATEGORY I (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

X **Category I** - Total score = 23 - 27
___ **Category II** - Total score = 20 - 22
___ **Category III** - Total score = 16 - 19
___ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	H	M	
Landscape Potential	H	H	H	
Value	H	M	H	**Total**
Score Based on Ratings	8	8	8	**24**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Ponded depressions	R 1.1	2
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	3
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	1
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	2
Map of the contributing basin	R 2.2, R 2.3, R 5.2	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	6

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☑ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☑ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		2
Depressions cover > $^3/_4$ area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	
Depressions present but cover < ½ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		8
Trees or shrubs > $^2/_3$ area of the wetland	points = 8	
☐ Trees or shrubs > $^1/_3$ area of the wetland	points = 6	
☐ Herbaceous plants (> 6 in high) > $^2/_3$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > $^1/_3$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < $^1/_3$ area of the wetland	points = 0	
Total for R 1	Add the points in the boxes above	**10**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	Yes = 1 No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1 - R 2.4? Other Sources Elk	Yes = 1 No = 0	1
Total for R 2	Add the points in the boxes above	**4**

Rating of Landscape Potential If score is: ☑ **3 - 6 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 No = 0	0
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	Yes = 2 No = 0	2
Total for R 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).*		9
If the ratio is more than 20	points = 9	
If the ratio is 10 - 20	points = 6	
If the ratio is 5 - < 10	points = 4	
If the ratio is 1 - < 5	points = 2	
If the ratio is < 1	points = 1	
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes*).		7
Forest or shrub for > $^{1}/_{3}$ area OR emergent plants > $^{2}/_{3}$ area	points = 7	
Forest or shrub for > $^{1}/_{10}$ area OR emergent plants > $^{1}/_{3}$ area	points = 4	
Plants do not meet above criteria	points = 0	
Total for R 4	Add the points in the boxes above	**16**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 No = 1	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 No = 0	1
R 5.3 Is the up-gradient stream or river controlled by dams?	Yes = 0 No = 1	1
Total for R 5	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

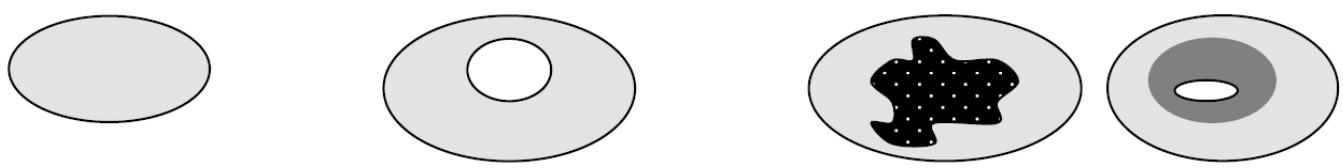
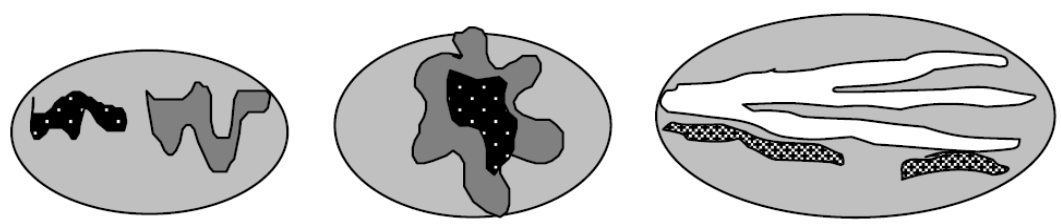
R 6.0. Are the hydrologic functions provided by the site valuable to society?		
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.*		1
The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for R 6	Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2 - 4 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☑ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	3
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	3

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 — Add the points in the boxes above	**13**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 20.9 % undisturbed habitat + (1.11 % moderate & low intensity land uses / 2) = 21.455% If total accessible habitat is: > $^{1}/_{3}$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 42.05 % undisturbed habitat + (28.17 % moderate & low intensity land uses / 2) = 56.135% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	**5**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☑ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☑ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☑ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☑ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

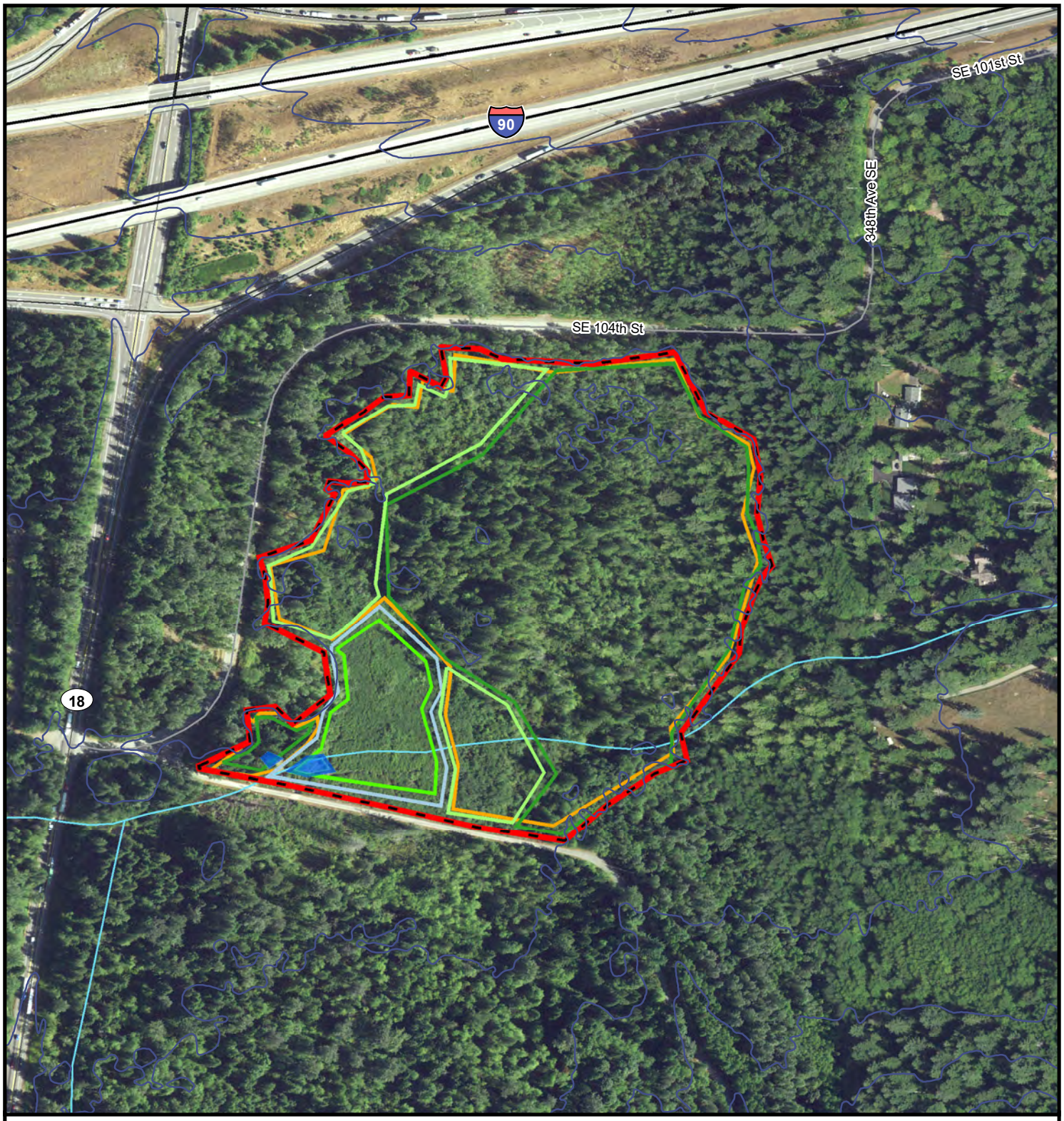
☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form



Wetland Rating for Western Washington 2014 Update

N

0 135 270 540
Feet

Washington State
Department of Transportation

Fig1_R_Cowardin&PlantCover

Date Saved: 10/1/2019 11:42:55 AM

Legend

Representation: Wetland_riverine
- wetland

Upland and open water

Representation: Upland_openwater_riverine
- open water

Cowardin:

Representation: Cowardin_riverine
- PEM
- PSS
- PFO

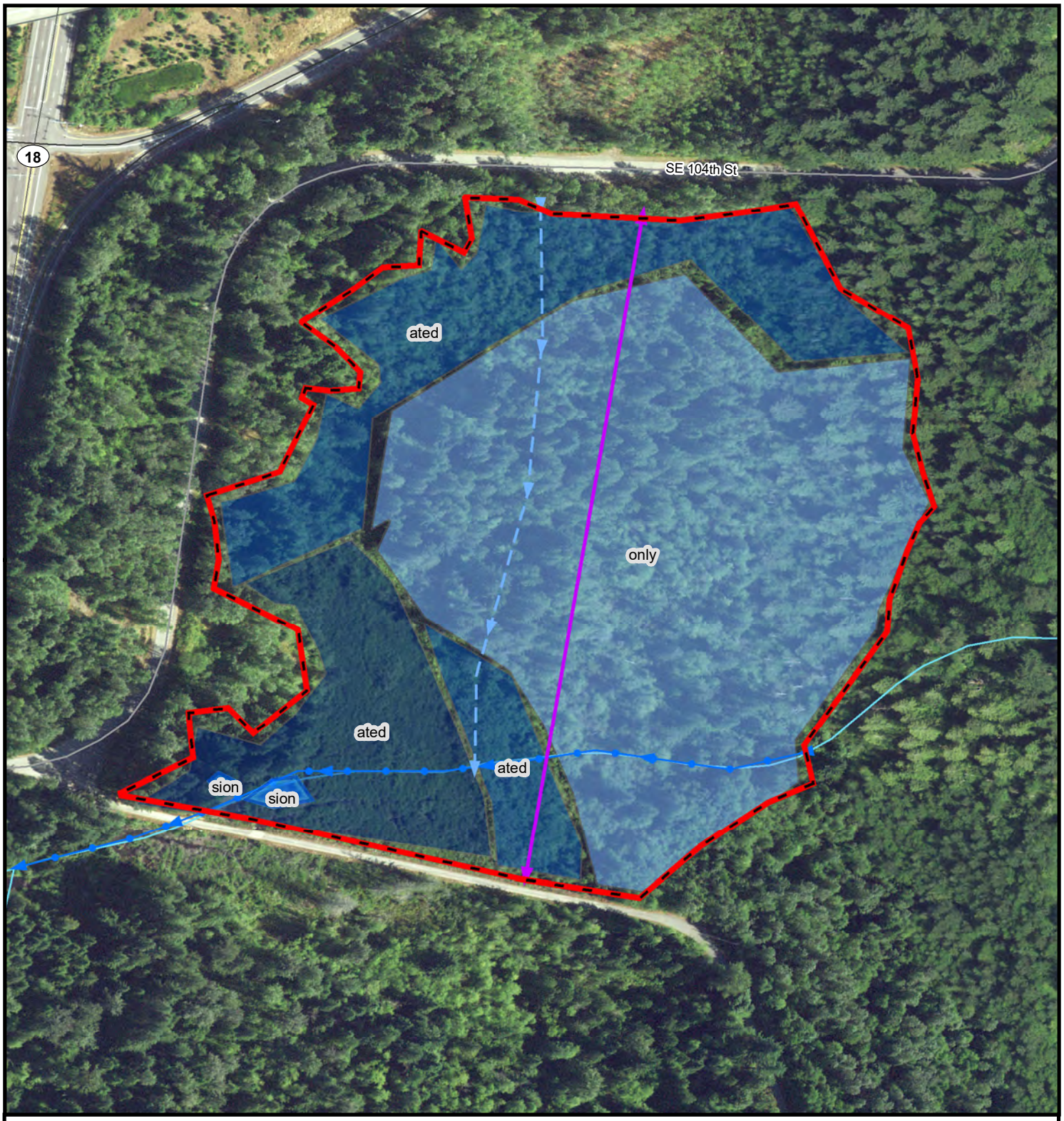
Plant cover:

Representation: Plant_cover_riverine
- herbaceous
- trees or shrubs

I-90/SR 18 Interchange
Wetland LC-24

Cowardin Plant Classes Map
Questions H 1.1, H 1.4,
Plant Cover Map
Questions R 1.2, R 4.2

Figure 1



Wetland Rating for Western Washington 2014 Update

N

0 112.5 225 450
Feet

Washington State Department of Transportation

Date Saved: 10/1/2019 11:51:19 AM

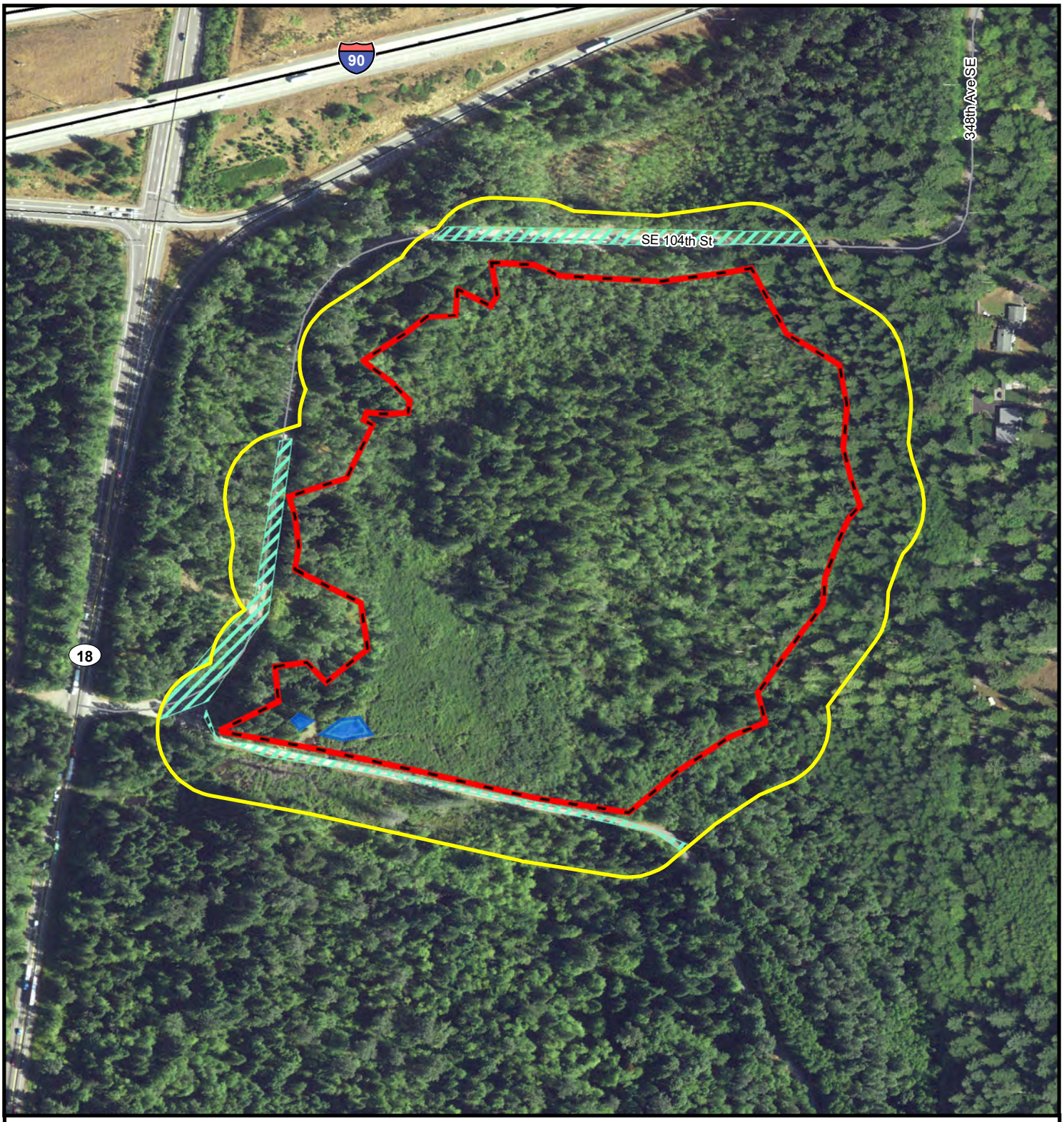
FPCJ74~Z

Wetland:
Representation: Wetland_riverine
wetland
Upland and open water
Representation: Upland_openwater_riverine
open water
Representation: Wetland_width_riverine
average wetland width
Hydroperiod streams:
Representation: Hydroperiod_streams_riverine
permanently flowing
seasonally flowing
Hydroperiods:
Representation: Hydroperiods_riverine
permanently inundated
seasonally inundated
saturated only
ponded depression

I-90/SR 18 Interchange
Wetland LC-24

Hydroperiods &
Ponded Depressions &
Width of Wetland vs Stream Map
Questions H 1.2, R 1.1, R 4.1

Figure 2



Wetland Rating for Western Washington 2014 Update

N

0 150 300 600
Feet

Washington State
Department of Transportation

Legend

150ft_Buffer

Representation: Wetland_riverine

wetland

Upland and open water

Representation: Upland_openwater_riverine

open water

Representation: Generating_surfaces_riverine

pollutant generating surfaces

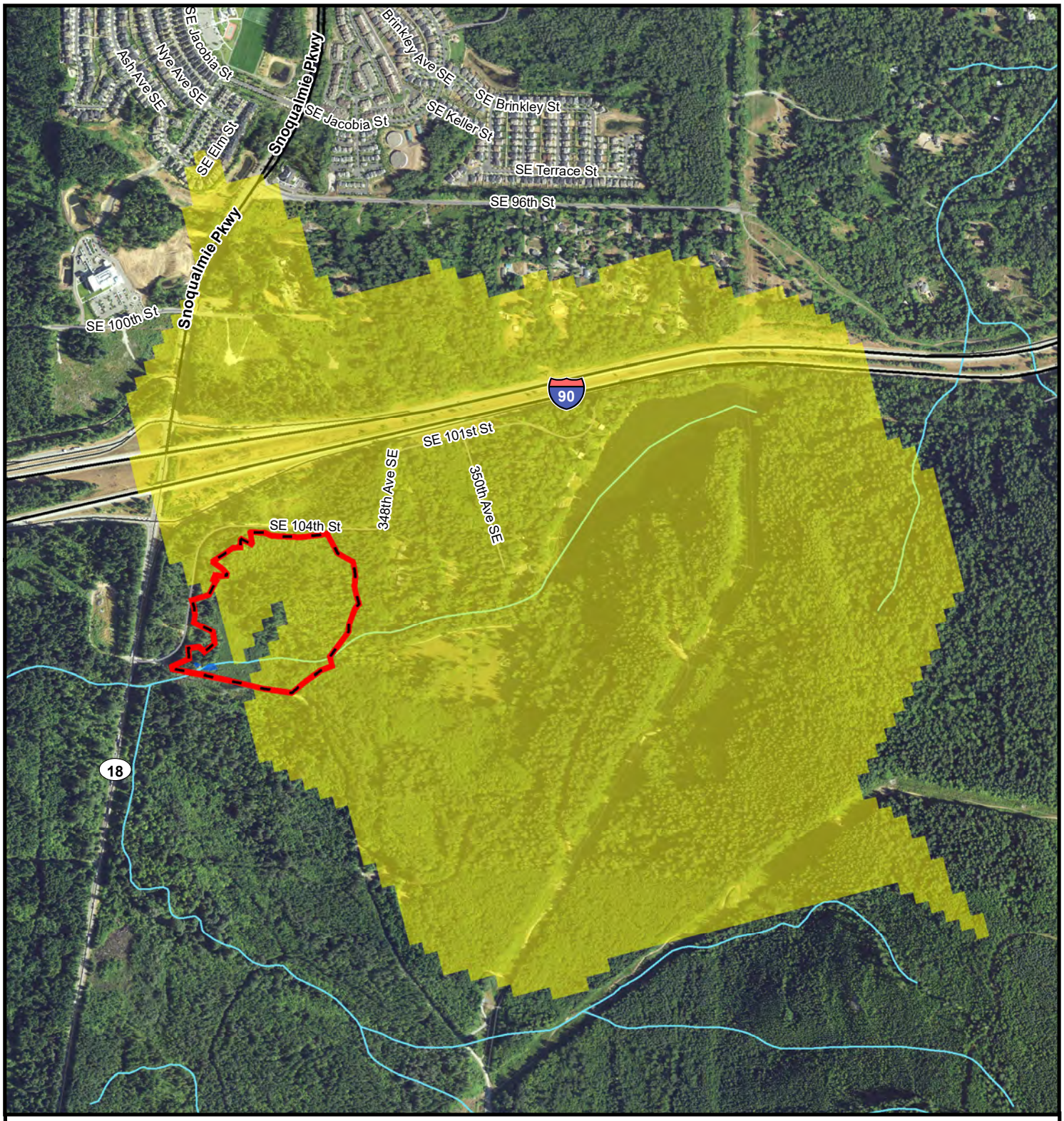
I-90/SR 18 Interchange
Wetland LC-24

150 ft Polygon Map
Questions R 2.4

Fig3_R_150ftPolygon

Date Saved: 10/1/2019 11:41:21 AM

Figure 3



Wetland Rating for Western Washington 2014 Update

N

0 500 1,000 2,000
Feet

Washington State Department of Transportation

Legend

Representation: Wetland_riverine

wetland

Upland and open water

Representation: Upland_openwater_riverine

open water

Contributing Basin

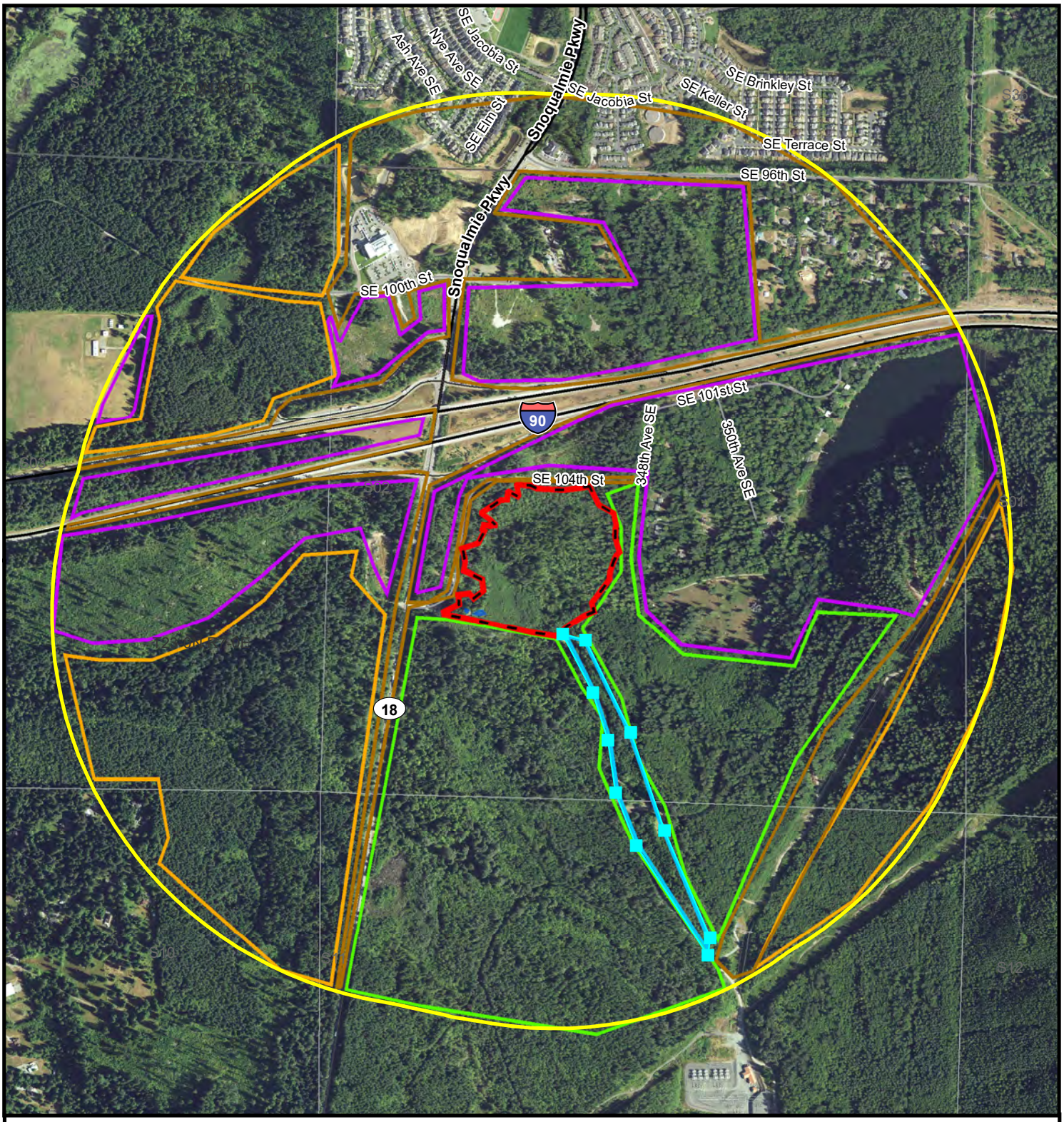
I-90/SR 18 Interchange
Wetland LC-24

Contributing Basin Map
Questions R 2.2, R 2.3, R 5.2

Fig4_R_ContributingBasin

Date Saved: 10/1/2019 11:42:13 AM

Figure 4



Wetland Rating for Western Washington 2014 Update

N

0 0.15 0.3 0.6
Kilometers

Washington State Department of Transportation

Legend

1KM Buffer

Representation: Wetland_riverine

wetland

Upland and open water

Representation: Upland_openwater_riverine

open water

Habitat:

Representation: Habitat_riverine

contiguous undisturbed

contiguous moderate to low intensity

separated undisturbed

separated moderate to low intensity

high intensity land use

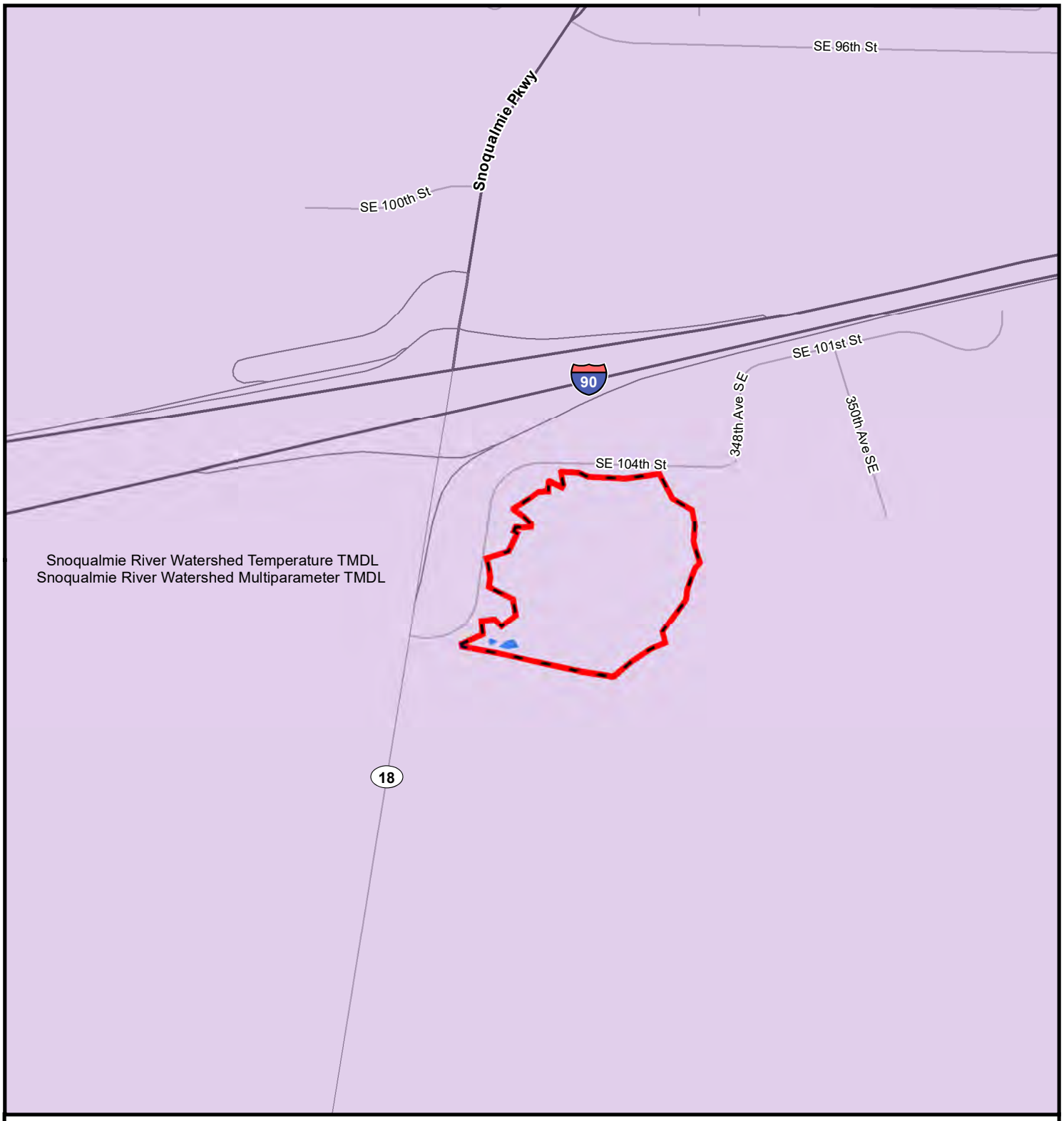
I-90/SR 18 Interchange
Wetland LC-24

1 km Polygon Map
Questions H 2.1, H 2.2, H 2.3

Fig5_R_1KmPolygon

Date Saved: 10/1/2019 11:43:46 AM

Figure 5



Wetland Rating for Western Washington 2014 Update

N

0 375 750 1,500
Feet

Washington State Department of Transportation

Fig6_R_303(d)&TMDLs

Date Saved: 10/1/2019 11:40:40 AM

Legend

Representation: Wetland_riverine

wetland

Upland and open water

Representation: Upland_openwater_riverine

open water

Approved TMDLs

I-90/SR 18 Interchange
Wetland LC-24

303(d) listed waters in basin & TMDL's for WRIA Map Questions R 3.1, R 3.2, R 3.3

Figure 6

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-25 Date of site visit: 8/27/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	L	
Landscape Potential	M	M	M	
Value	H	H	H	**Total**
Score Based on Ratings	7	6	6	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number LC-25

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-25

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0		3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		2
Total for D 1	Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-25

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		0
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☐**6 - 11 = M** ☑**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

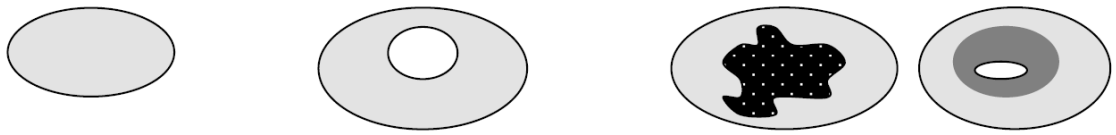
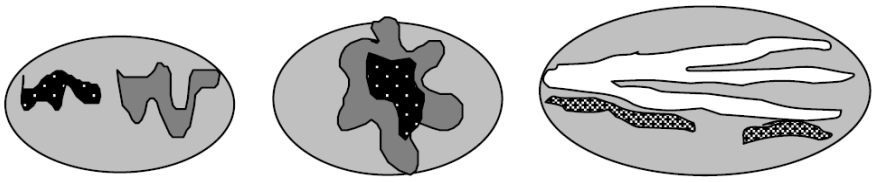
Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-25

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 — Add the points in the boxes above	**5**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 3 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 3% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 50 % undisturbed habitat + (31 % moderate & low intensity land uses / 2) = 65.5% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	**3**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

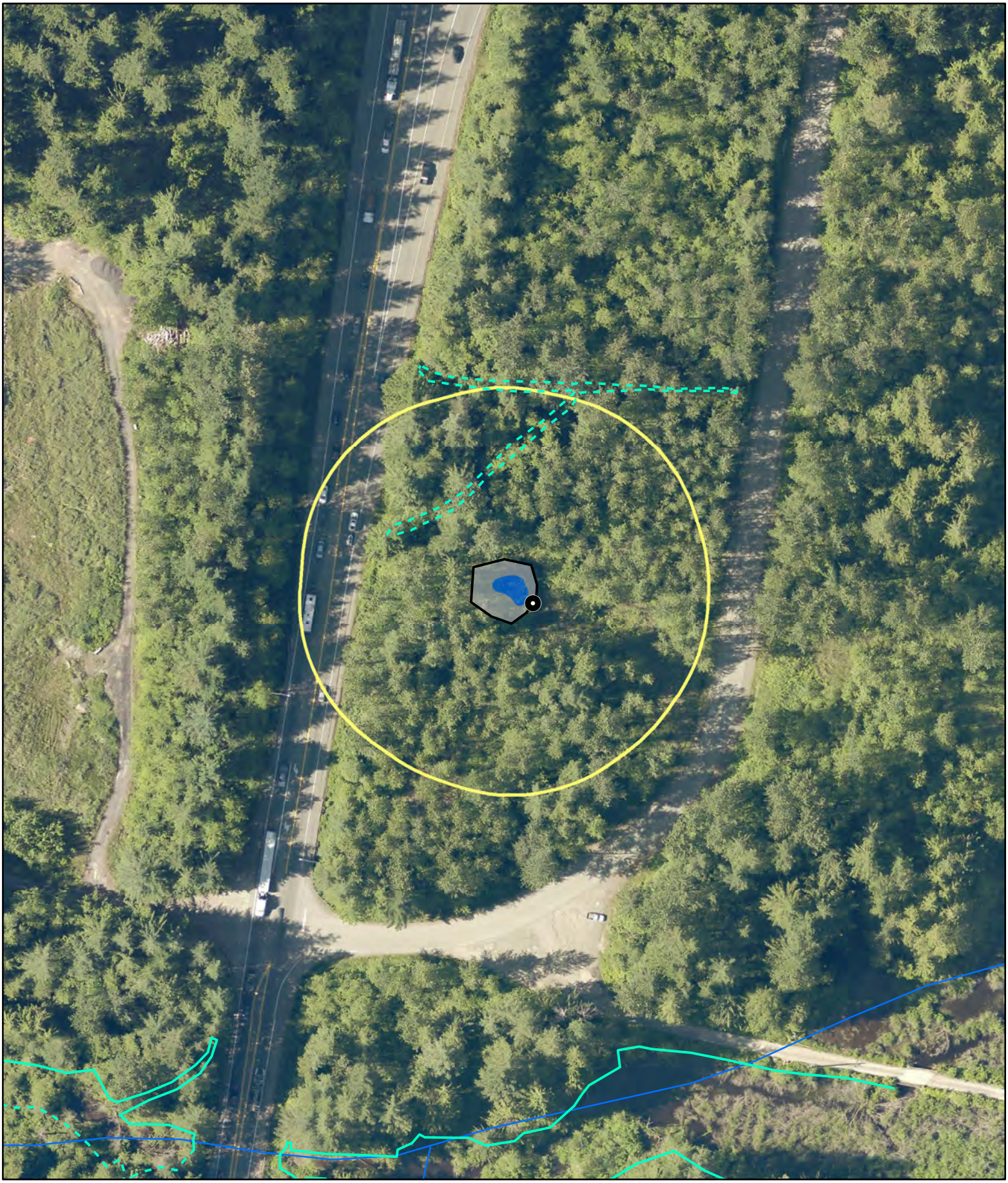
Wetland 6 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland LC-25
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

Wetland 6 (Approx. Boundary)
150-ft Boundary

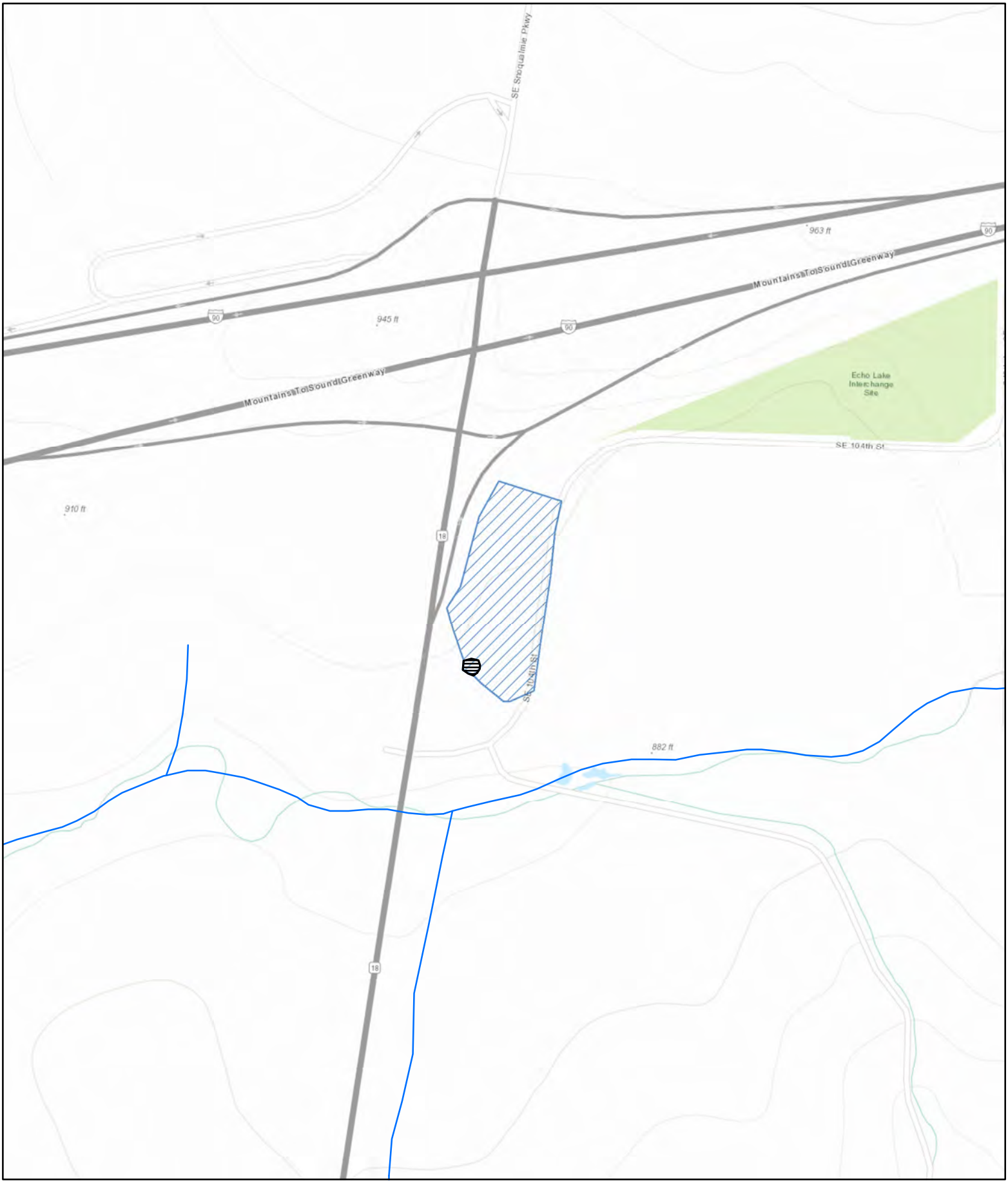
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-25
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

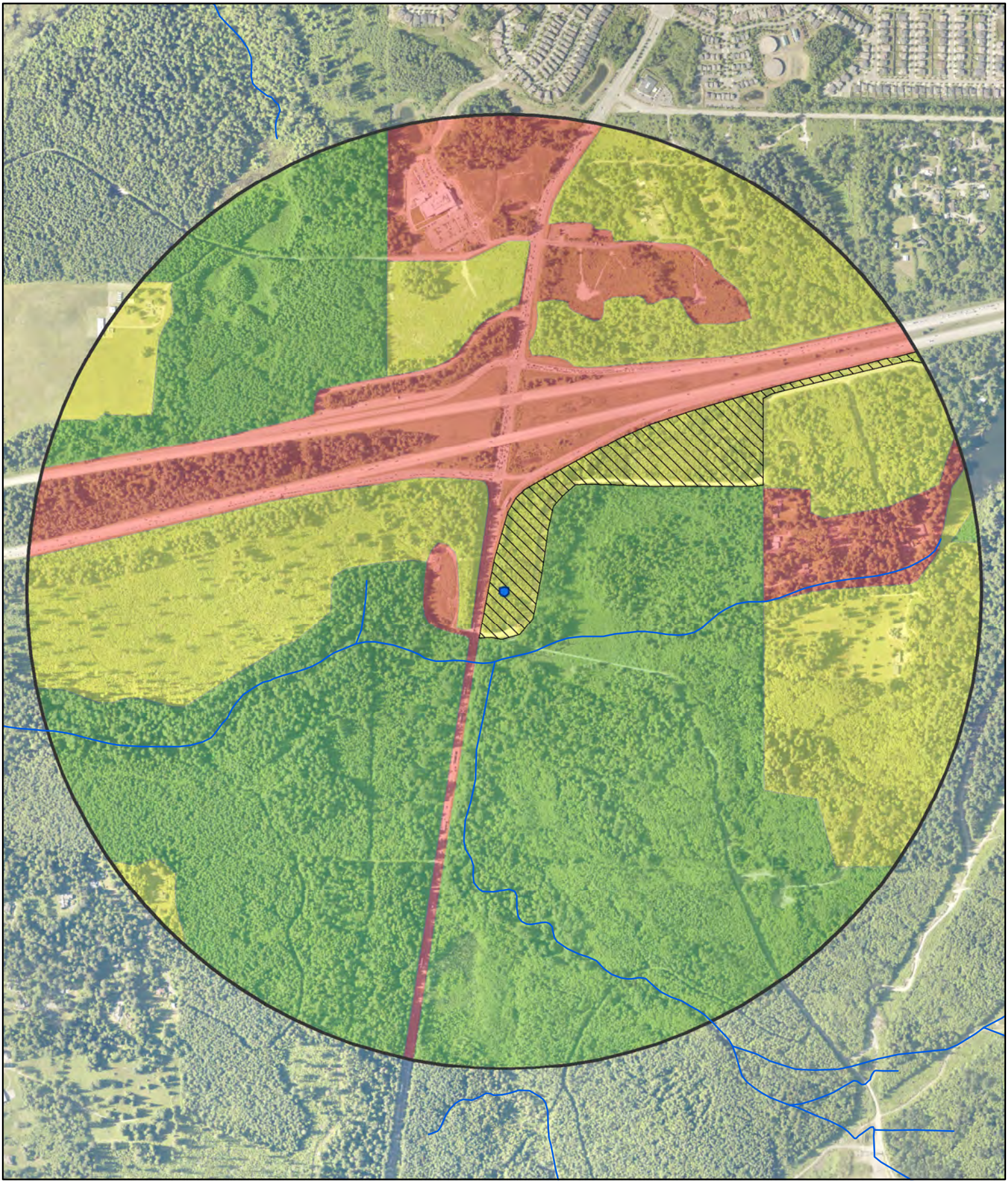
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 6 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-25
Contributing Basin
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 6 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

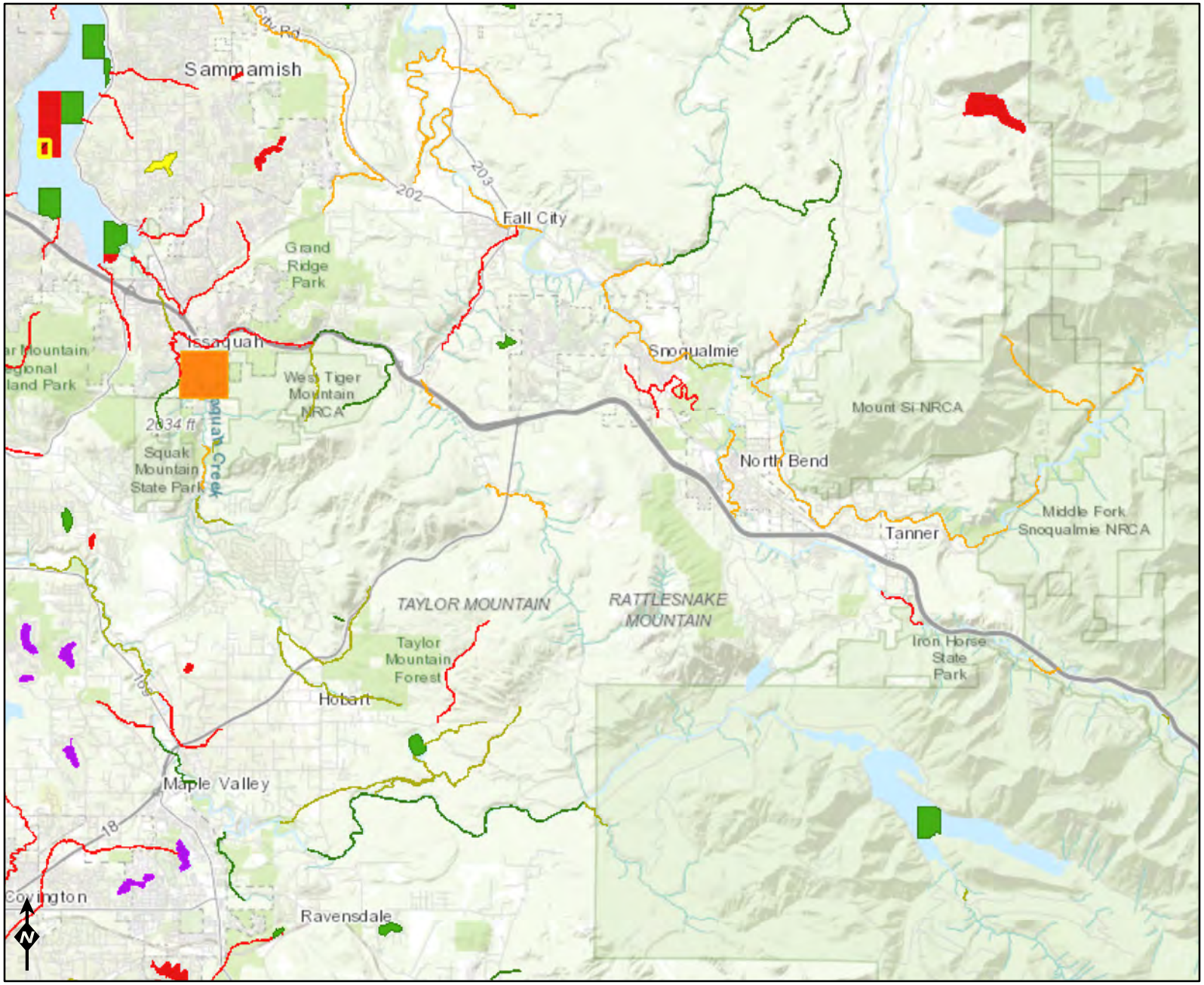
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-25
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

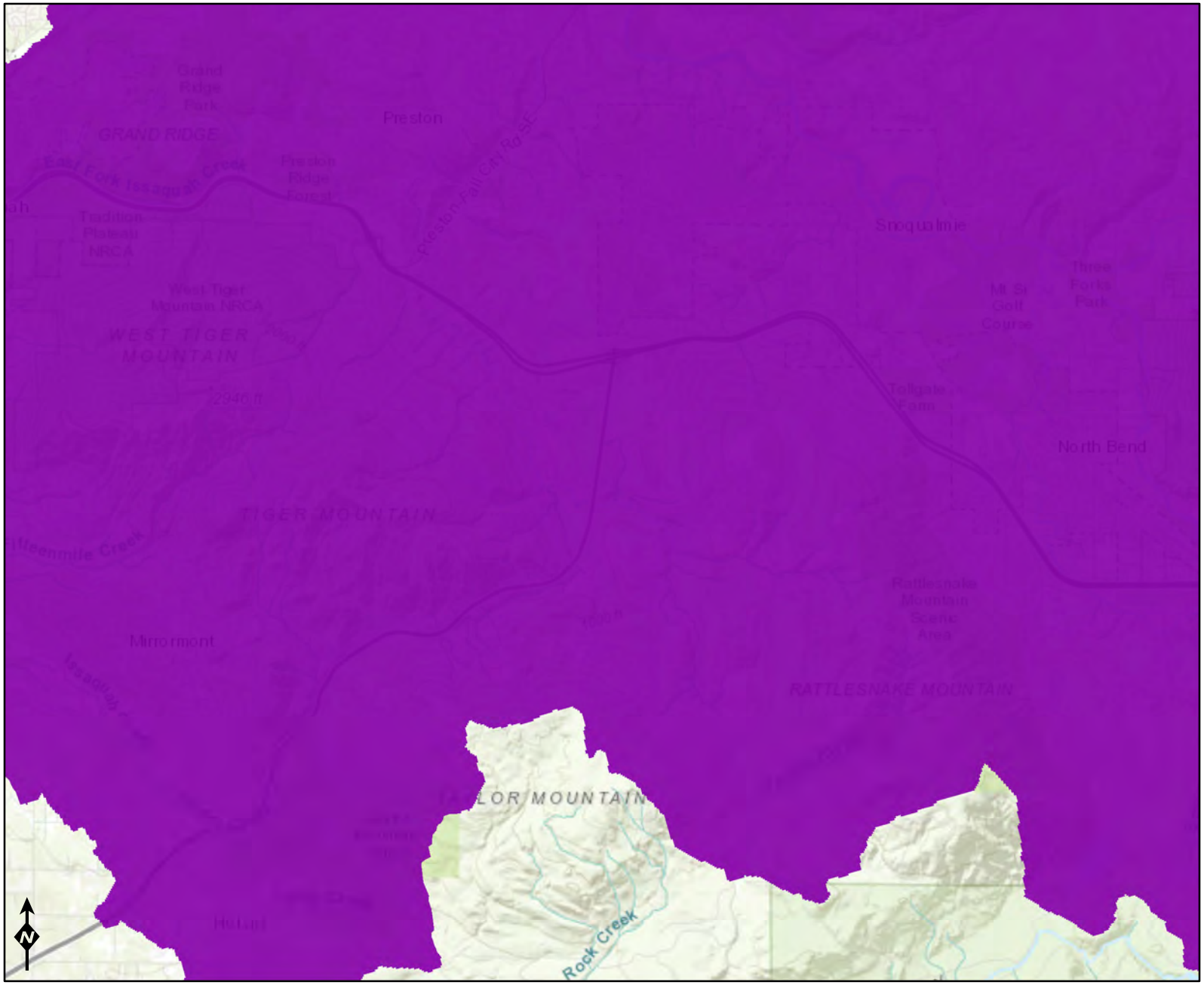
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-26 Date of site visit: 8/27/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	L	
Landscape Potential	M	M	M	
Value	H	H	H	**Total**
Score Based on Ratings	7	6	6	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number LC-26

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-26

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-26

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		0
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☐**6 - 11 = M** ☑**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

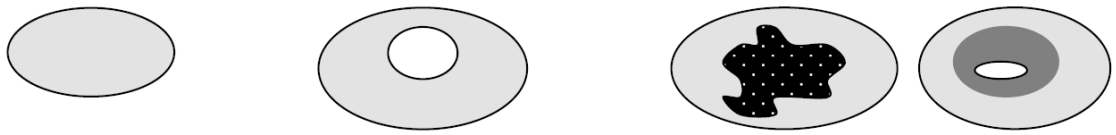
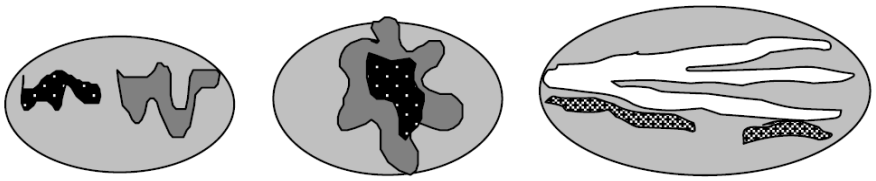
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**6**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 0 % undisturbed habitat + (3 % moderate & low intensity land uses / 2) = 1.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 50 % undisturbed habitat + (28 % moderate & low intensity land uses / 2) = 64% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

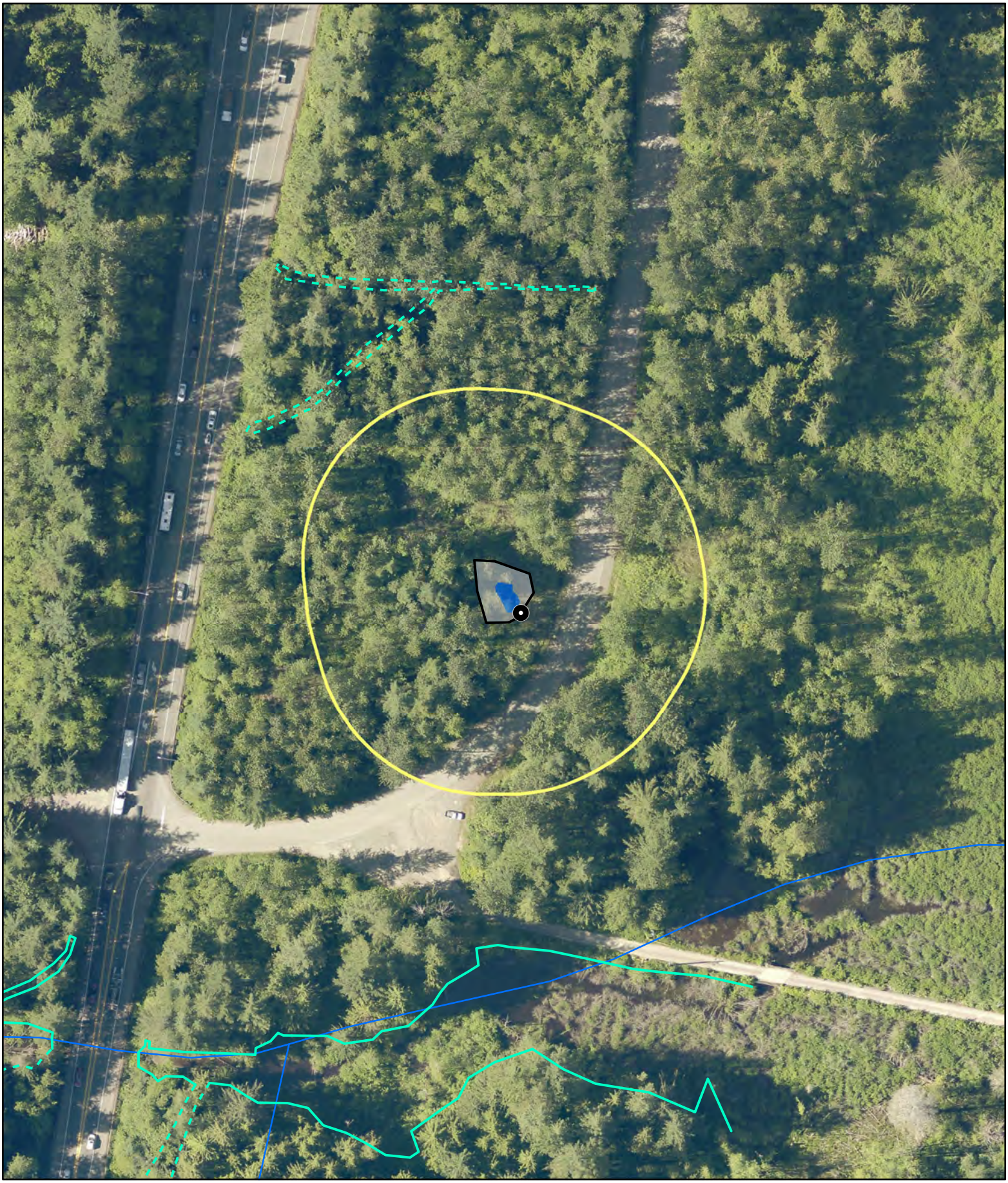
Wetland 7 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland LC-26
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

Wetland 7 (Approx. Boundary)
150-ft Boundary

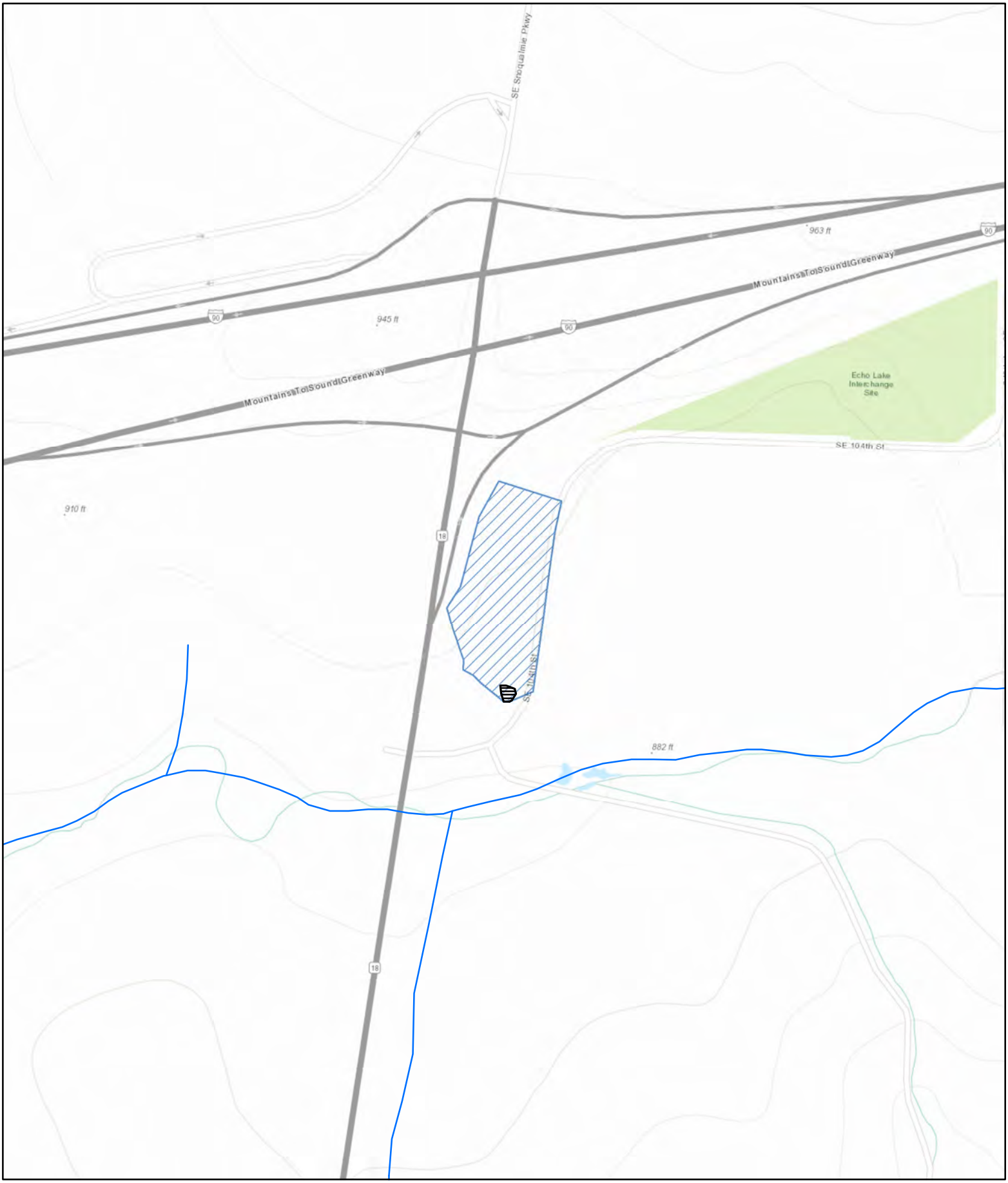
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland LC-26
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

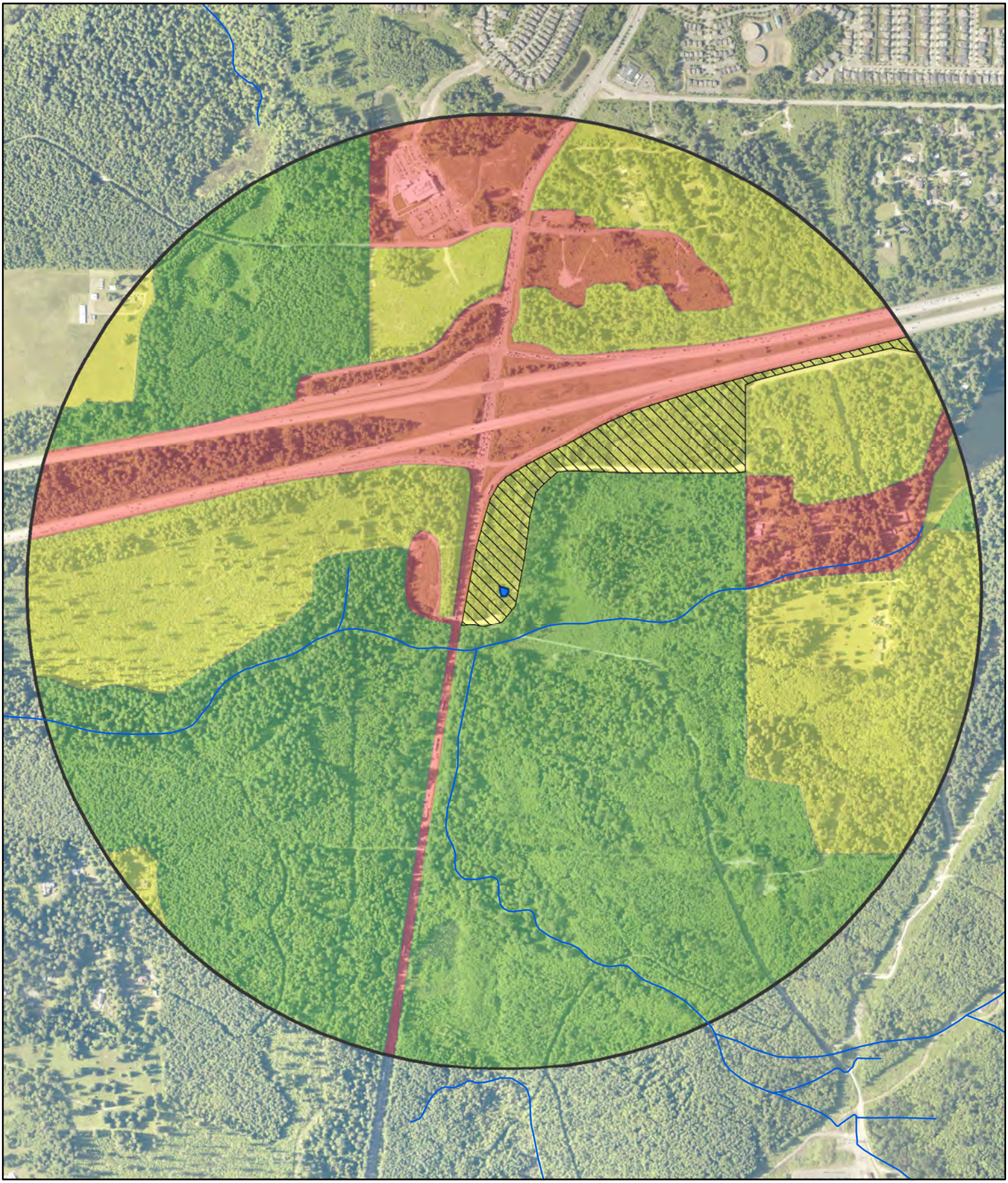
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 7 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-26
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 7 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

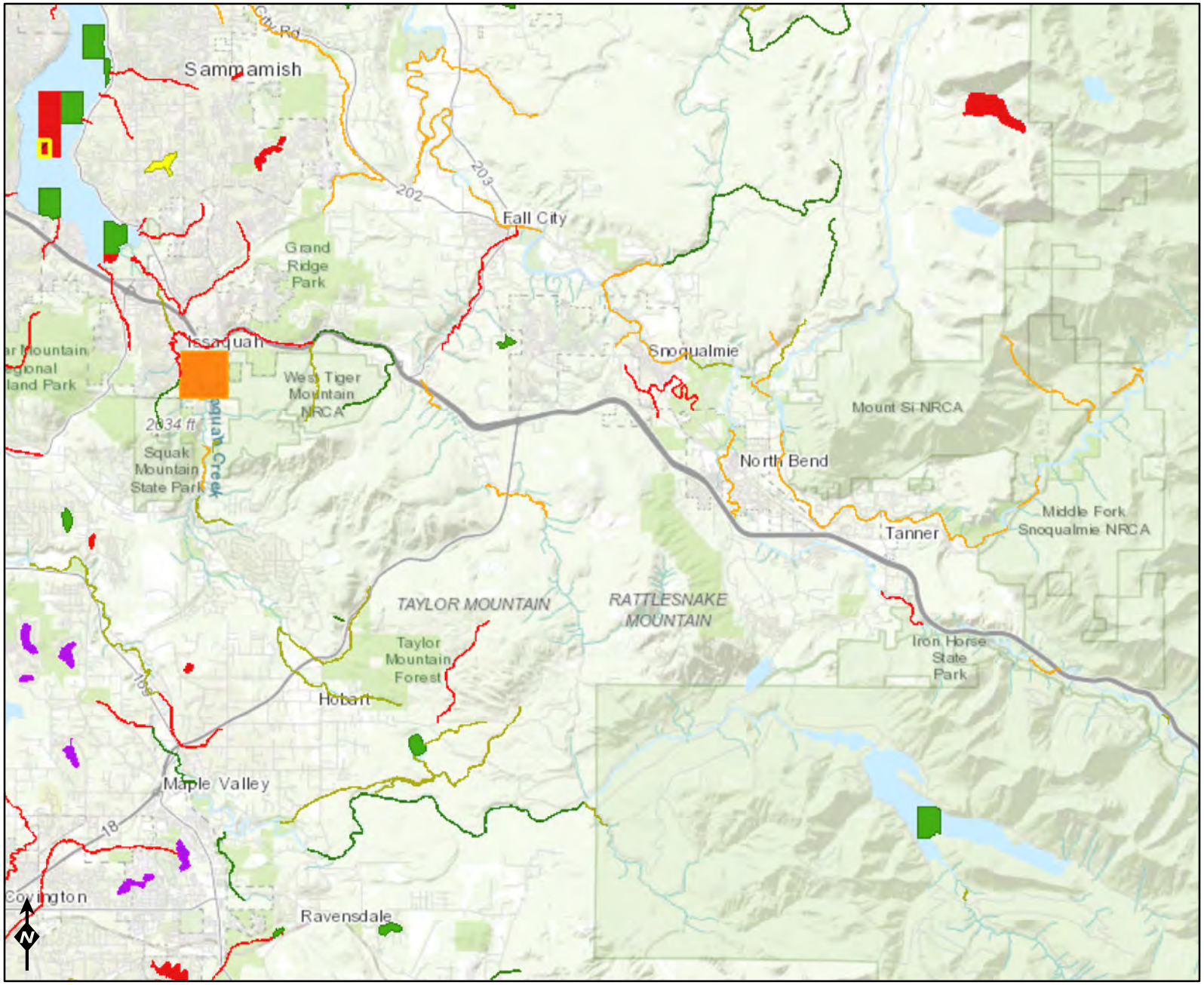
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-26
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

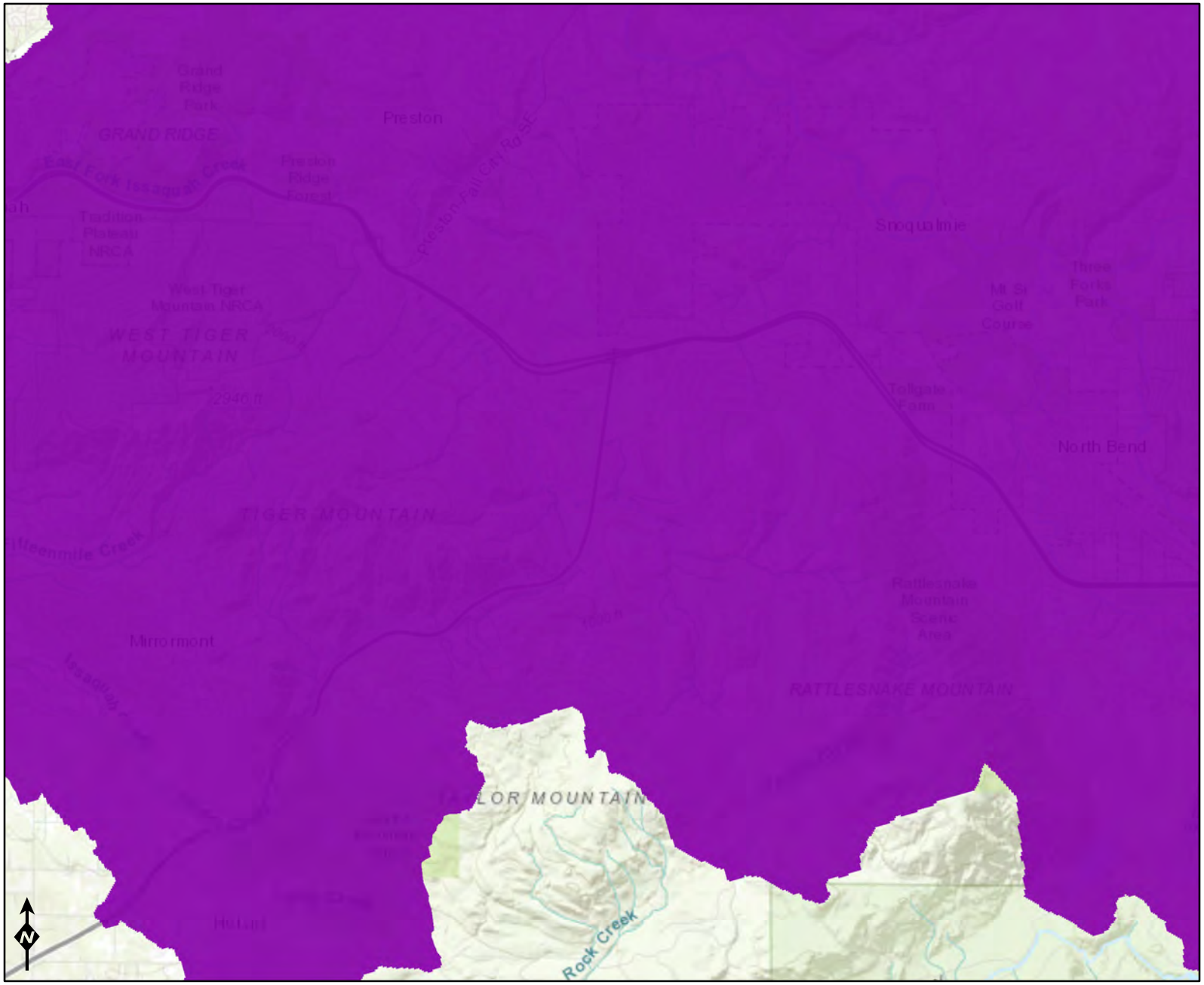
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-27 Date of site visit: 8/14/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- **X** **Category II** - Total score = 20 - 22
- ____ **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	H	
Landscape Potential	L	L	H	
Value	H	H	H	**Total**
Score Based on Ratings	6	6	9	**21**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number LC-27

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☑ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☑ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-27

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	**9**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☐ **1 or 2 = M** ☑ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-27

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		5
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**10**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐**3 = H** ☐**1 or 2 = M** ☑**0 = L** *Record the rating on the first page*

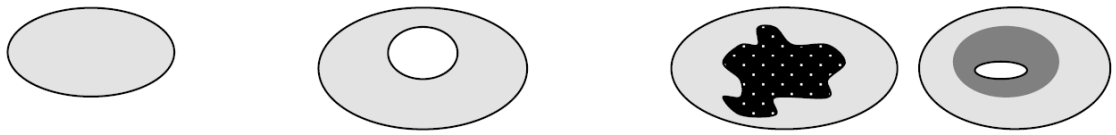
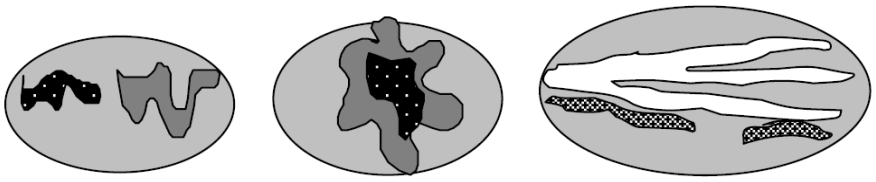
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	4
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☑ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	3
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	2
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	3

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☑ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
Total for H 1 — Add the points in the boxes above	**17**

Rating of Site Potential If Score is: ☑ **15 - 18 = H** ☐ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 30 % undisturbed habitat + (15 % moderate & low intensity land uses / 2) = 37.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 53 % undisturbed habitat + (33 % moderate & low intensity land uses / 2) = 69.5% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☑ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 75 150 300 Feet

Wetland 28 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-27
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 100 200 400 Feet

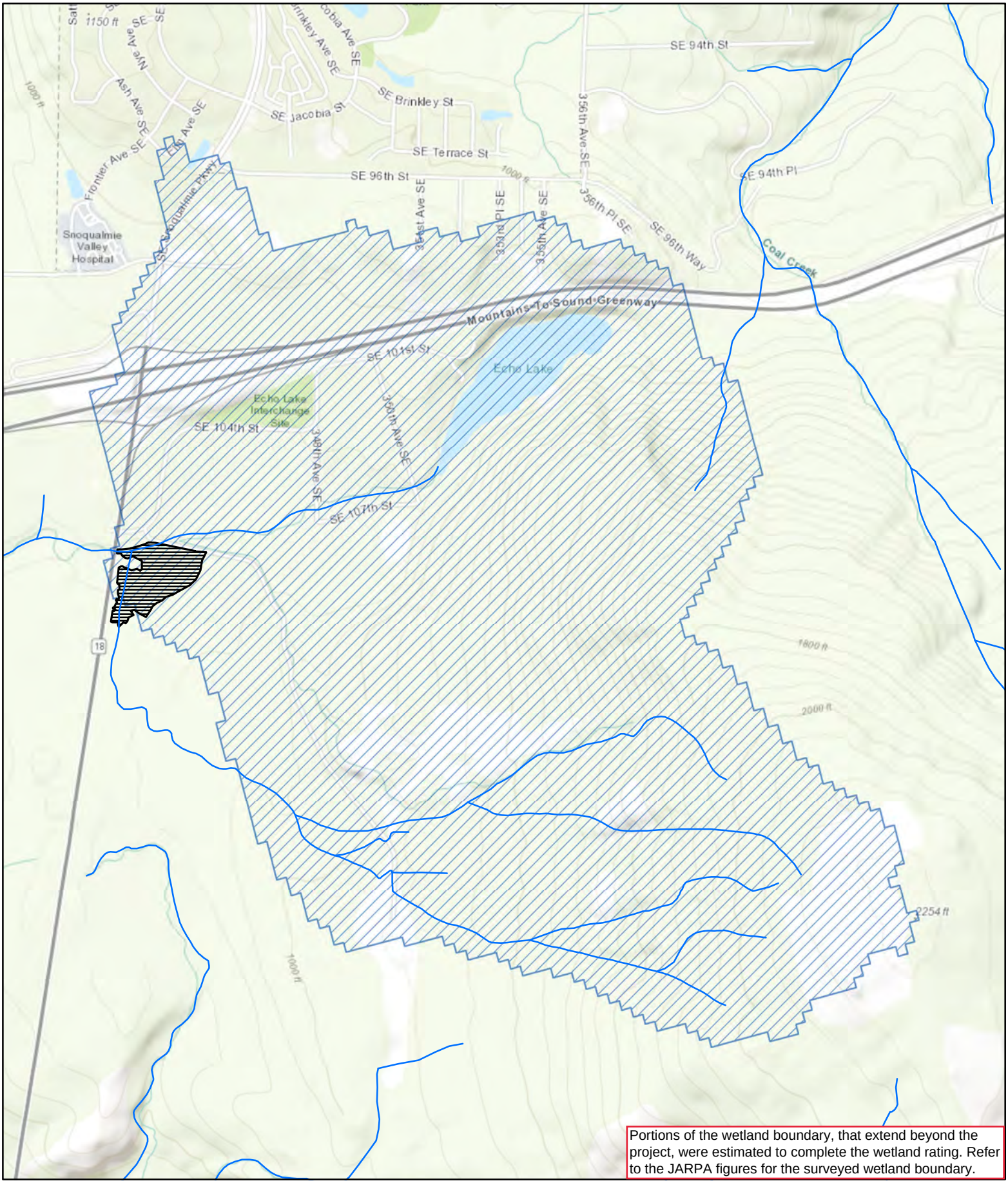
Wetland 28 (Approx. Boundary)
150-ft Boundary

Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

Wetland LC-27
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

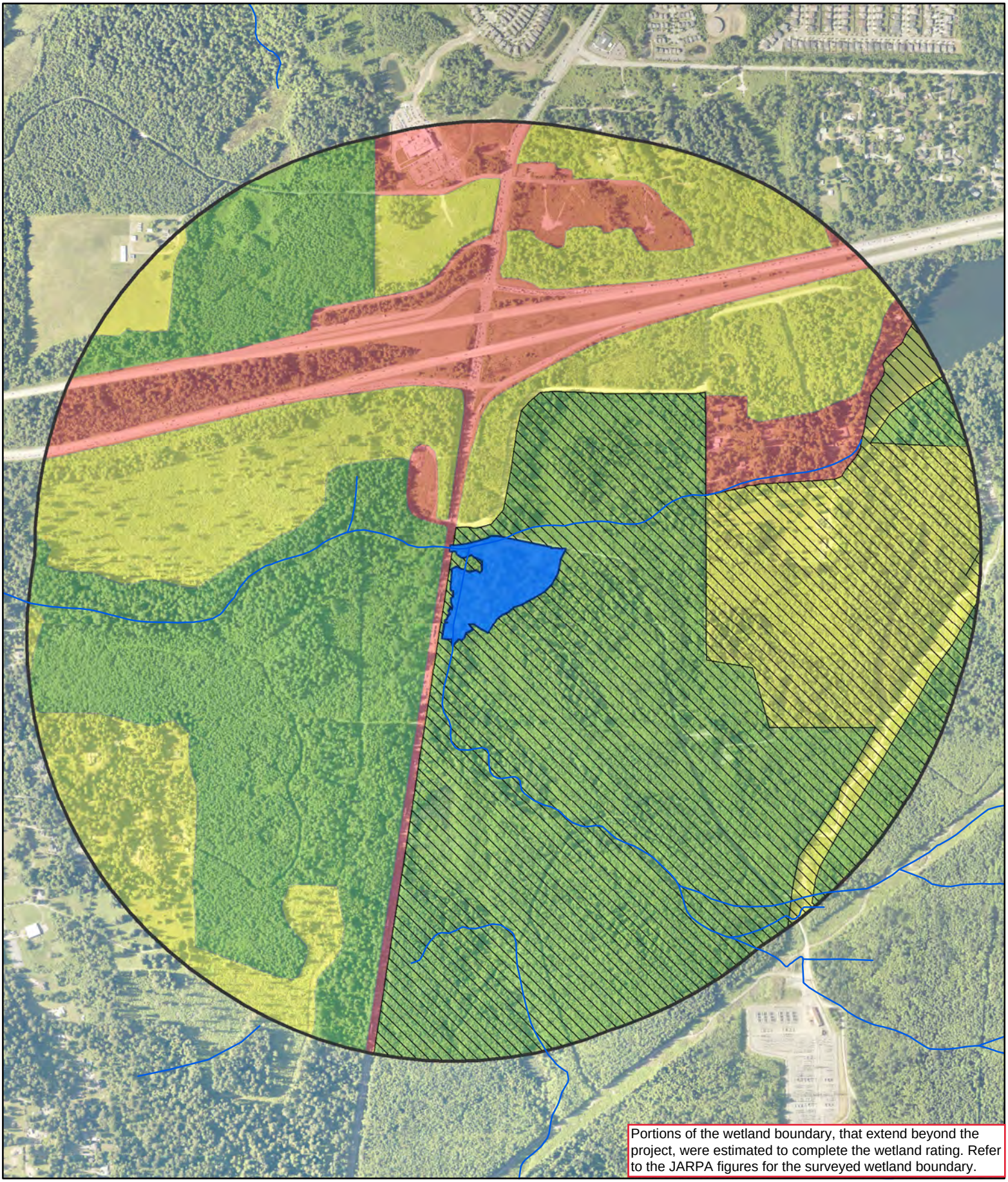
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 375 750 1,500 Feet

Wetland 28 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland LC-27
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 250 500 1,000 Feet

Wetland 28 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

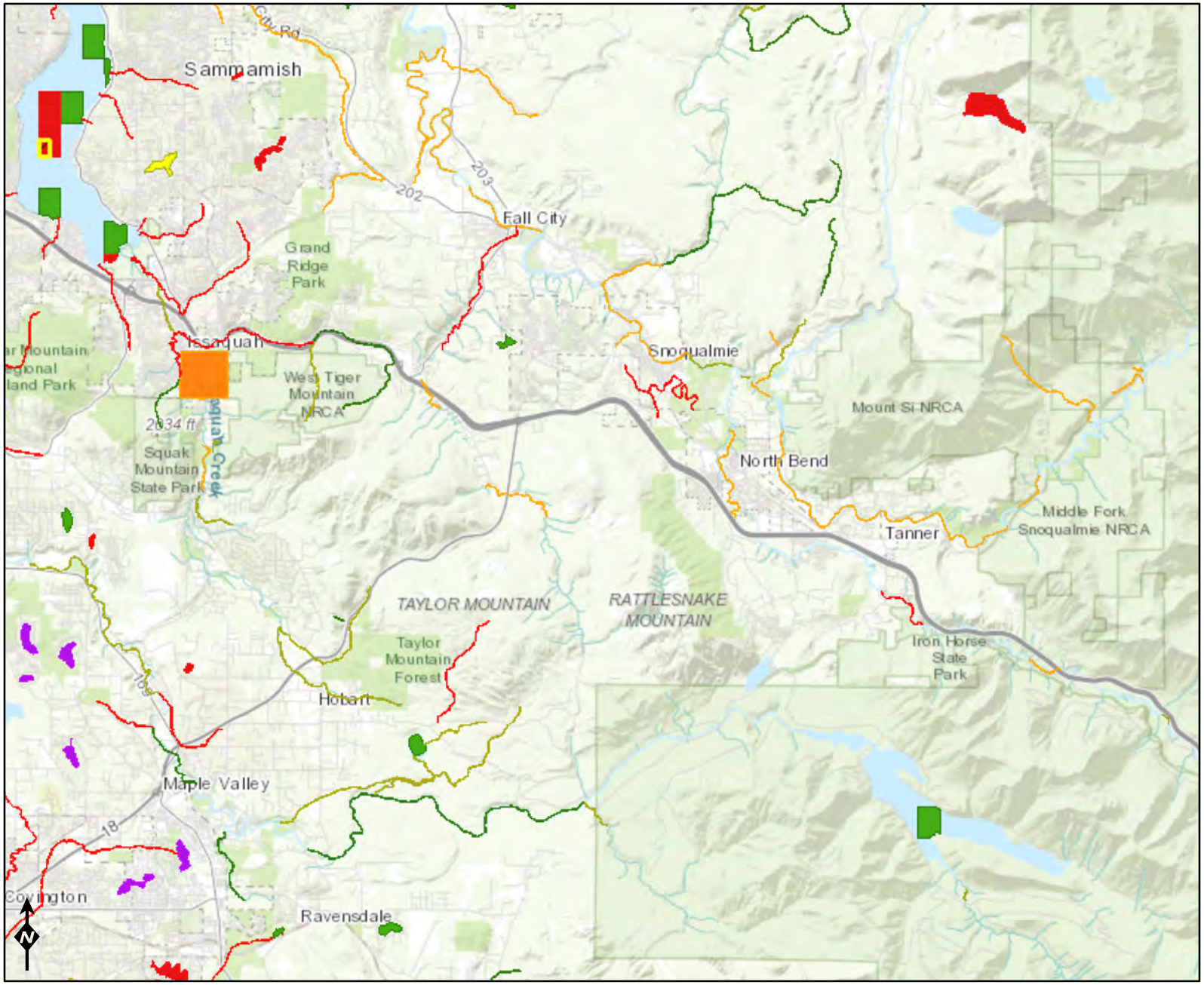
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-27
Land Use & Accessible Habitat
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

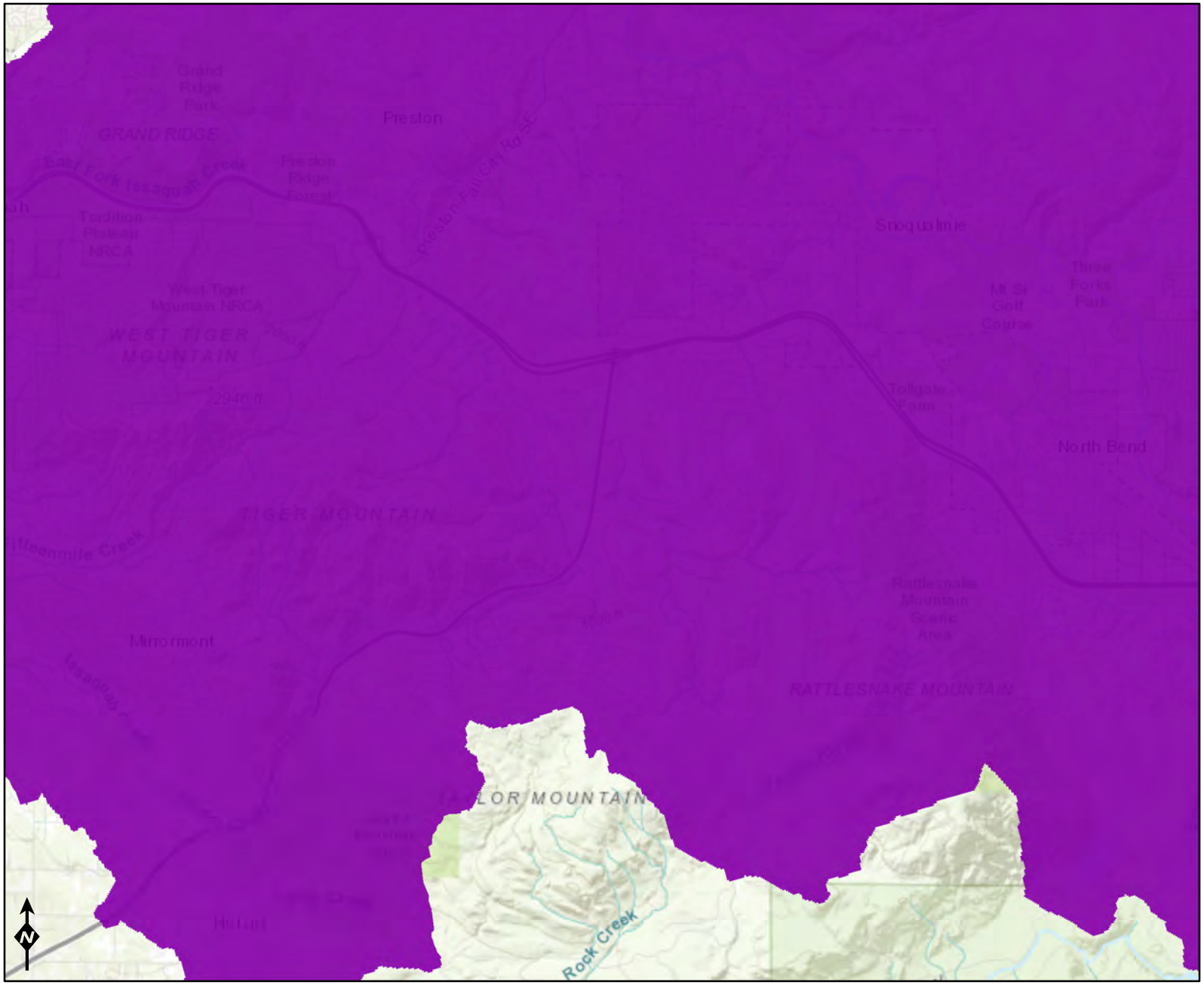
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-28 Date of site visit: 8/14/2018
(Updated 1/12/2022)

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY I (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

X **Category I** - Total score = 23 - 27
___ **Category II** - Total score = 20 - 22
___ **Category III** - Total score = 16 - 19
___ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	H	H	
Landscape Potential	M	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	7	8	9	**24**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number LC-28

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number LC-28

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0		5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		2
Total for D 1	Add the points in the boxes above	**9**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Roadside debris and garbage	Yes = 1 No = 0	1
Total for D 2	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number LC-28

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		7
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**12**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

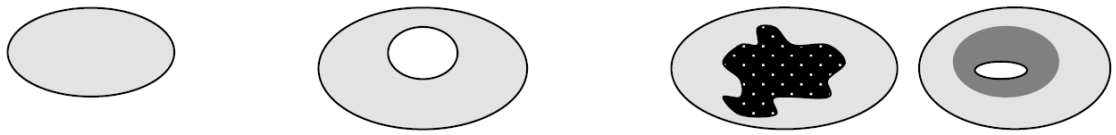
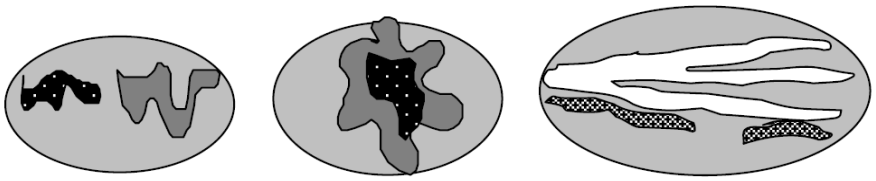
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	4
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☑ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	3
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	2
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	3

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☑ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
Total for H 1 Add the points in the boxes above	**17**

Rating of Site Potential If Score is: ☑ **15 - 18 = H** ☐ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 43 % undisturbed habitat + (11 % moderate & low intensity land uses / 2) = 48.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 65 % undisturbed habitat + (28 % moderate & low intensity land uses / 2) = 79% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☑ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

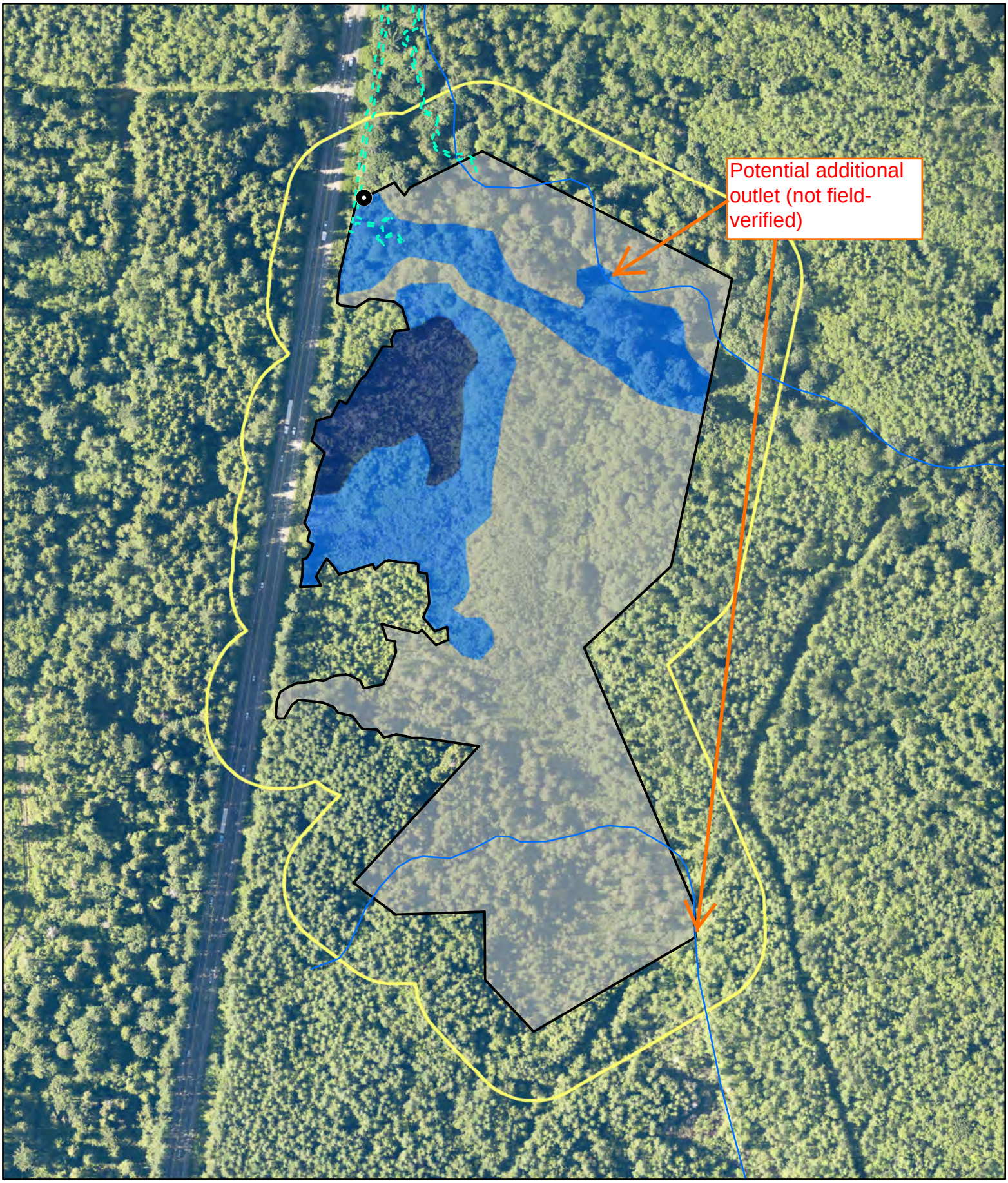
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 112.5 225 450 Feet

Wetland 21 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland LC-28
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

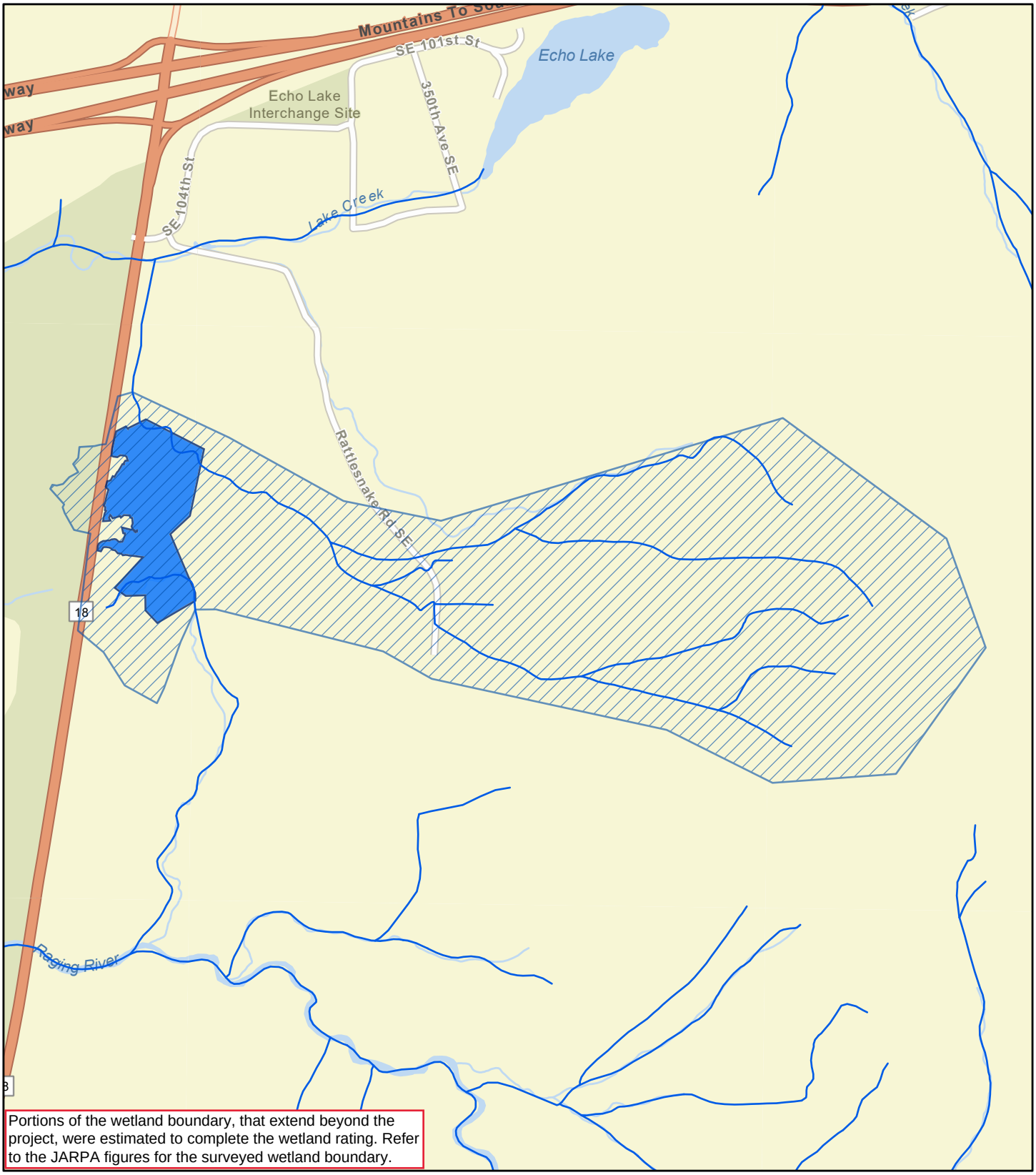
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 125 250 500 Feet

Wetland 21 (Approx. Boundary)
150-ft Boundary
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream
Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

Wetland LC-28
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



WETLAND LC-28 CONTRIBUTING BASIN

I-90/SR 18 INTERCHANGE AND WEIGHT/INSPECTION STATION DESIGN SERVICES PROJECT

KING COUNTY, WA

Legend

- WDNR Streams
- Contributing Basin
- LC-28 (Approximate Boundary)

0 1,000 2,000 Feet

N

Otak

Data Sources:
Date: 1/12/2022
Disclaimer: This data is not to survey accuracy and is meant for planning purposes only.

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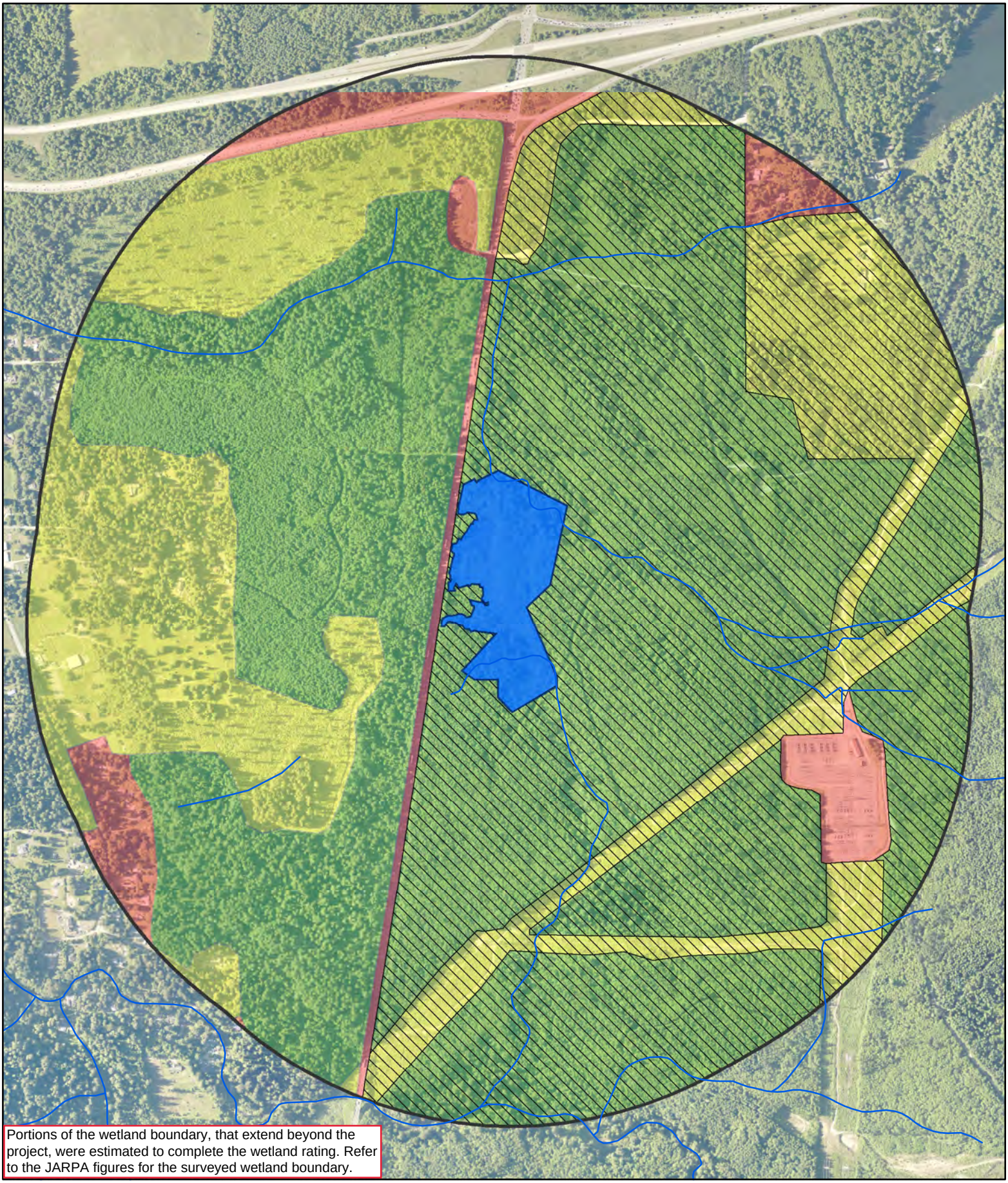


Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 250 500 1,000 Feet

Wetland 21 (Approximate Boundary)
1-km Polygon
WDNR Streams

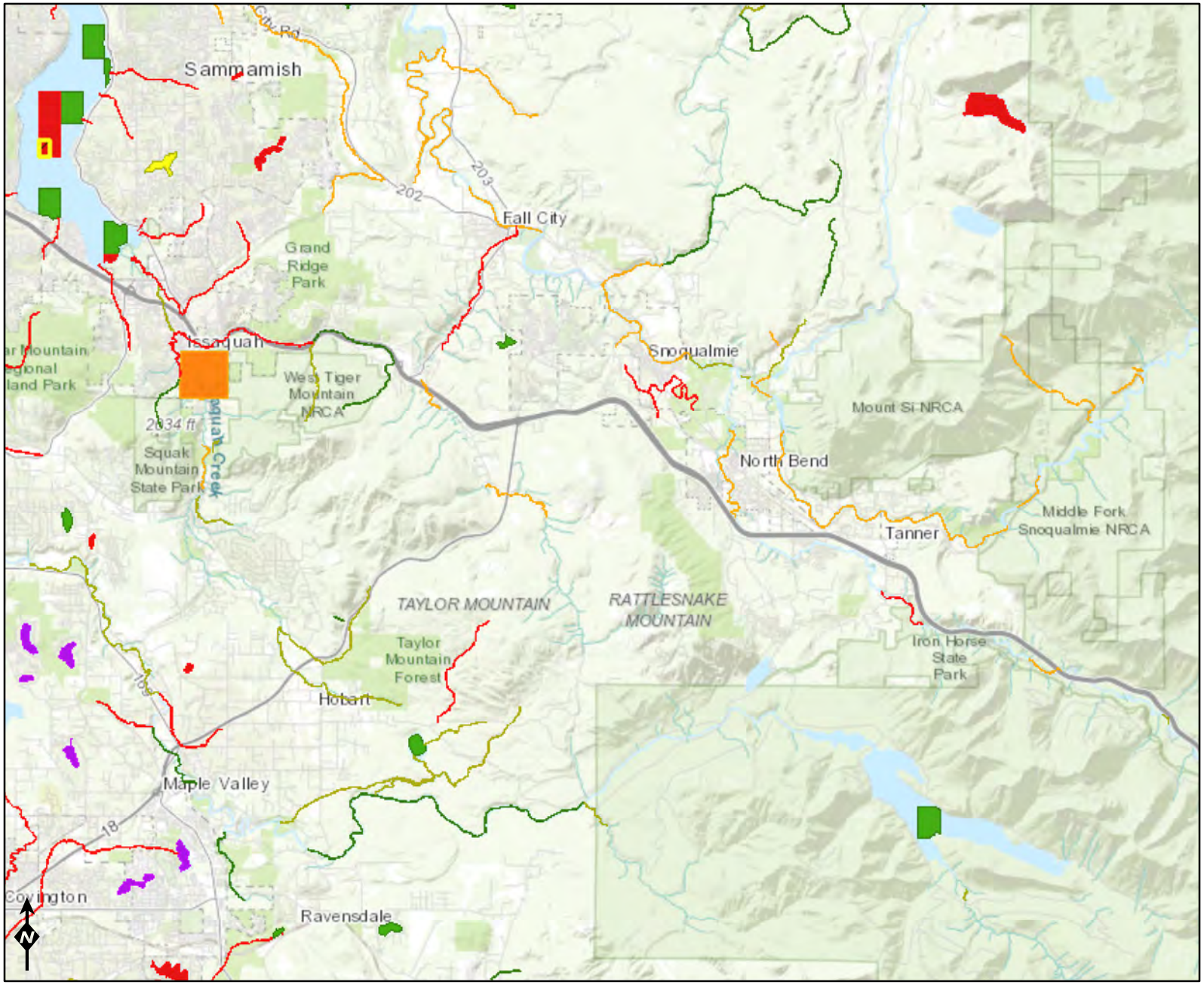
Accessible Habitat

Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland LC-28
Land Use & Accessible Habitat
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

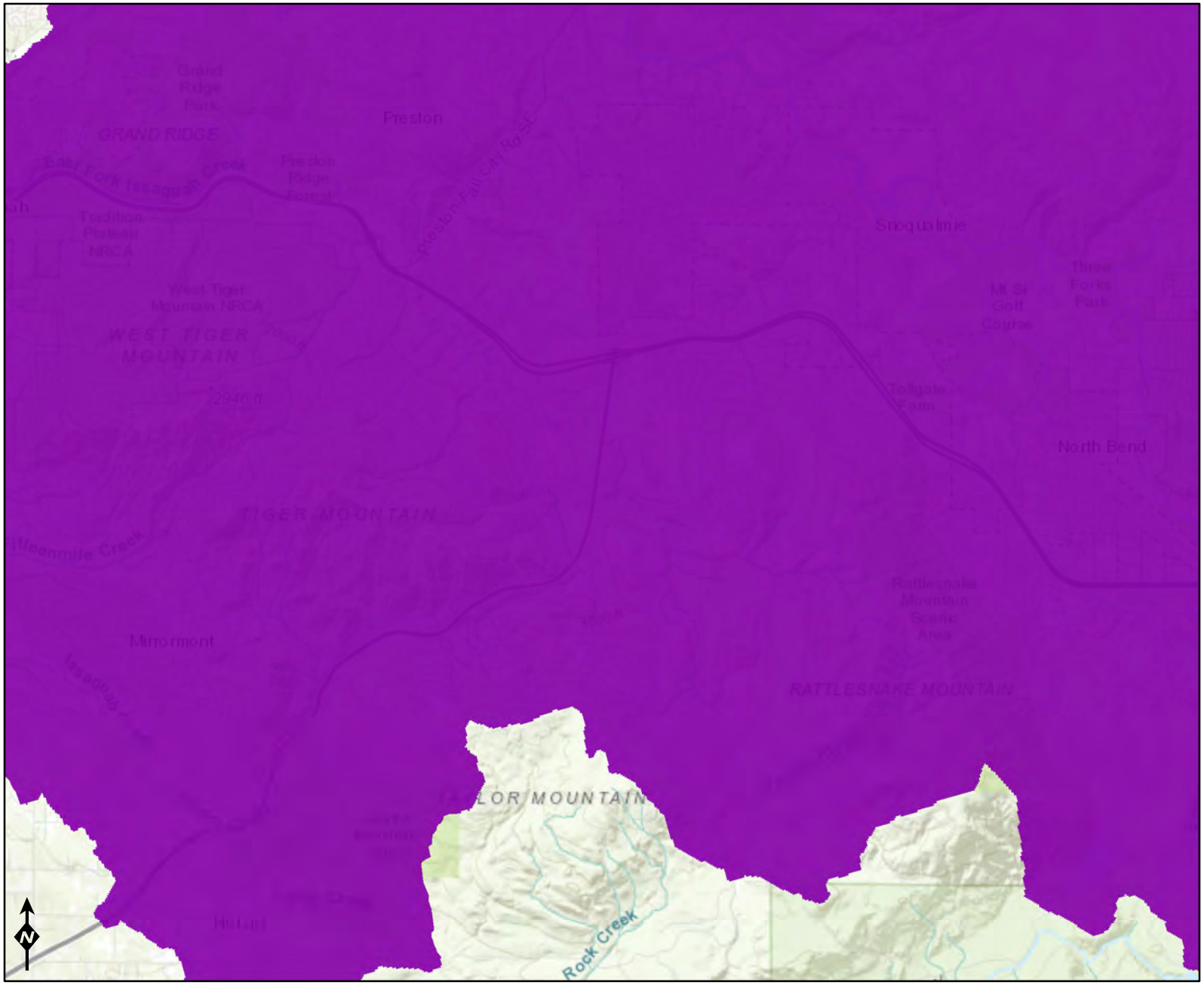
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland LC-29 Date of site visit: 6/13/2019

Rated by R. Boyle Trained by Ecology? ☑ Yes ☐ No Date of training 18-Oct

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map Statewide_2017_1ft_4band_wsps_83h

OVERALL WETLAND CATEGORY _____ (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
X **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	H	M	
Landscape Potential	M	M	H	
Value	H	H	M	**Total**
Score Based on Ratings	7	8	7	**22**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	3
Map of the contributing basin	D 4.3, D 5.3	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☒ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☒ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☒ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☒ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☒ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☒ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		3
Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).	points = 3	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	points = 2	
☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):		3
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > ½ of area	points = 3	
Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area	points = 1	
Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area	points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:		2
This is the area that is ponded for at least 2 months. See description in manual.		
Area seasonally ponded is > ½ total area of wetland	points = 4	
Area seasonally ponded is > ¼ total area of wetland	points = 2	
Area seasonally ponded is < ¼ total area of wetland	points = 0	
Total for D 1	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**3**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		4
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		5
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**12**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

☐ Aquatic bed	4 structures or more: points = 4	1
☑ Emergent	3 structures: points = 2	
☑ Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points - 1	
☐ Forested (areas where trees have > 30% cover)	1 structure: points = 0	

If the unit has a Forested class, check if:

☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

☐ Permanently flooded or inundated	4 or more types present: points = 3	1
☑ Seasonally flooded or inundated	3 types present: points = 2	
☐ Occasionally flooded or inundated	2 types present: points = 1	
☑ Saturated only	1 types present: points = 0	
☐ Permanently flowing stream or river in, or adjacent to, the wetland		
☐ Seasonally flowing stream in, or adjacent to, the wetland		
☐ **Lake Fringe wetland**	**2 points**	
☐ **Freshwater tidal wetland**	**2 points**	

H 1.3. Richness of plant species

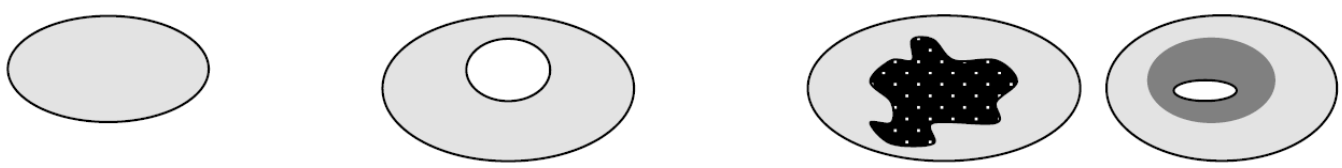
Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

1

If you counted:	> 19 species	points = 2
	5 - 19 species	points = 1
	< 5 species	points = 0

H 1.4. Interspersion of habitats

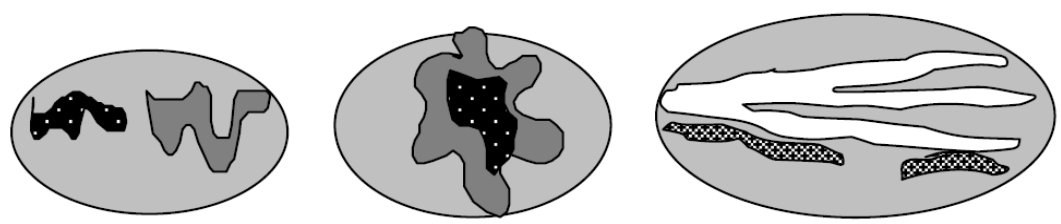
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points **Low** = 1 point **Moderate** = 2 points

1

All three diagrams in this row are **HIGH** = 3 points



H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 Add the points in the boxes above	**8**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 24.4 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 24.4% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 60.44 % undisturbed habitat + (4.3 % moderate & low intensity land uses / 2) = 62.59% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**5**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☑ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☑ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☑ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Wetland Rating for Western Washington 2014 Update

N

0 45 90 180
Feet

wetland
PEM
PSS

I-90/SR 18 Interchange
Wetland LC-29

Cowardin Plant Classes Map
Questions D 1.3, H 1.1, H 1.4

Washington State Department of Transportation

Fig1_D_Cowardin

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Figure 1

Wetland Rating for Western Washington 2014 Update

N

0 35 70 140
Feet

wetland
seasonally inundated (SI)
saturated only (SO)

I-90/SR 18 Interchange
Wetland LC-29

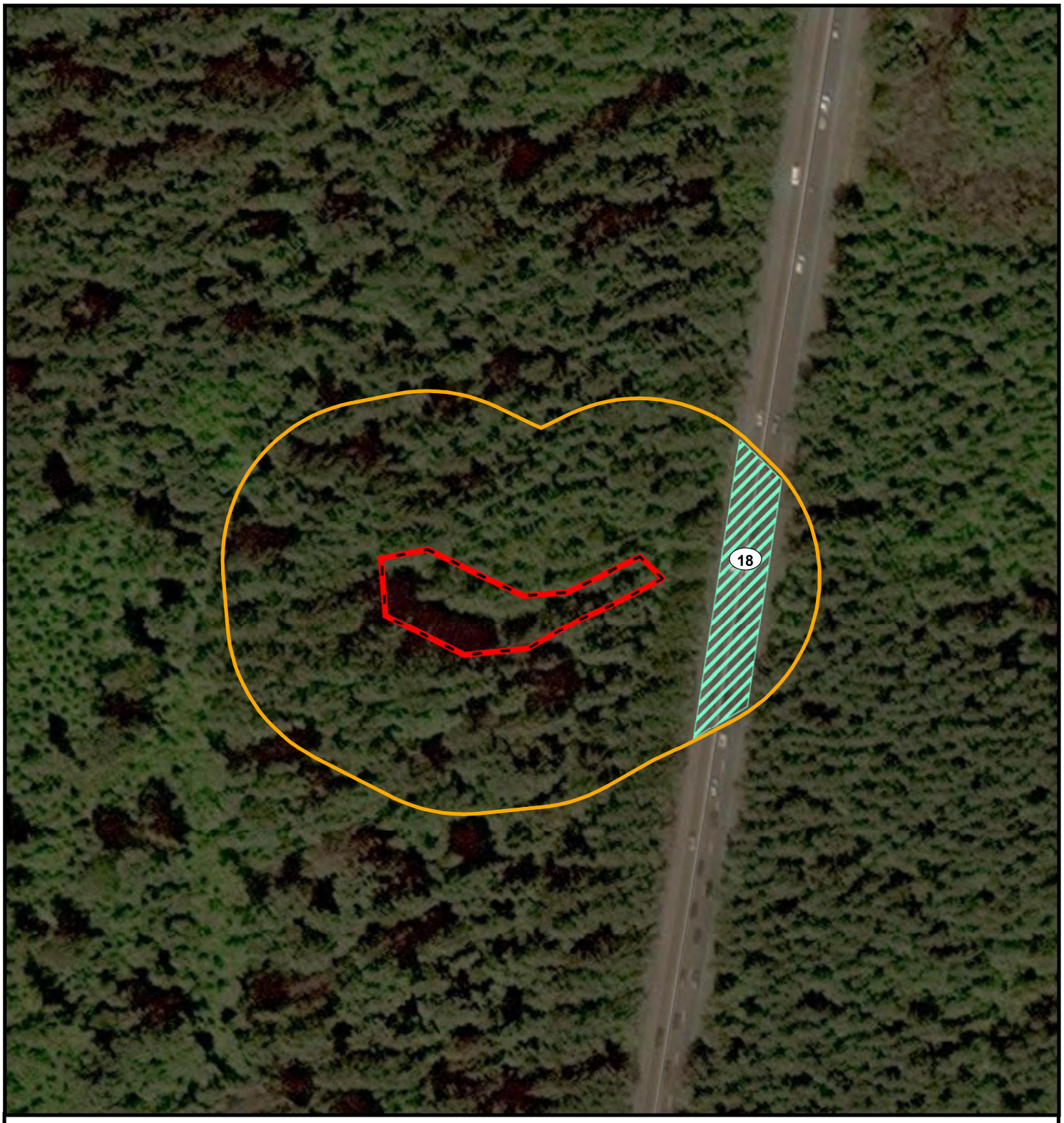
Hydroperiods & Location of Outlet Map
Questions D 1.1, D 1.4, D 4.1, H 1.2

Washington State Department of Transportation

Fig2_D_Hydroperiods&Outlet

Date Saved: 5/15/2020 12:12:11 PM

Figure 2



Wetland Rating for Western Washington 2014 Update

N

0 55 110 220
Feet

I-90/SR 18 Interchange
Wetland LC-29

150 ft Buffer
wetland
pollutant generating surfaces

Washington State Department of Transportation

150 ft Polygon Map
Questions D 2.2, D 5.2

Fig3_D_150ftPolygon

Date Saved: 5/15/2020 12:36:40 PM

Figure 3

Wetland Rating for Western Washington 2014 Update

N

0 80 160 320
Feet

Contributing Basin
wetland

I-90/SR 18 Interchange
Wetland LC-29

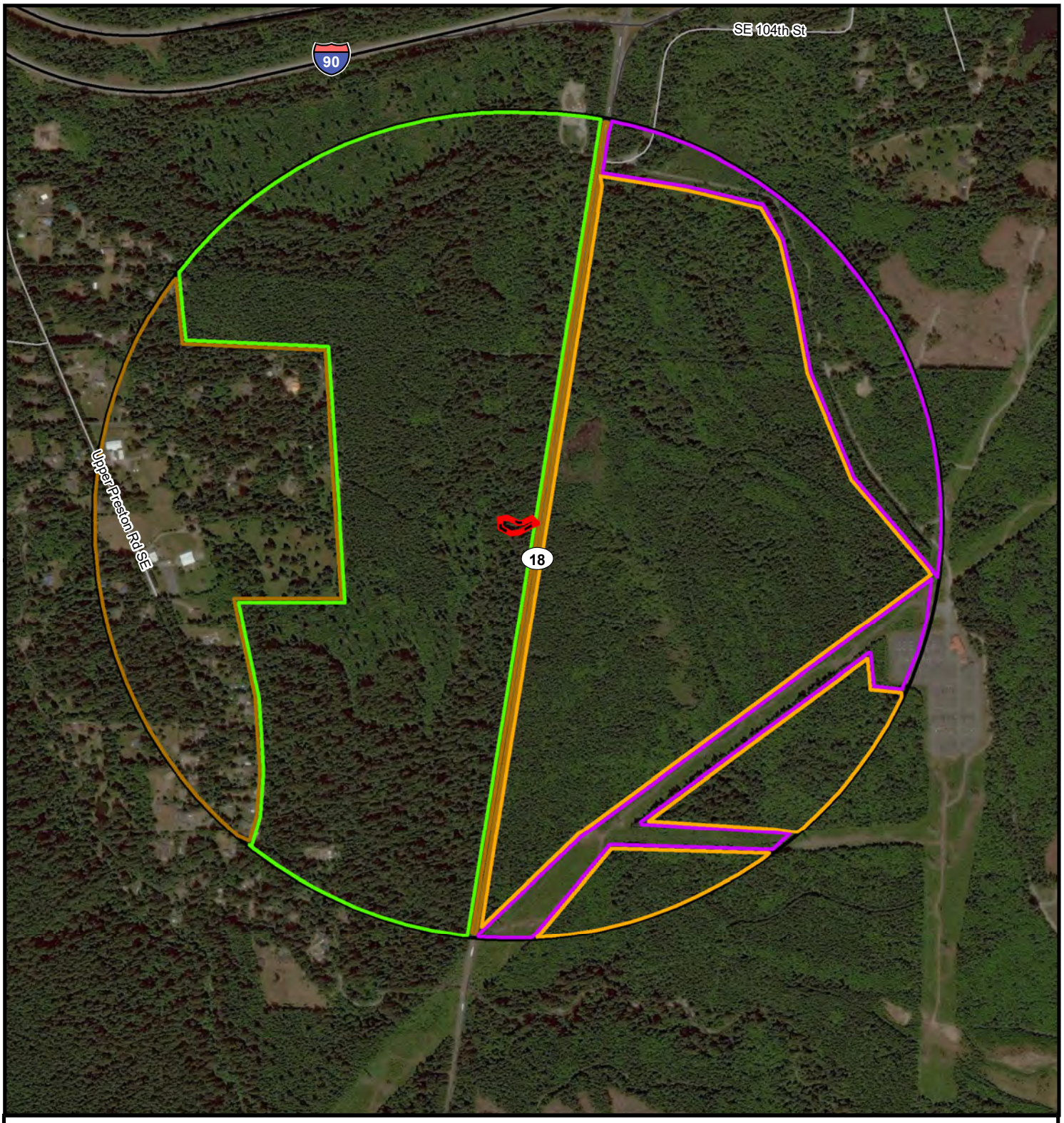
Contributing Basin Map
Questions D 4.3, D 5.3

Washington State Department of Transportation

Fig4_D_ContributingBasin

Date Saved: 5/15/2020 12:51:43 PM

Figure 4



Wetland Rating for Western Washington 2014 Update

N

0 0.15 0.3 0.6
Kilometers

Washington State Department of Transportation

Fig5_D_1KmPolygon

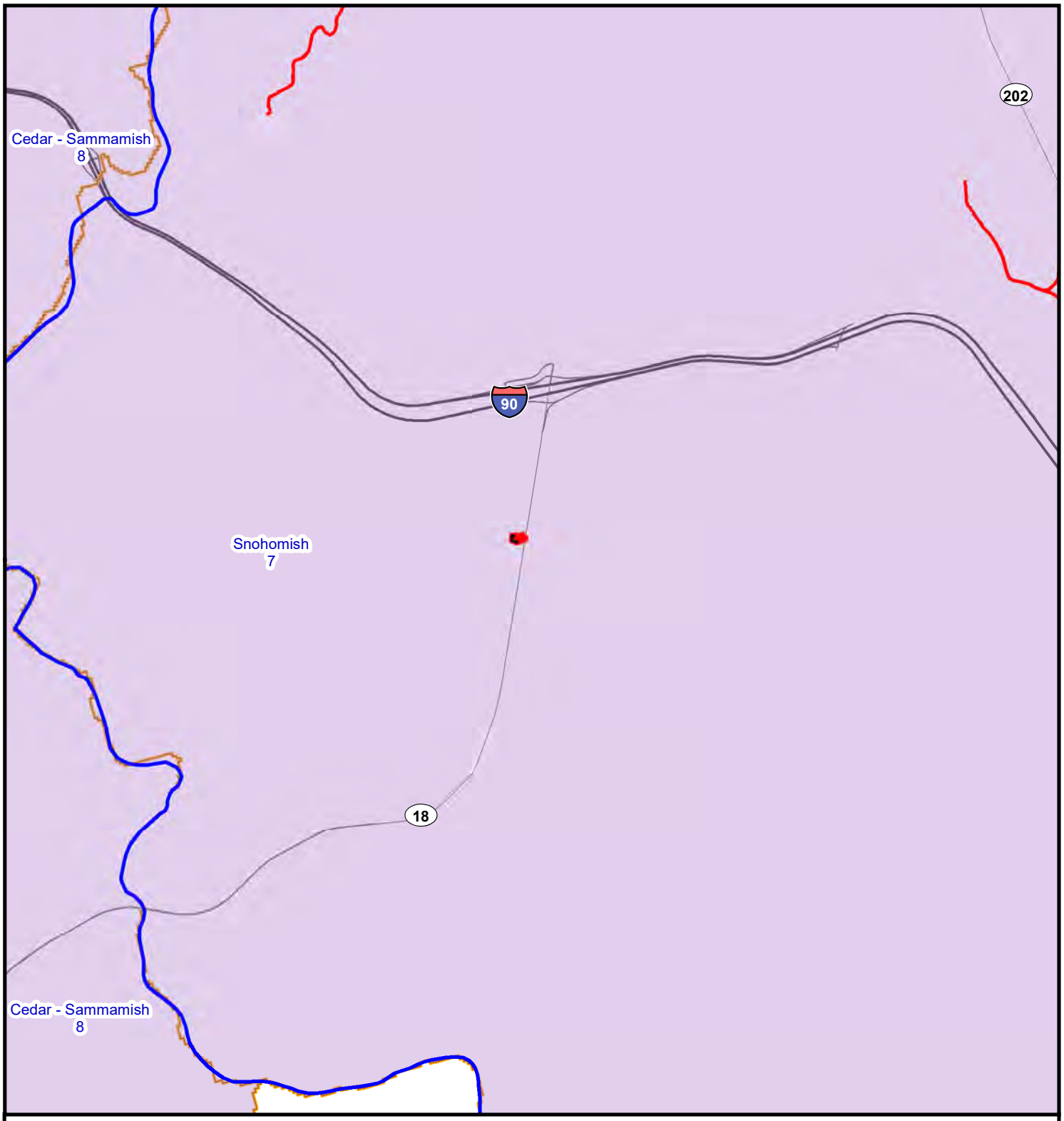
Date Saved: 5/15/2020 1:07:54 PM

1 km Buffer
wetland
contiguous undisturbed
separated undisturbed
separated moderate to low intensity
high intensity land use

I-90/SR 18 Interchange
Wetland LC-29

1 km Polygon Map
Questions H 2.1, H 2.2, H 2.3

Figure 3



Wetland Rating for Western Washington 2014 Update

N

0 1,850 3,700 7,400
Feet

Washington State
Department of Transportation

wetland
WRIA (1:24K)
Category 5 Impaired Waters
Approved TMDLs
TMDLs in Development

I-90/SR 18 Interchange
Wetland LC-29

303(d) listed waters in basin & TMDL's for WRIA Map
Questions D 3.1, D 3.2, D 3.3

Fig6_D_303(d)&TMDLs

Date Saved: 12/17/2018 2:01:03 PM

Figure 6

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland RR-02 Date of site visit: 8/27/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
X **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	H	M	M	
Landscape Potential	L	L	H	
Value	H	H	H	**Total**
Score Based on Ratings	7	6	8	**21**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number RR-02

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number RR-02

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1 Add the points in the boxes above	**12**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☐ **1 or 2 = M** ☑ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number RR-02

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		4
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**10**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐**3 = H** ☐**1 or 2 = M** ☑**0 = L** *Record the rating on the first page*

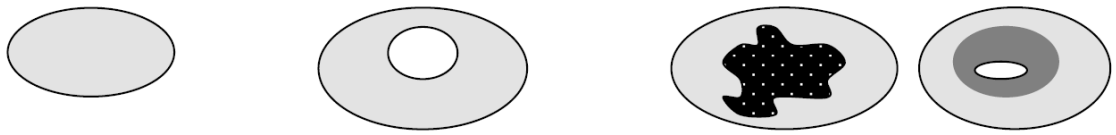
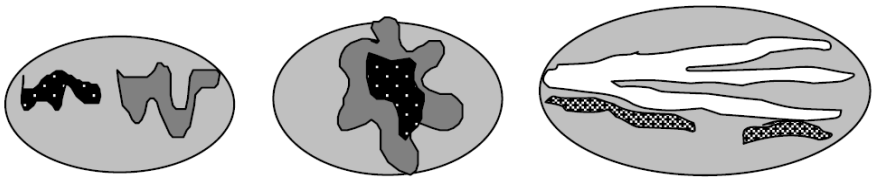
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**9**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 72 % undisturbed habitat + (21 % moderate & low intensity land uses / 2) = 82.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 72 % undisturbed habitat + (21 % moderate & low intensity land uses / 2) = 82.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☑ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 31 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland RR-02
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 31 (Approx. Boundary)
150-ft Boundary

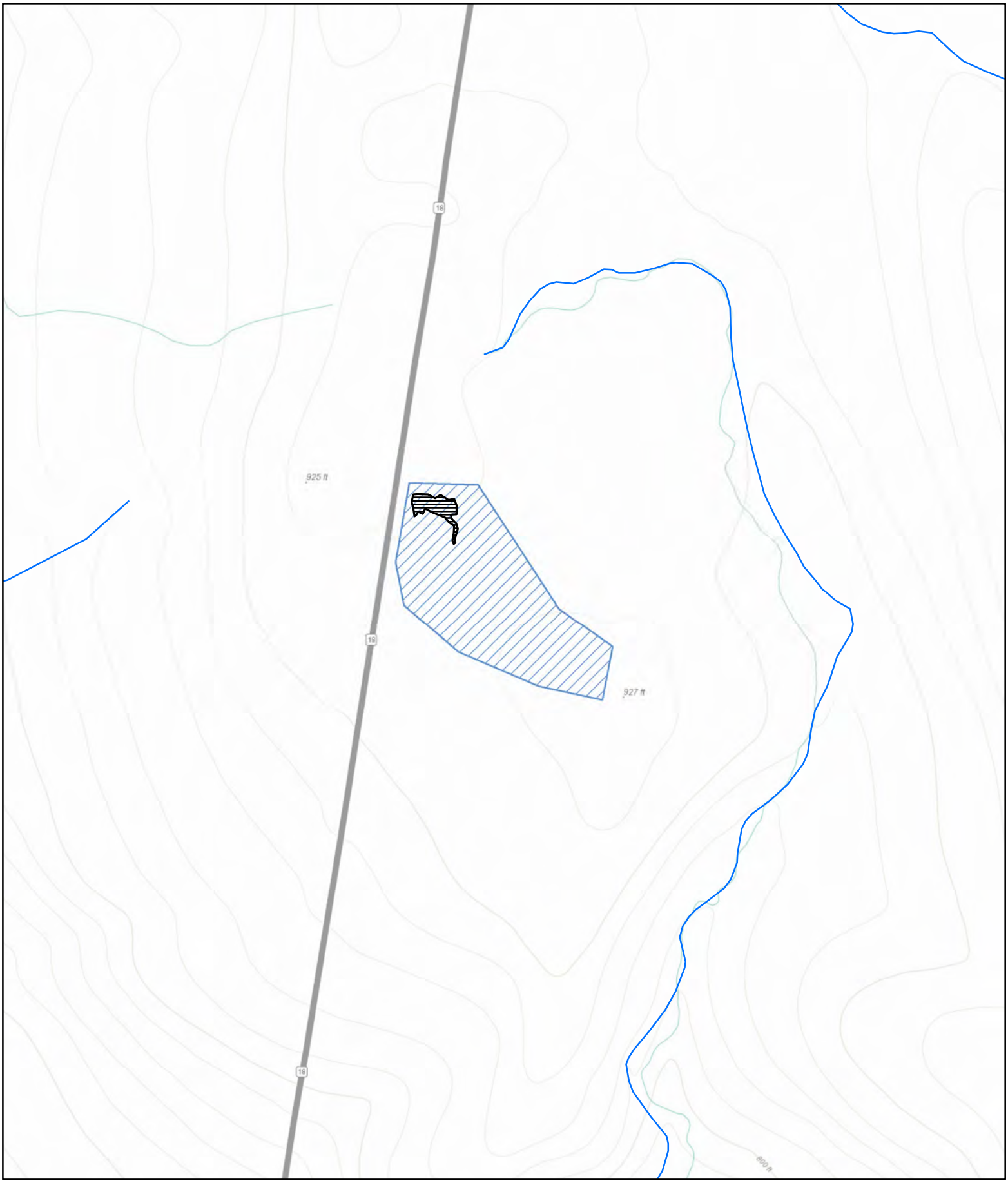
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland RR-02
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

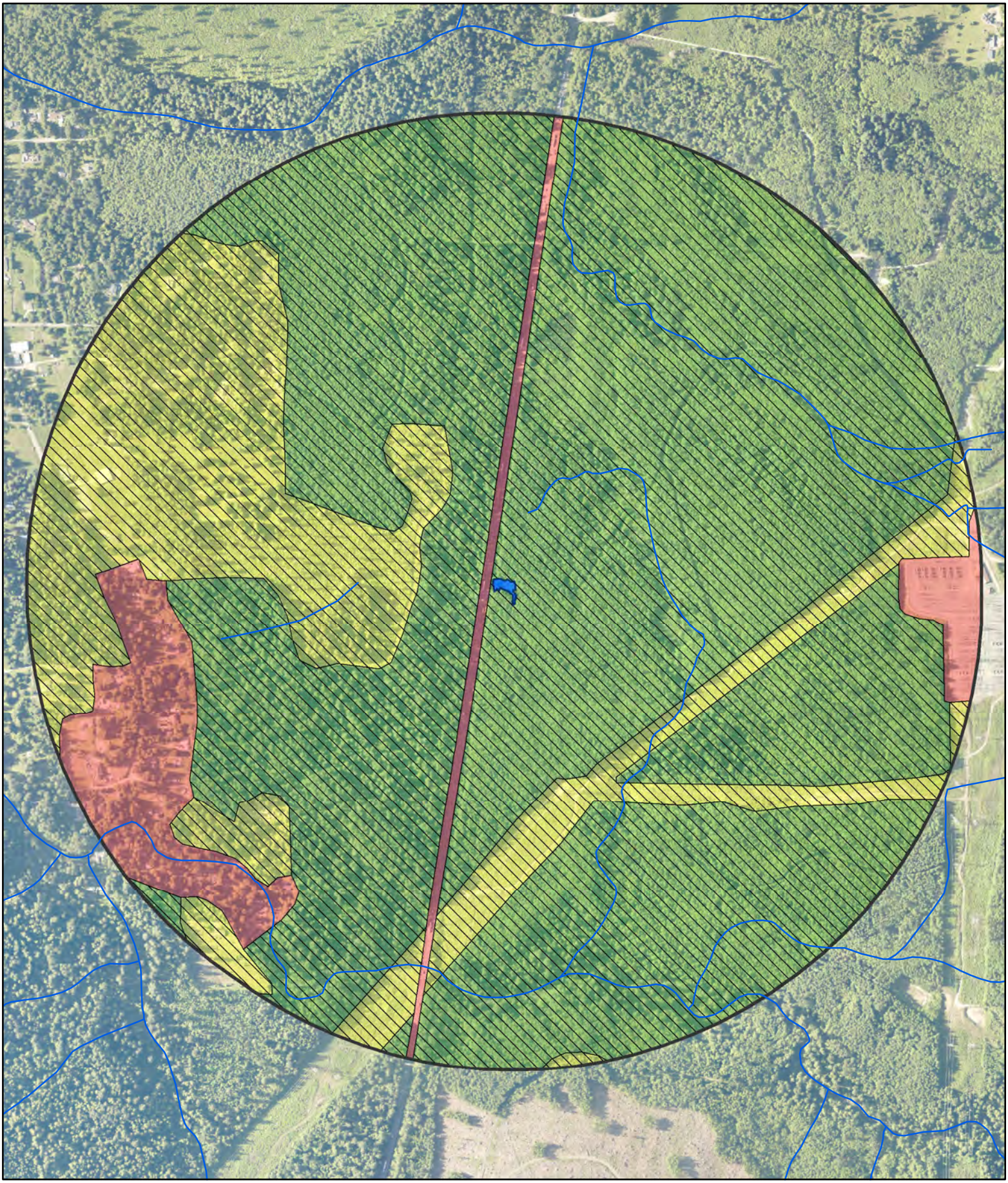
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 31 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland RR-02
Contributing Basin
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 31 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

Land Use Intensity

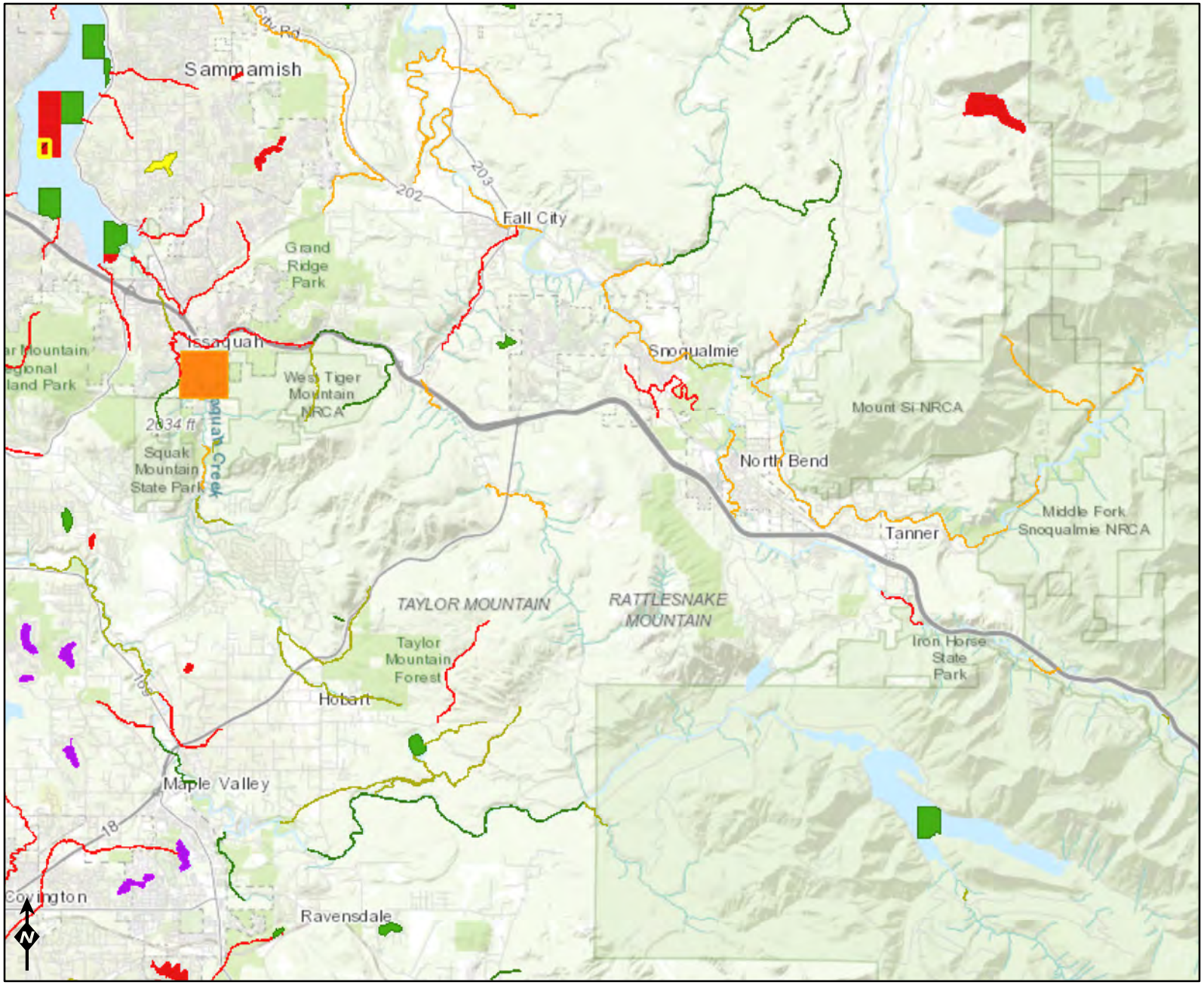
High
Moderate and Low
Undisturbed

Wetland RR-02
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

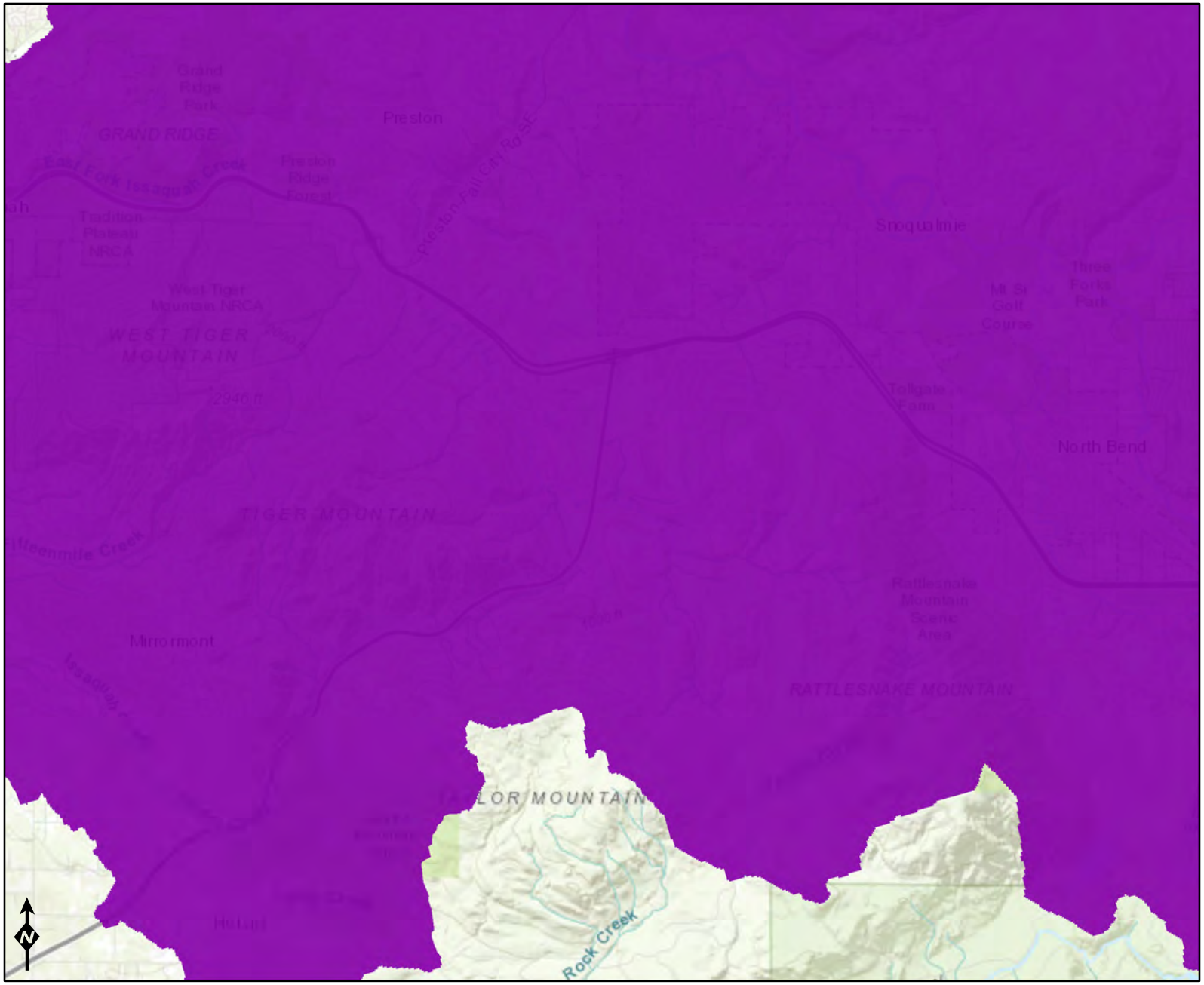
Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland RR-03 Date of site visit: 8/27/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
X **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	M	
Landscape Potential	L	L	H	
Value	H	H	H	**Total**
Score Based on Ratings	6	6	8	**20**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number RR-03

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number RR-03

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1 Add the points in the boxes above	**10**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☐ **1 or 2 = M** ☑ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number RR-03

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		4
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**10**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐**3 = H** ☐**1 or 2 = M** ☑**0 = L** *Record the rating on the first page*

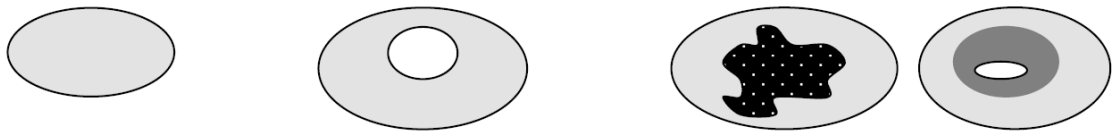
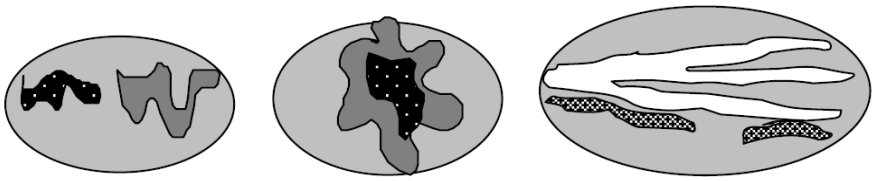
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 — Add the points in the boxes above	**8**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 71 % undisturbed habitat + (22 % moderate & low intensity land uses / 2) = 82% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 71 % undisturbed habitat + (22 % moderate & low intensity land uses / 2) = 82% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☑ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 30 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland RR-03
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 30 (Approx. Boundary)
150-ft Boundary

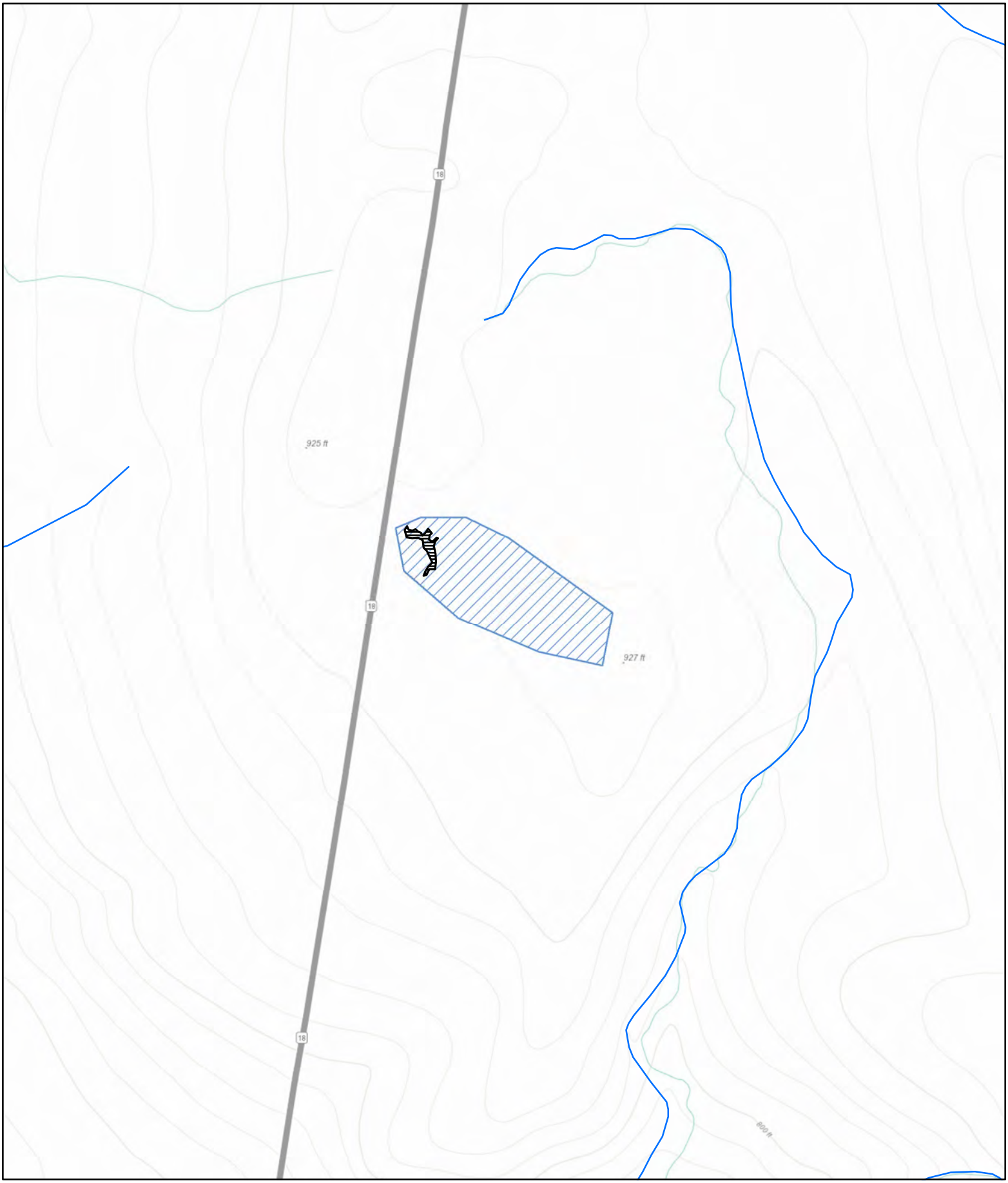
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland RR-03
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

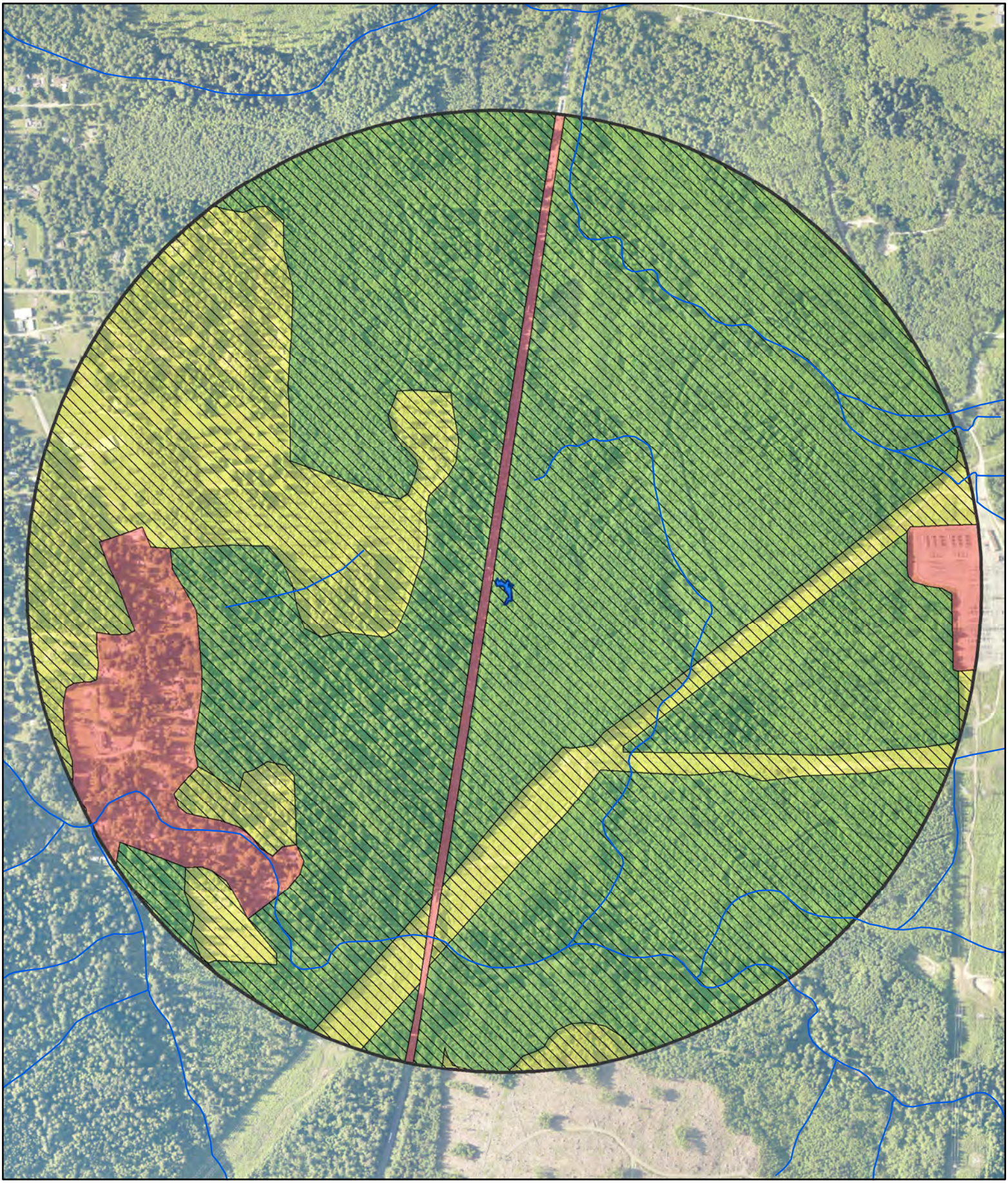
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 30 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland RR-03
Contributing Basin
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 30 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

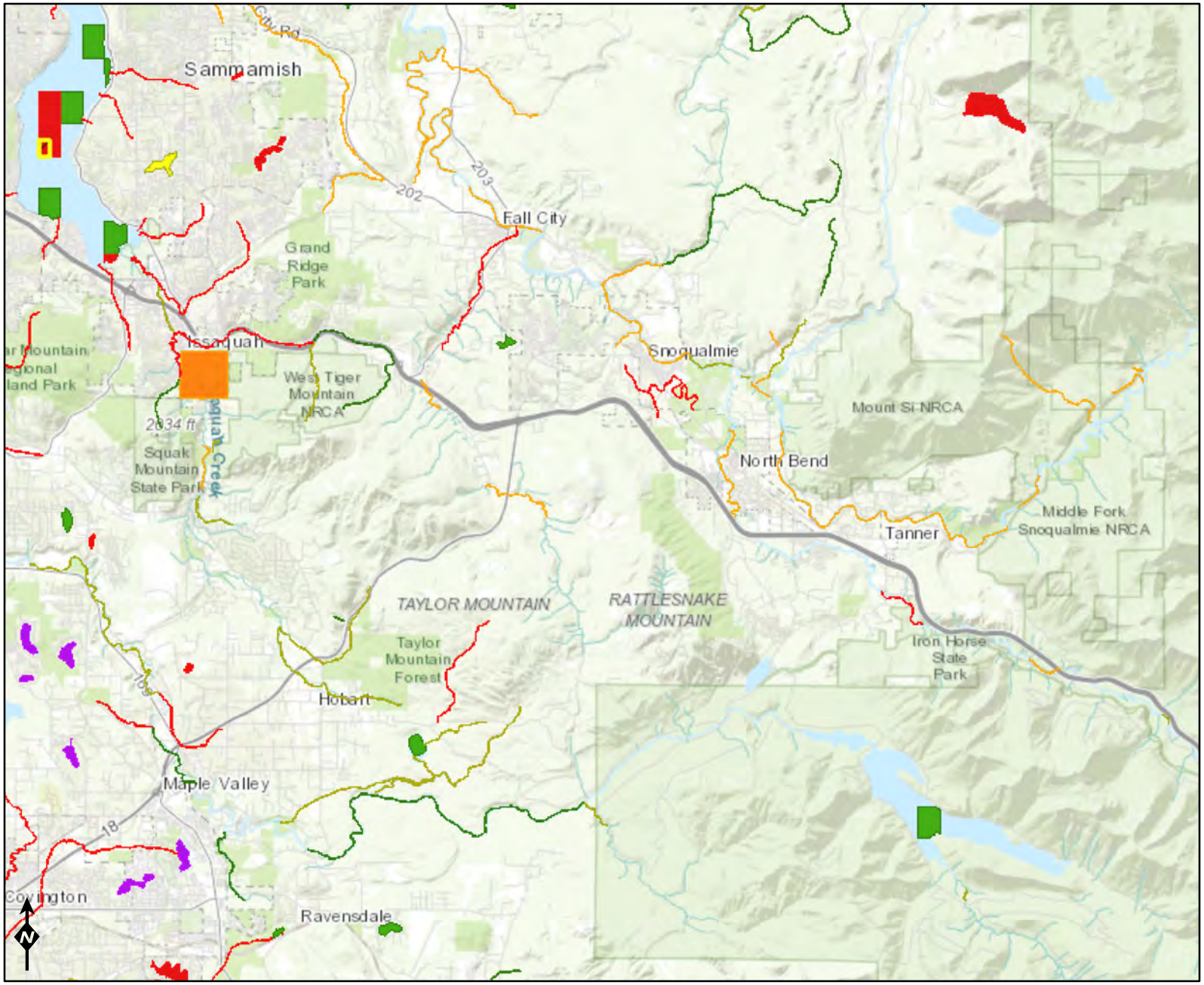
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland RR-03
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

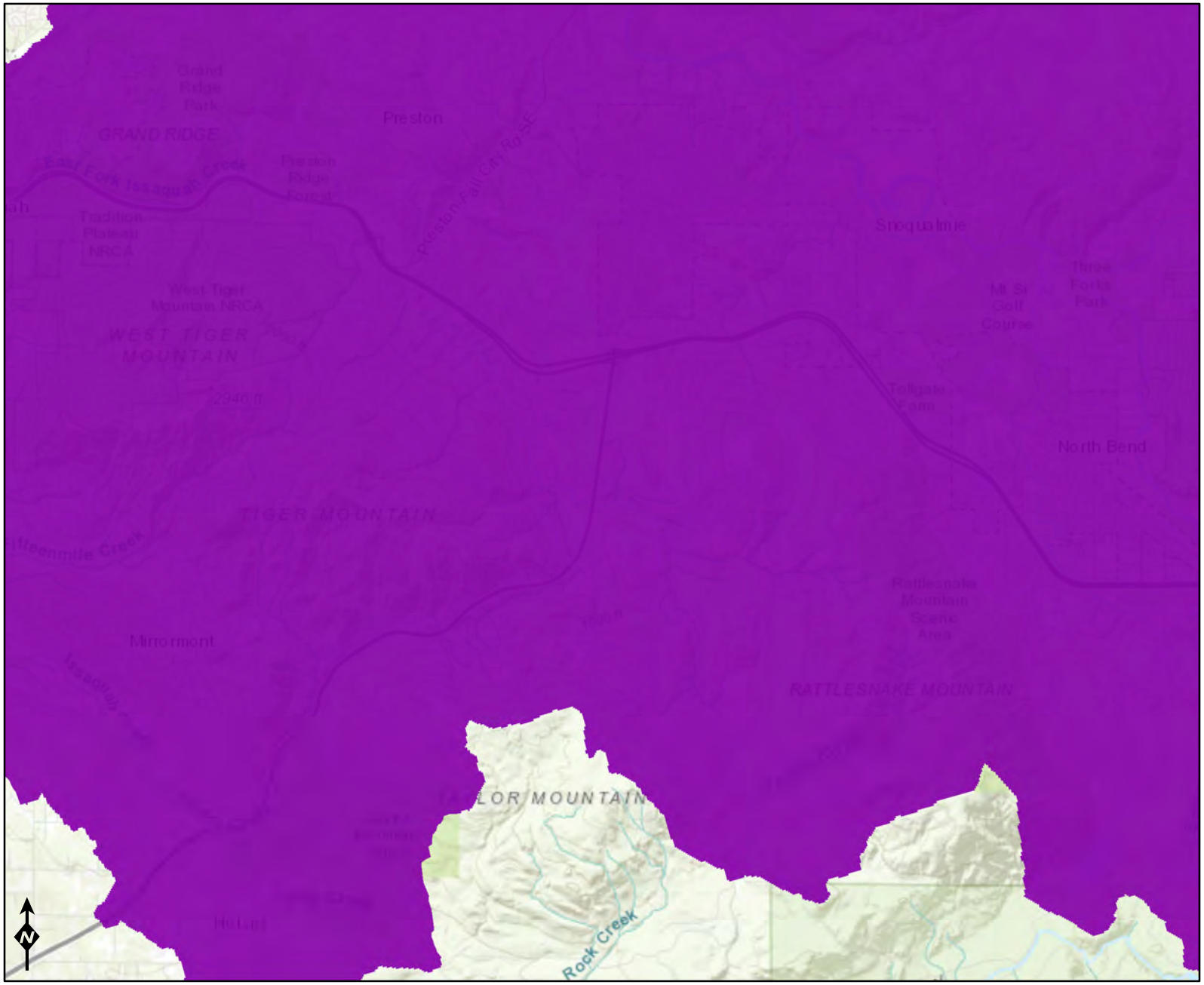
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland RR-04 Date of site visit: 8/27/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	M	
Landscape Potential	L	L	H	
Value	H	H	H	**Total**
Score Based on Ratings	6	5	8	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number RR-04

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☑ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☑ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:
3 HGM CLASSES PRESENT: a portion of the wetland is slope, a portion is riverine, and a portion is depressional.

Wetland name or number RR-04

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	0
Total for D 1 Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☐ **1 or 2 = M** ☑ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number RR-04

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		0
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☐**6 - 11 = M** ☑**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐**3 = H** ☐**1 or 2 = M** ☑**0 = L** *Record the rating on the first page*

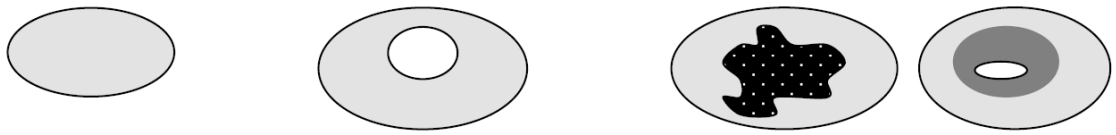
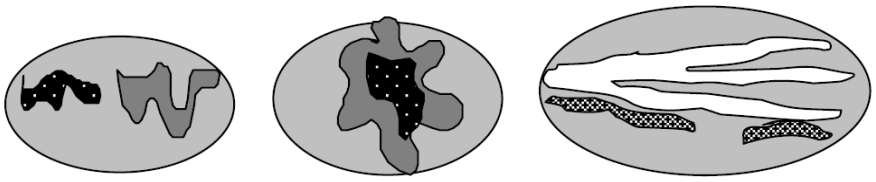
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**8**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 69 % undisturbed habitat + (24 % moderate & low intensity land uses / 2) = 81% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 69 % undisturbed habitat + (24 % moderate & low intensity land uses / 2) = 81% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☑ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 29 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 37.5 75 150 Feet

Wetland RR-04
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 29 (Approx. Boundary)
150-ft Boundary

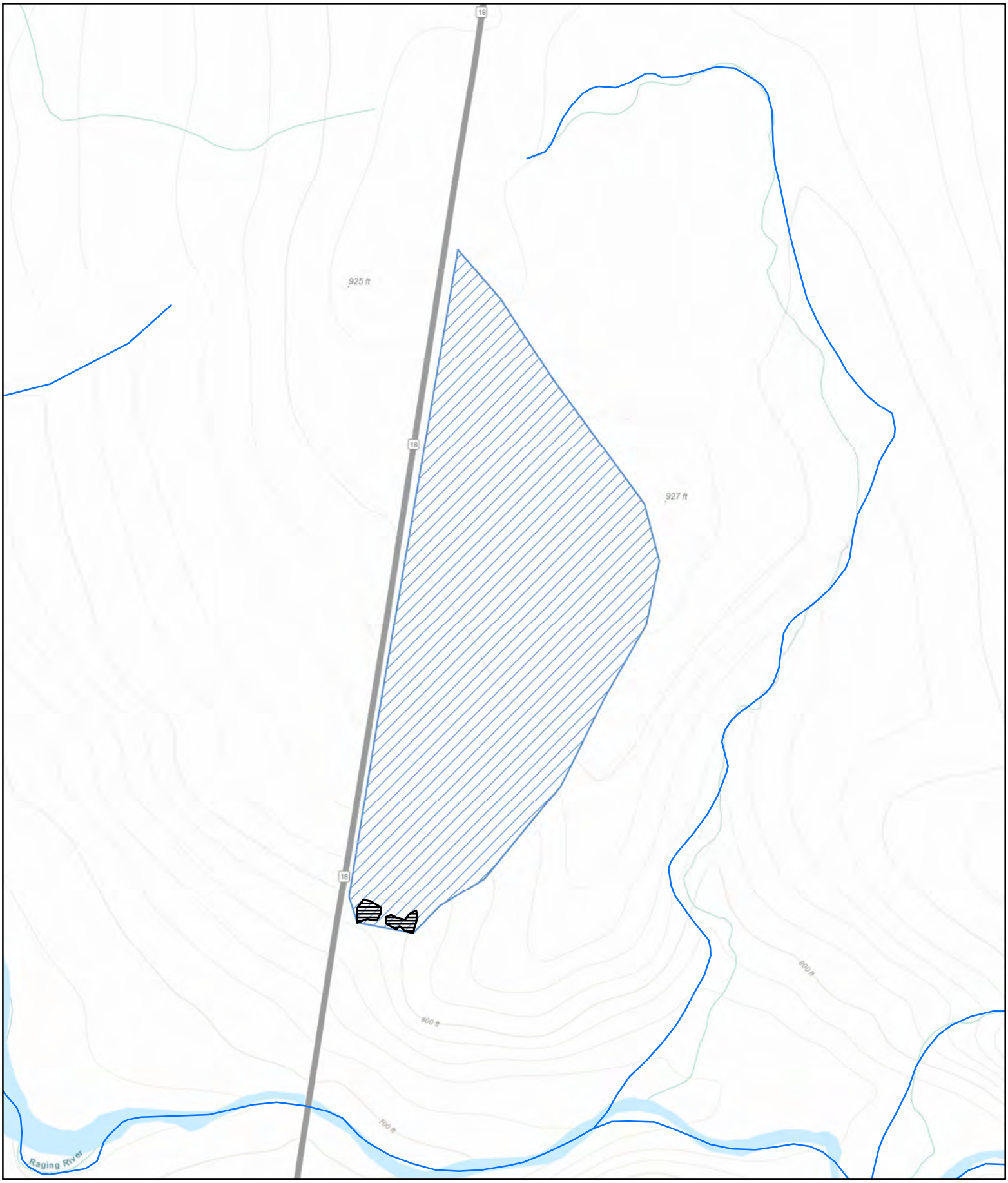
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland RR-04
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

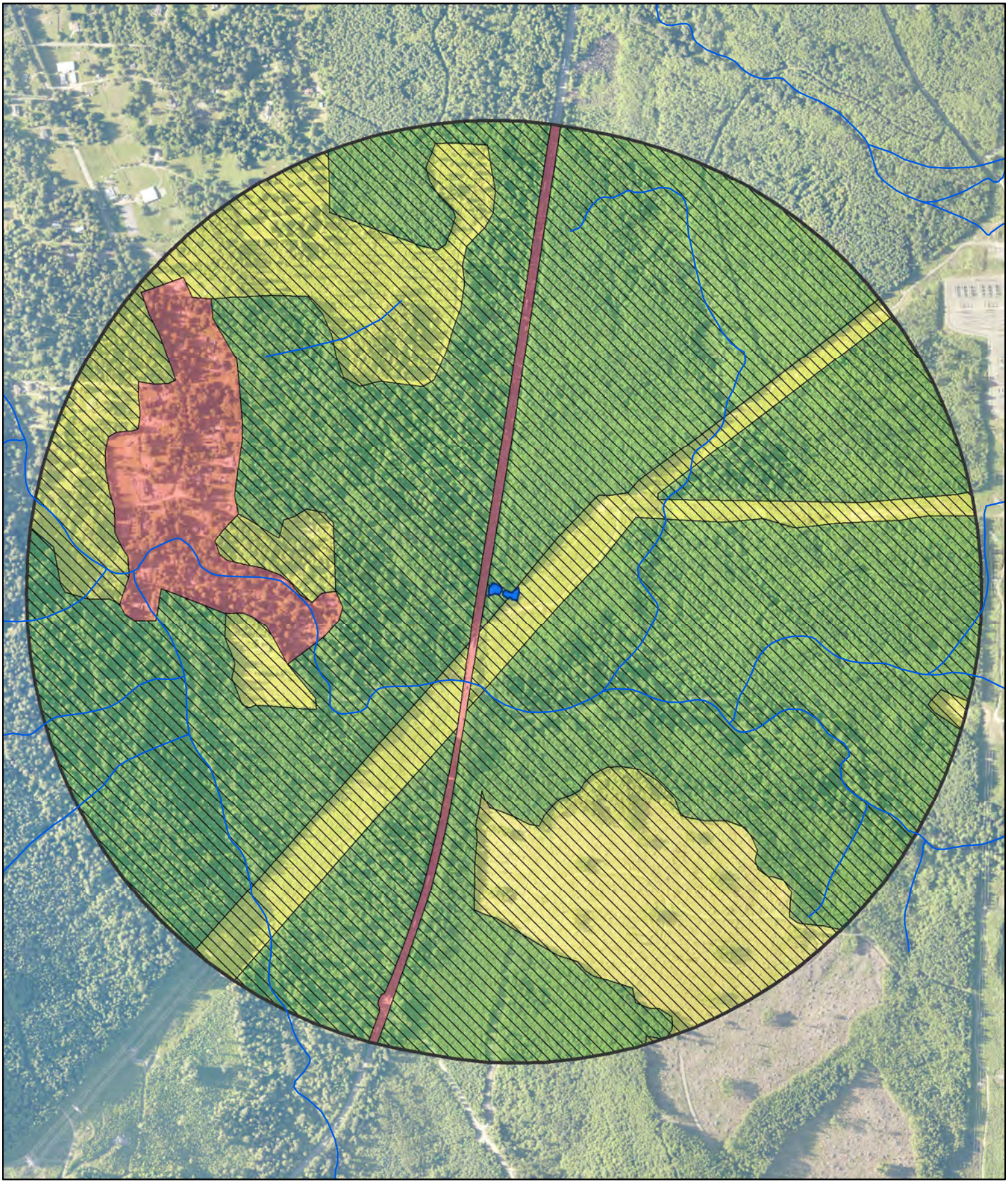
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 29 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland RR-04
Contributing Basin
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 29 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

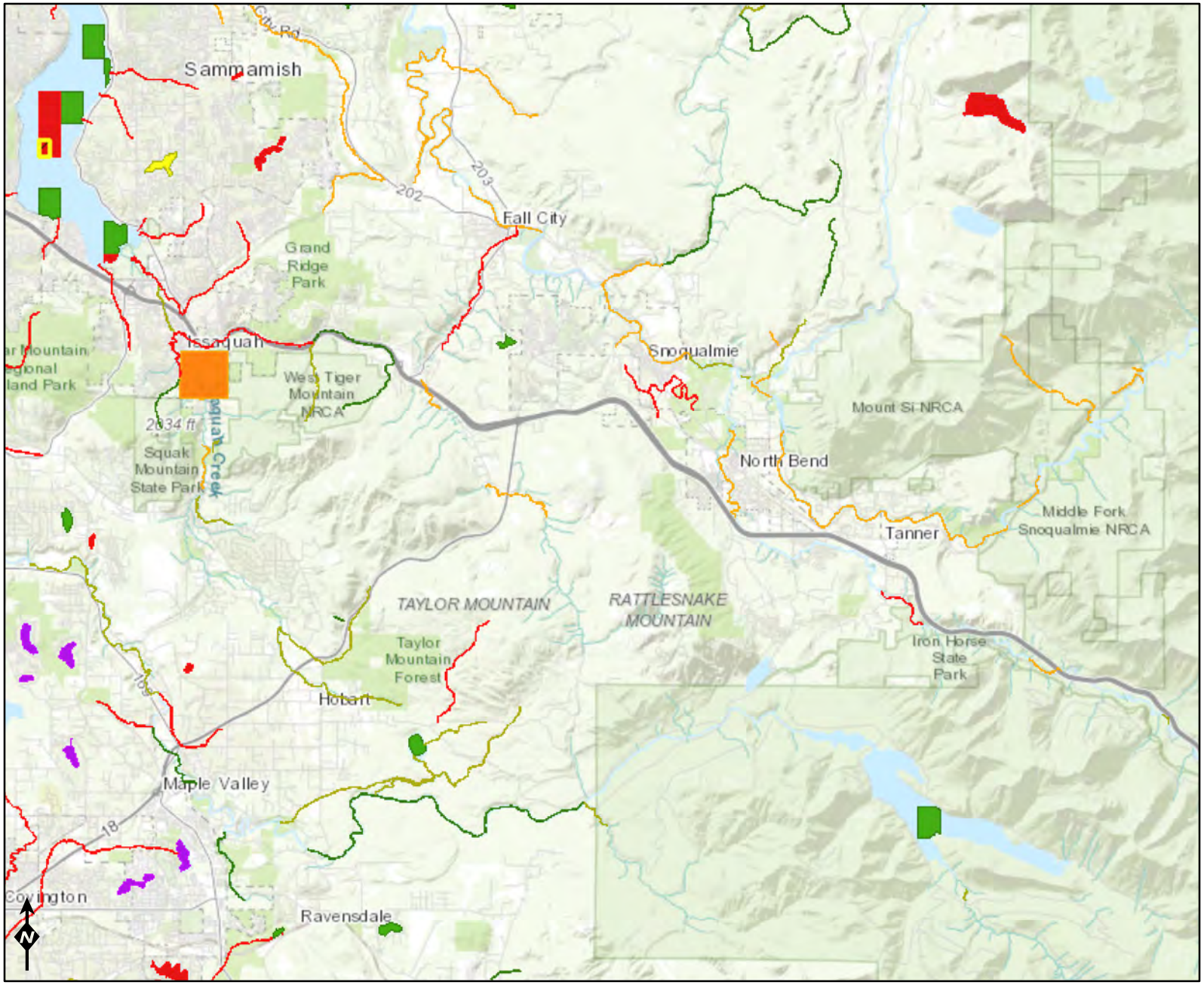
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland RR-04
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

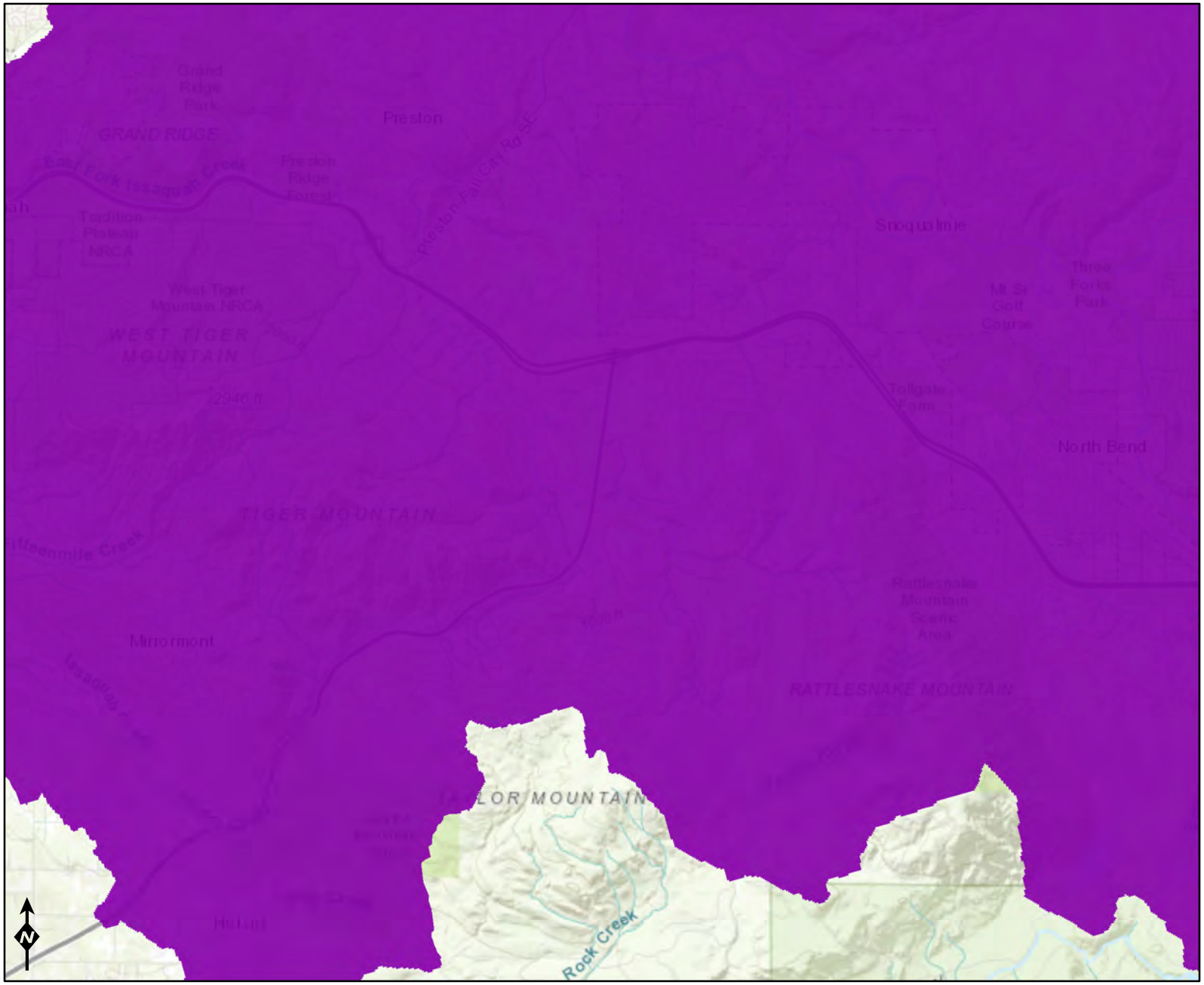
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland RR-05 Date of site visit: 8/15/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Riverine & Fresh Water Tidal Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

	Category I - Total score = 23 - 27
X	**Category II** - Total score = 20 - 22
	Category III - Total score = 16 - 19
	Category IV - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	M	
Landscape Potential	M	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	7	7	8	**22**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number Wetland RR-05

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☑ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☑ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wetland RR-05

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
R 1.0. Does the site have the potential to improve water quality?	
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event: Depressions cover > $^{3}/_{4}$ area of wetland points = 8 Depressions cover > ½ area of wetland points = 4 Depressions present but cover < ½ area of wetland points = 2 No depressions present points = 0	2
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes) Trees or shrubs > $^{2}/_{3}$ area of the wetland points = 8 ☑ Trees or shrubs > $^{1}/_{3}$ area of the wetland points = 6 ☐ Herbaceous plants (> 6 in high) > $^{2}/_{3}$ area of the wetland points = 6 Herbaceous plants (> 6 in high) > $^{1}/_{3}$ area of the wetland points = 3 Trees, shrubs, and ungrazed herbaceous < $^{1}/_{3}$ area of the wetland points = 0	6
Total for R 1 Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?	
R 2.1. Is the wetland within an incorporated city or within its UGA? Yes = 2 No = 0	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? Yes = 1 No = 0	0
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? Yes = 1 No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1 - R 2.4? Other Sources Dredging Yes = 1 No = 0	1
Total for R 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 - 6 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi? Yes = 1 No = 0	0
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens? Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).*		1
If the ratio is more than 20	points = 9	
If the ratio is 10 - 20	points = 6	
If the ratio is 5 - < 10	points = 4	
If the ratio is 1 - < 5	points = 2	
If the ratio is < 1	points = 1	
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes*).		7
Forest or shrub for > $^1/_3$ area OR emergent plants > $^2/_3$ area	points = 7	
Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area	points = 4	
Plants do not meet above criteria	points = 0	
Total for R 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 No = 1	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 No = 0	0
R 5.3 Is the up-gradient stream or river controlled by dams?	Yes = 0 No = 1	1
Total for R 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

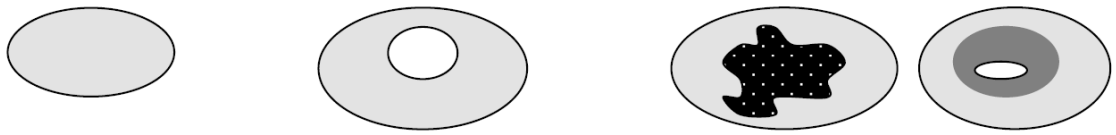
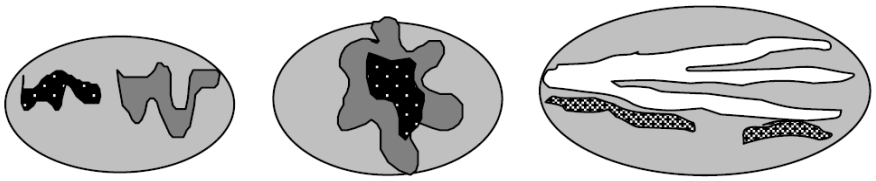
R 6.0. Are the hydrologic functions provided by the site valuable to society?		
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.*		2
The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for R 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☑ Occasionally flooded or inundated — 2 types present: points = 1 ☐ Saturated only — 1 types present: points = 0 ☑ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**7**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 70 % undisturbed habitat + (24 % moderate & low intensity land uses / 2) = 82% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 70 % undisturbed habitat + (24 % moderate & low intensity land uses / 2) = 82% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☑ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number Wetland RR-05

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 24 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland RR-05
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 24 (Approx. Boundary)
150-ft Boundary

WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland RR-05
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

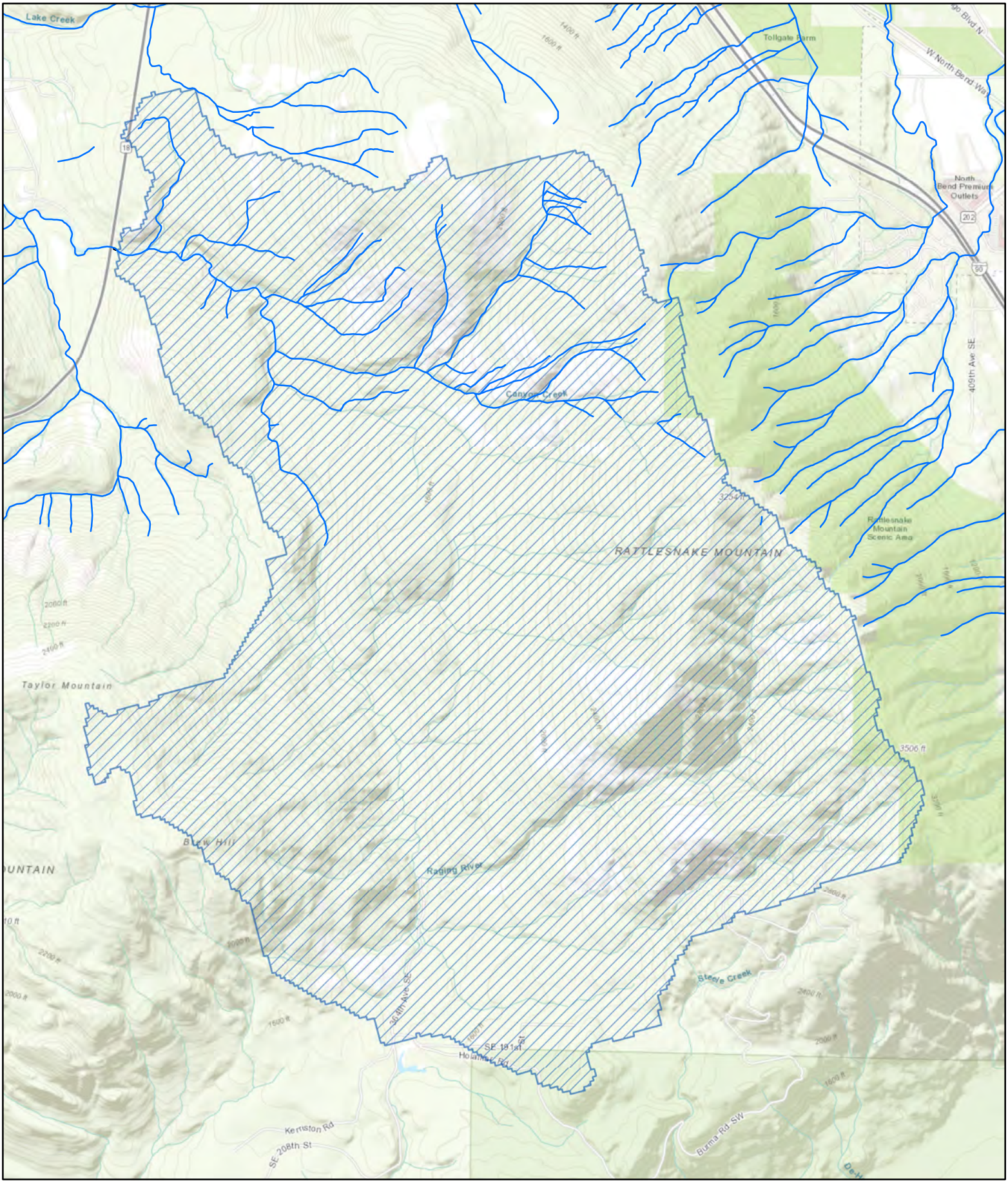
Source: WSDOT, WA DNR
King County

Wetland 24 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Ponded Depressions

0 25 50 100 Feet

Wetland RR-05
Ponded Depressions
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 1,000 2,000 4,000 Feet

Wetland 24 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland RR-05
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 24 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

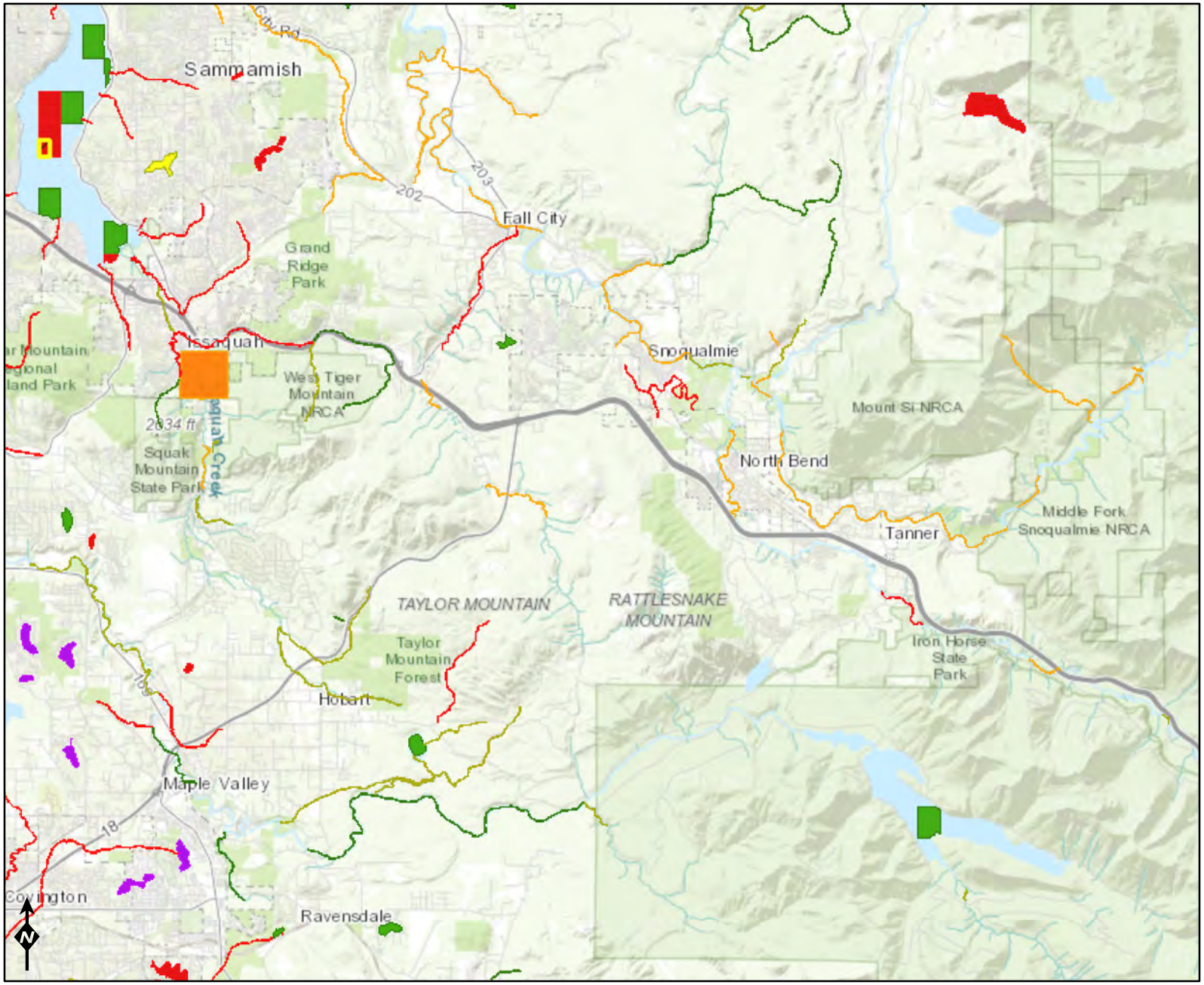
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland RR-05
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

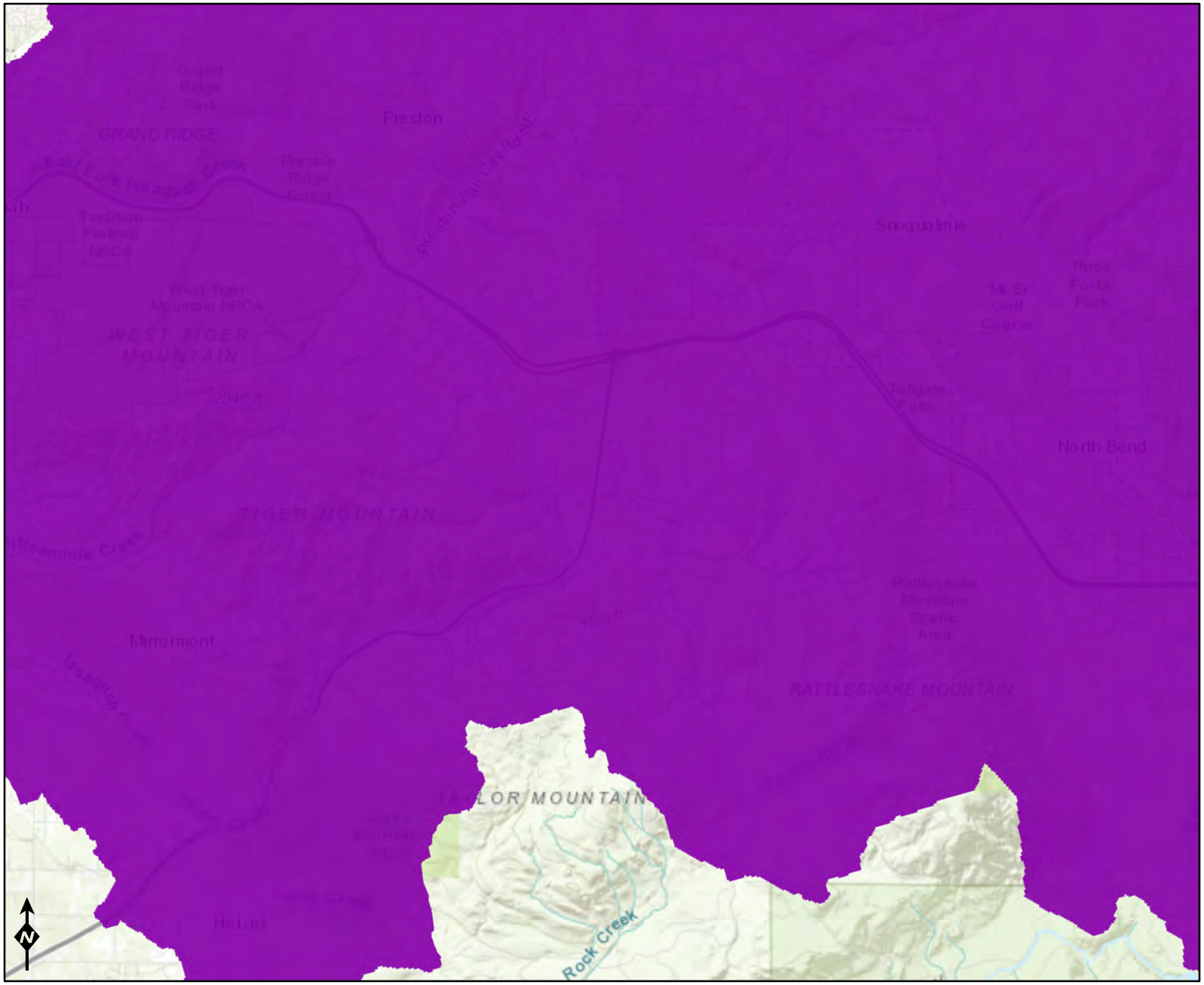
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland RR-06 Date of site visit: 8/27/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
X **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	M	
Landscape Potential	M	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	7	6	8	**21**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number RR-06

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☑ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☑ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number RR-06

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1 Add the points in the boxes above	**11**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number RR-06

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		0
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☐**6 - 11 = M** ☑**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

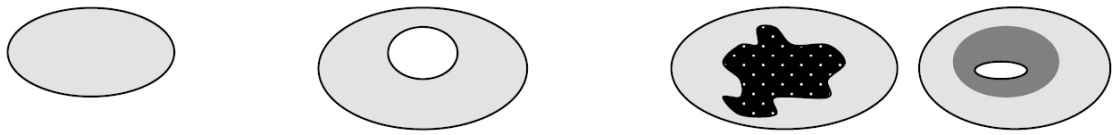
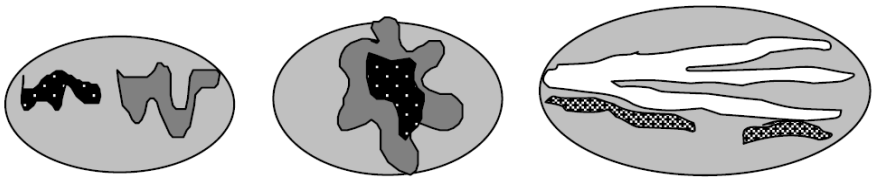
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**10**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 70 % undisturbed habitat + (23 % moderate & low intensity land uses / 2) = 81.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 70 % undisturbed habitat + (23 % moderate & low intensity land uses / 2) = 81.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☑ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 25 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland RR-06
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 25 (Approx. Boundary)
150-ft Boundary

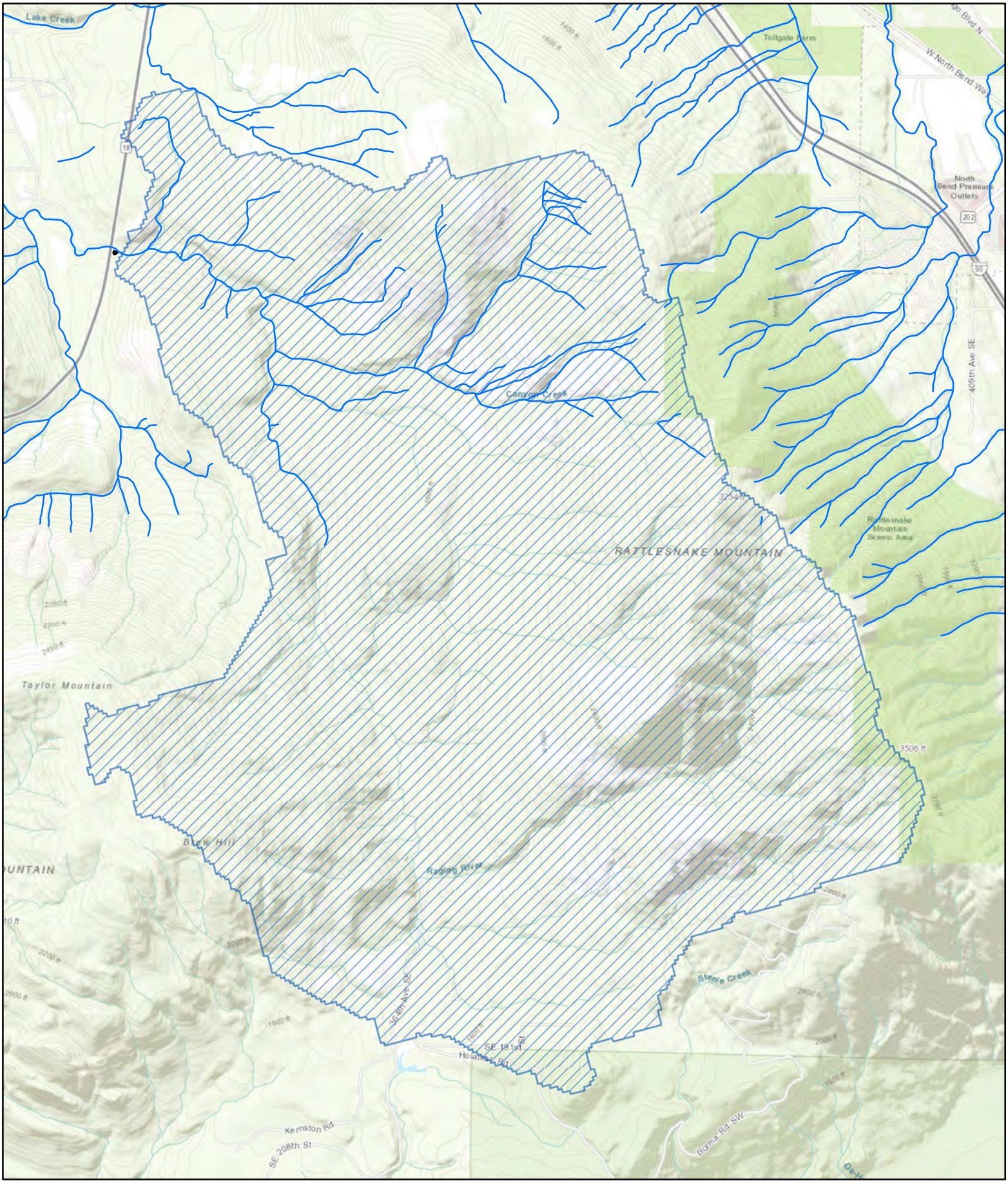
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland RR-06
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

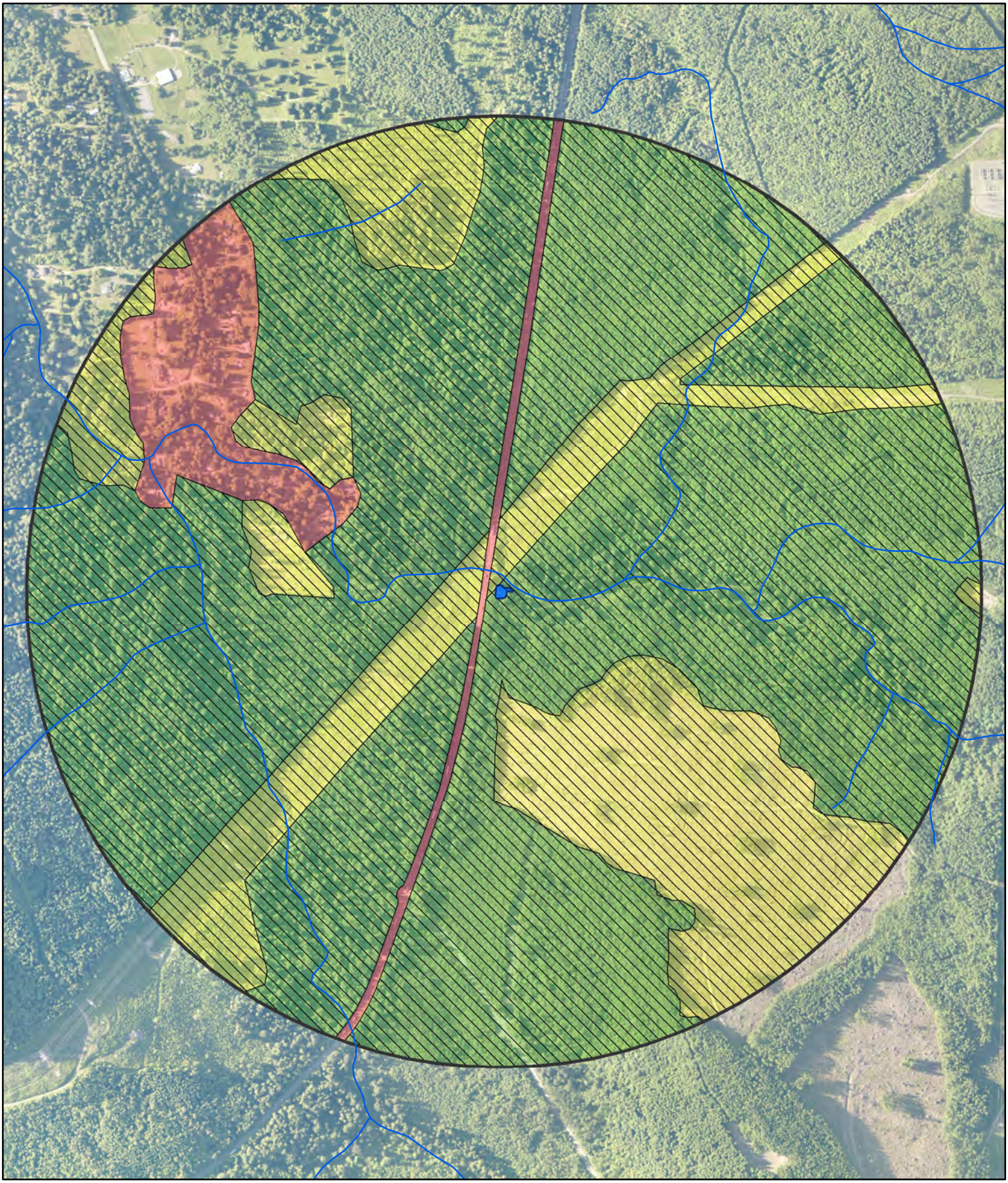
Source: WSDOT, WA DNR
King County

0 1,000 2,000 4,000 Feet

Wetland 25 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland RR-06
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 25 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

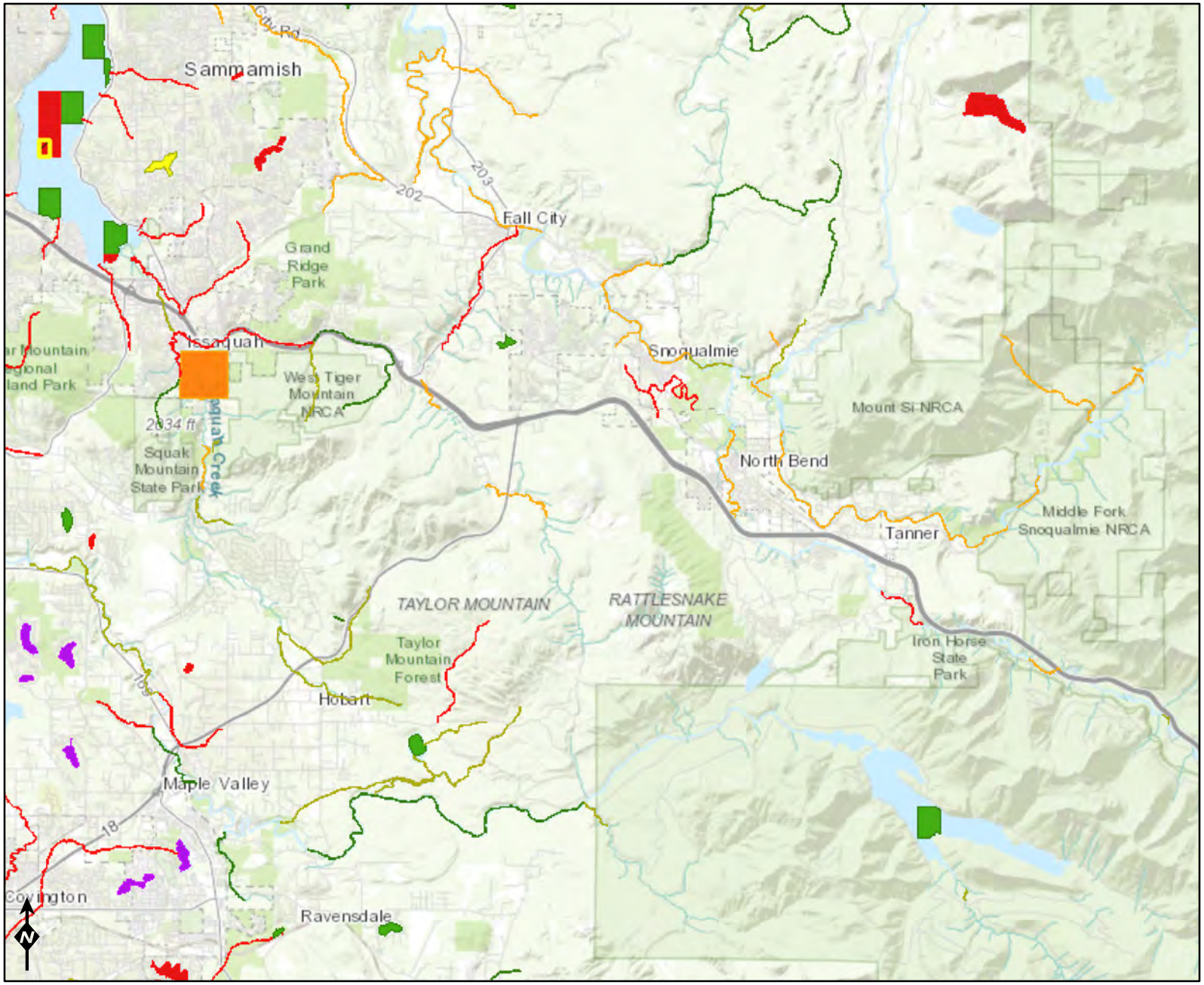
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland RR-06
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

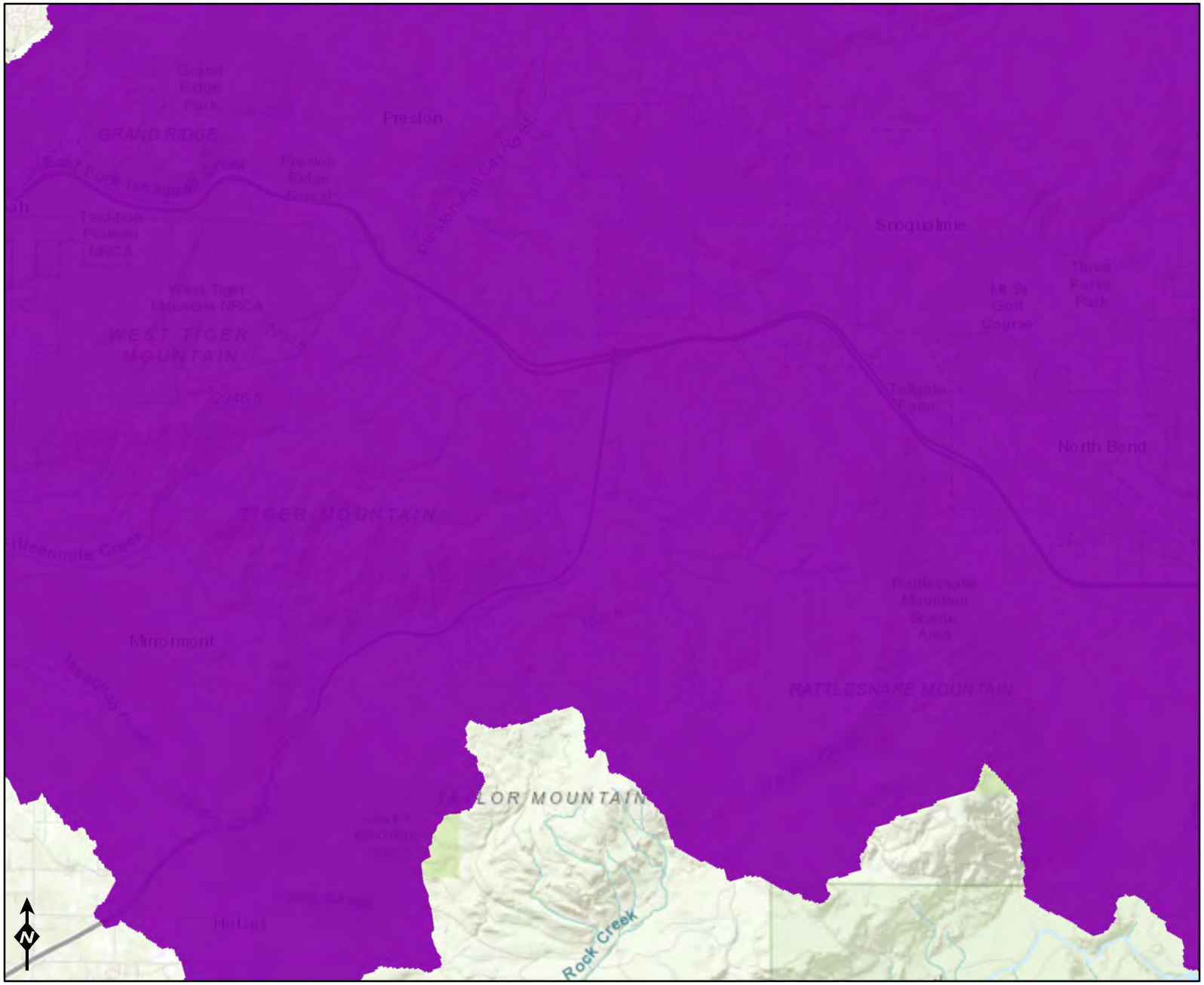
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland RR-07 Date of site visit: 11/16/2018

Rated by T. Parry and K. Moser Trained by Ecology? ☑ Yes ☐ No Date of training Sep-16

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY I (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

X **Category I** - Total score = 23 - 27
___ **Category II** - Total score = 20 - 22
___ **Category III** - Total score = 16 - 19
___ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	M	
Landscape Potential	H	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	8	7	8	**23**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number RR-07

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☑ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☑ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number RR-07

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	**9**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	1
Total for D 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 or 4 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number RR-07

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☑ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

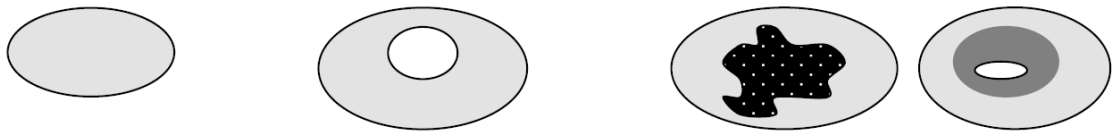
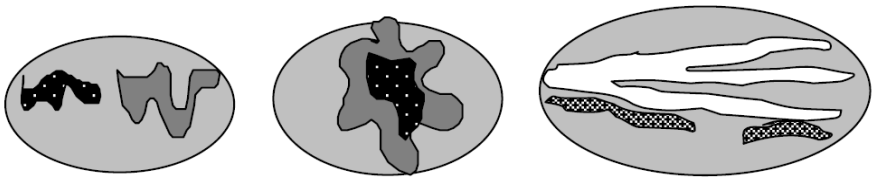
Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number RR-07

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 Add the points in the boxes above	**10**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 71 % undisturbed habitat + (23 % moderate & low intensity land uses / 2) = 82.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 71 % undisturbed habitat + (23 % moderate & low intensity land uses / 2) = 82.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☑ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 37 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 37.5 75 150 Feet

Wetland RR-07
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 37 (Approx. Boundary)
150-ft Boundary

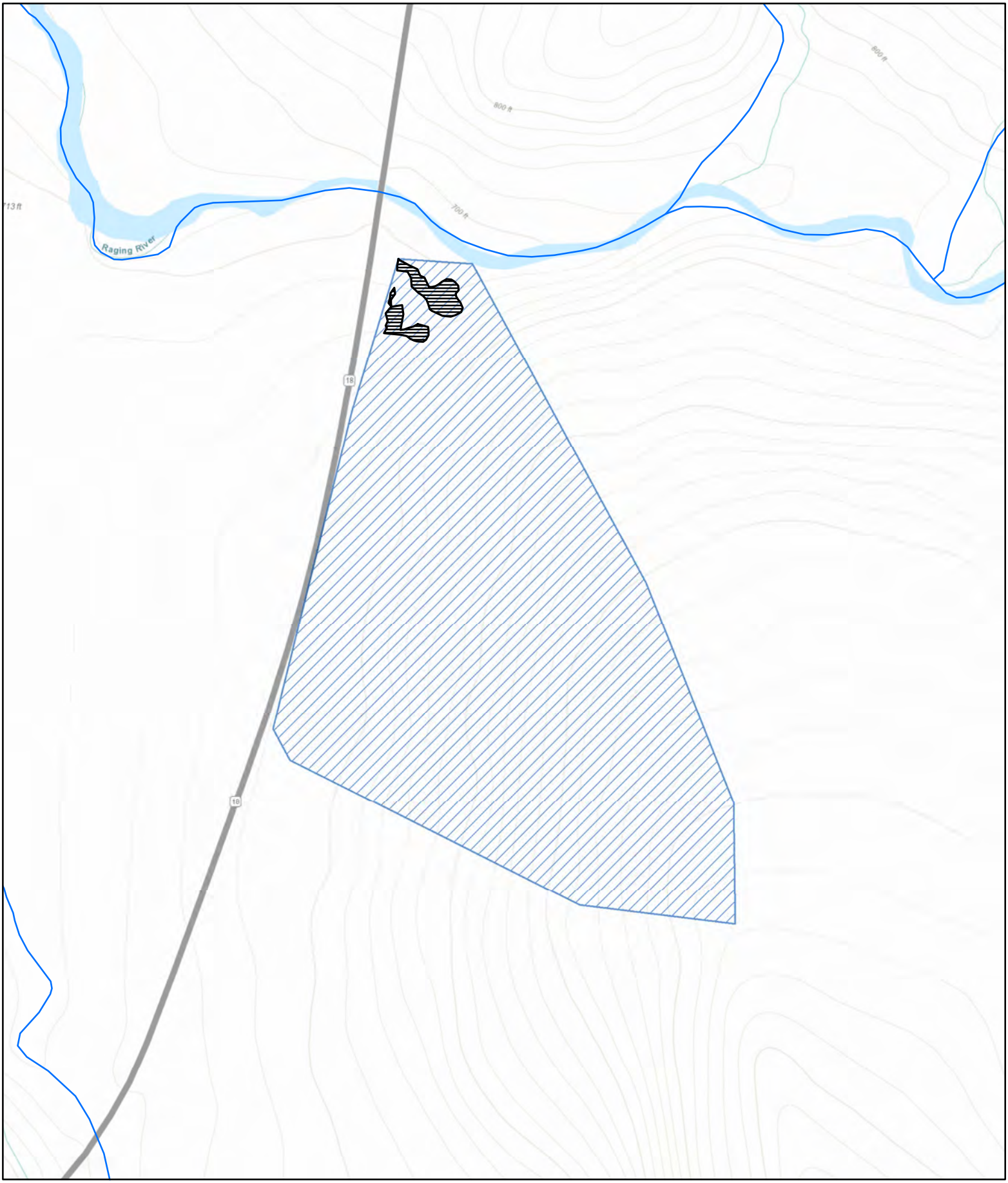
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 62.5 125 250 Feet

Wetland RR-07
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

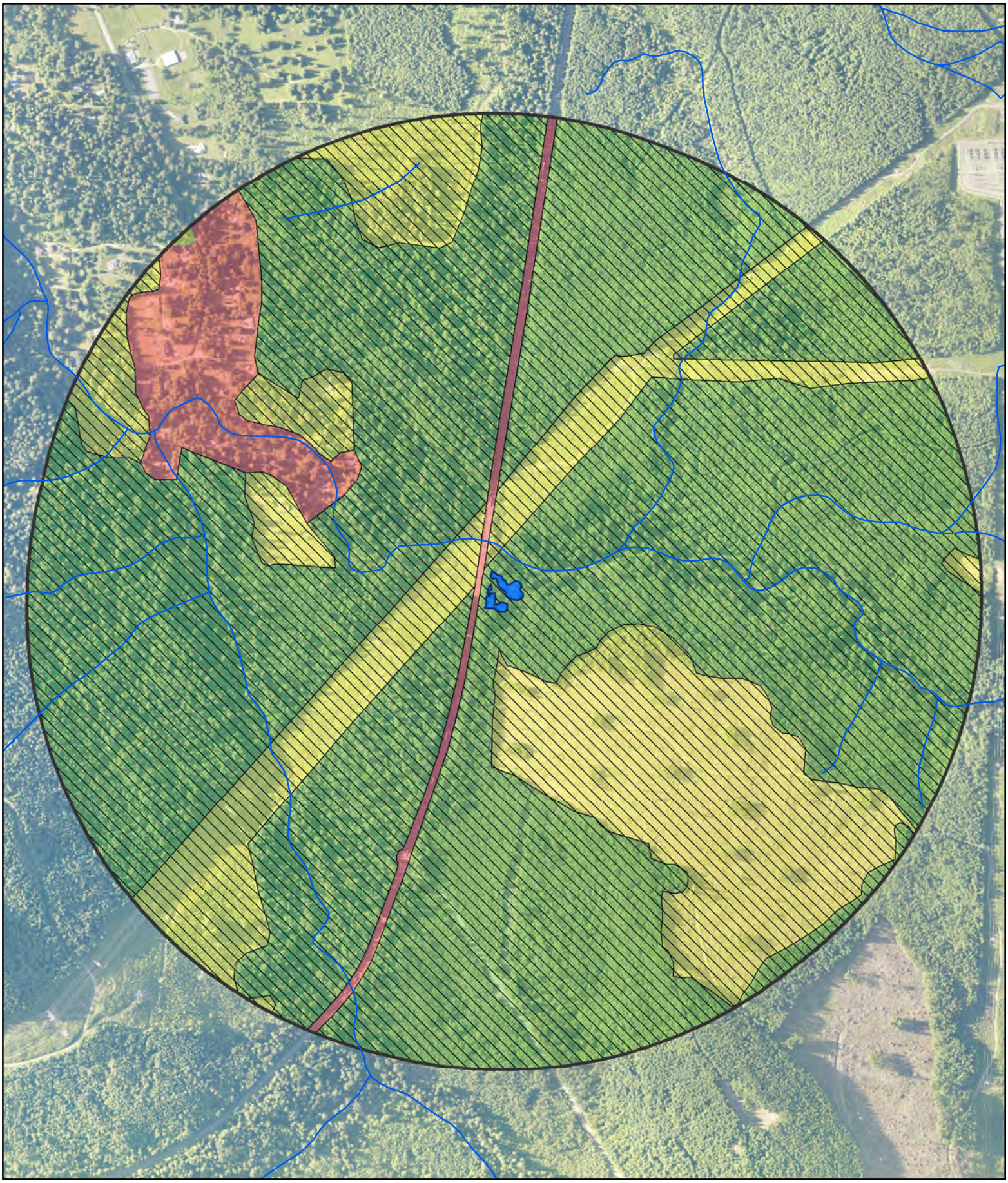
Source: WSDOT, WA DNR
King County

0 125 250 500 Feet

Wetland 37 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland RR-07
Contributing Basin
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 37 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

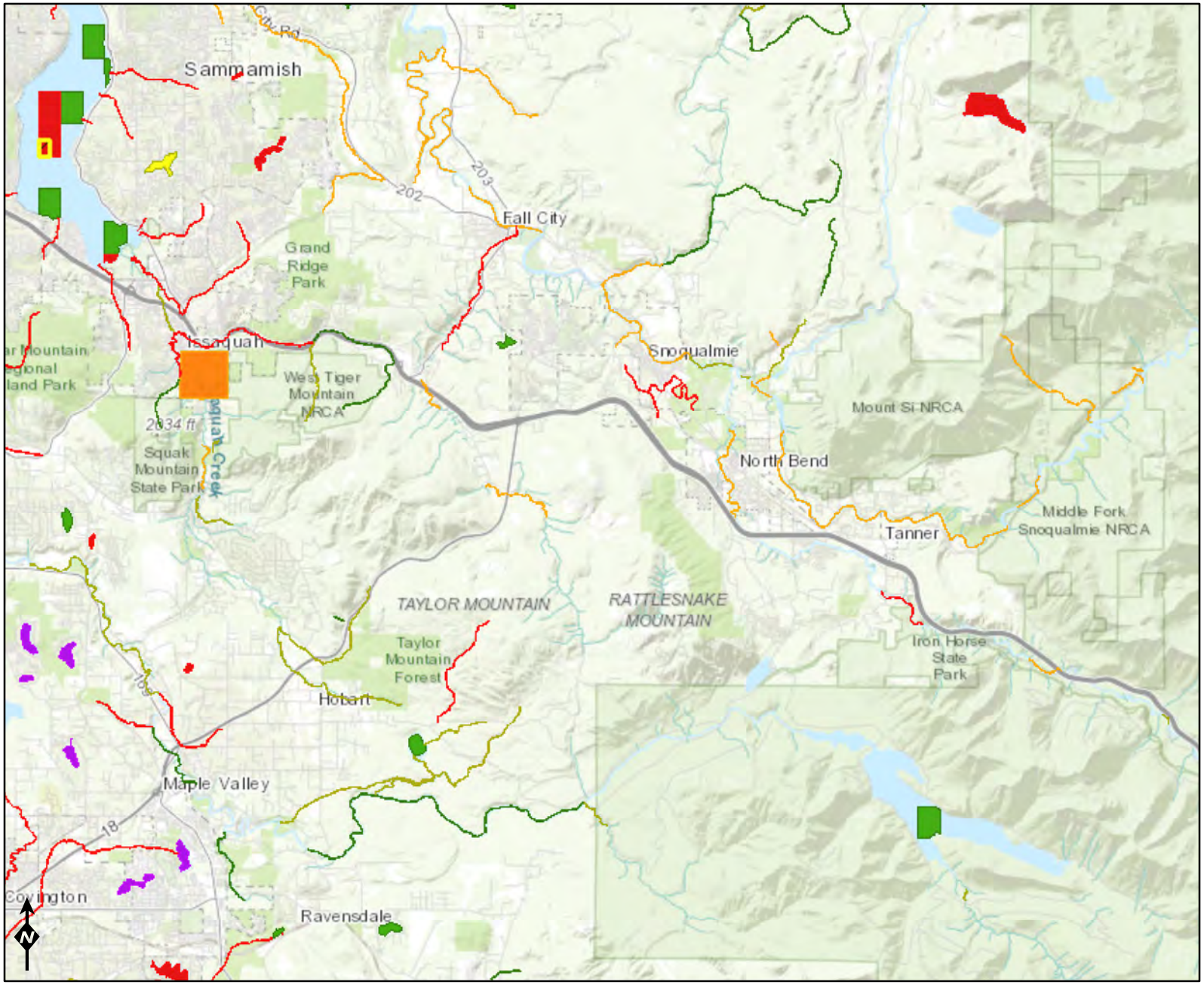
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland RR-07
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

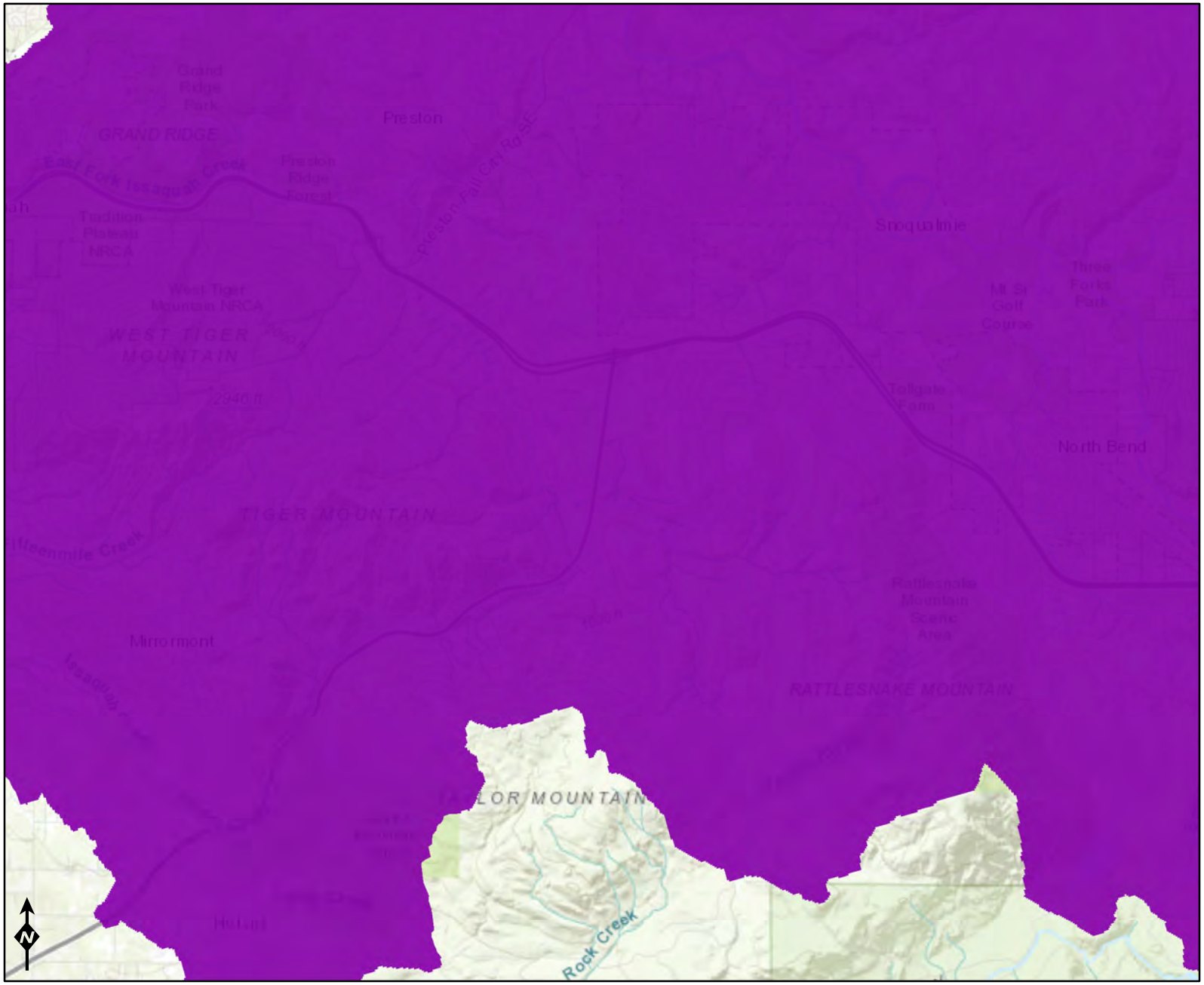
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland RR-08 Date of site visit: 10/24/2018

Rated by T. Parry and J. Meyer Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **III** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	M	
Landscape Potential	L	L	H	
Value	H	H	H	**Total**
Score Based on Ratings	5	6	8	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number RR-08

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number RR-08

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	0
Total for D 1 Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☐ **1 or 2 = M** ☑ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number RR-08

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		0
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		5
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐**3 = H** ☐**1 or 2 = M** ☑**0 = L** *Record the rating on the first page*

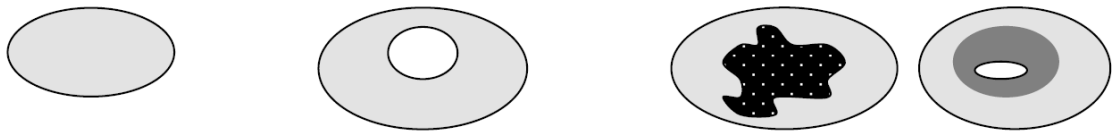
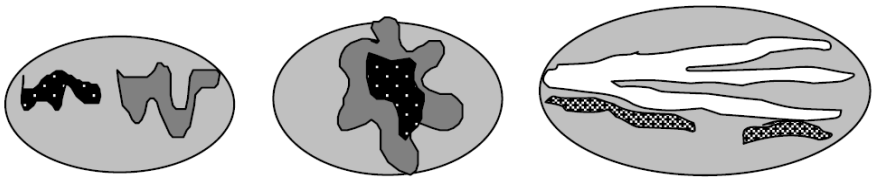
D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	**7**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 74 % undisturbed habitat + (23 % moderate & low intensity land uses / 2) = 85.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 74 % undisturbed habitat + (23 % moderate & low intensity land uses / 2) = 85.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 25 50 100 Feet

Wetland 23 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland RR-08
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

Wetland 23 (Approx. Boundary)
150-ft Boundary

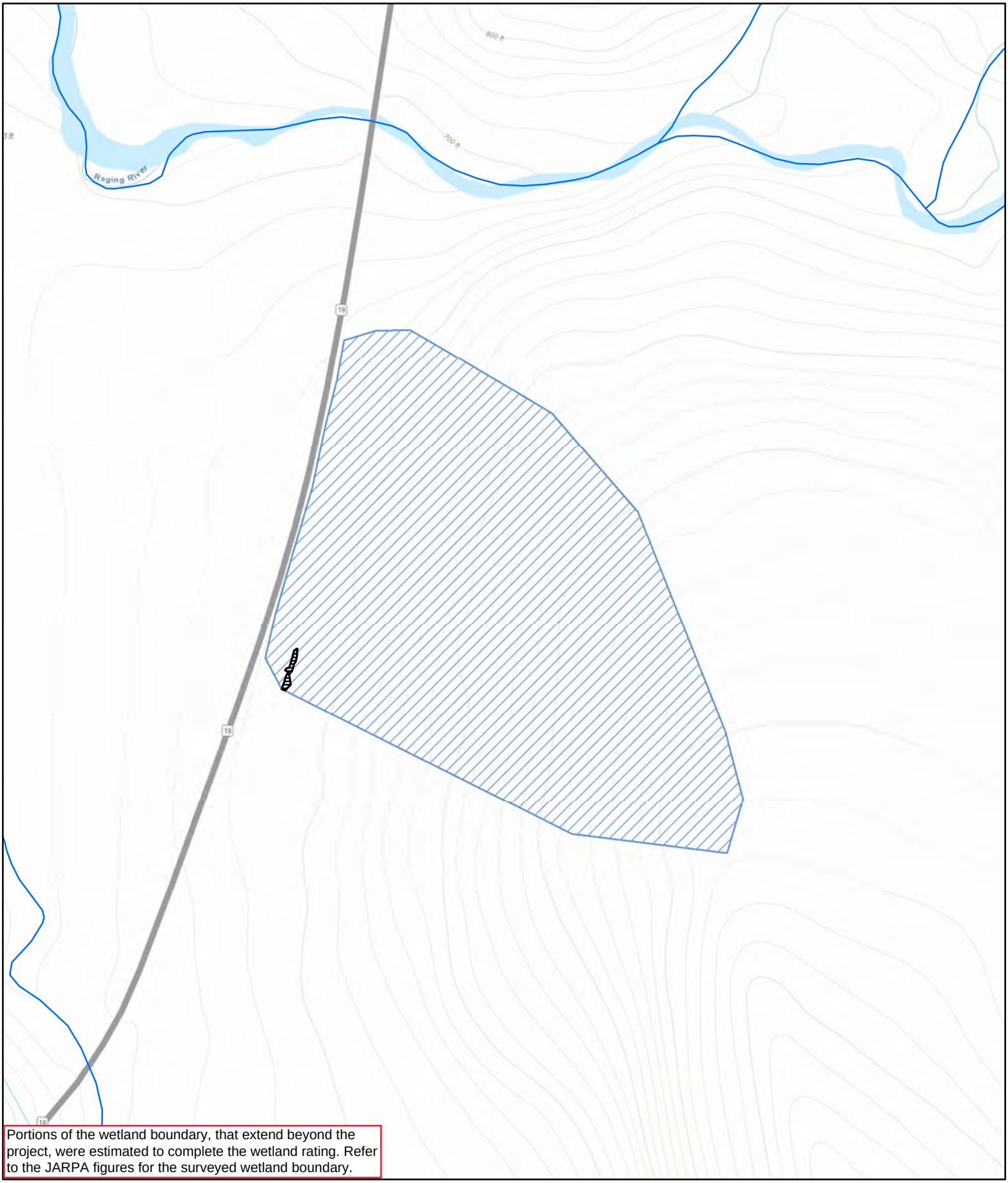
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland RR-08
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

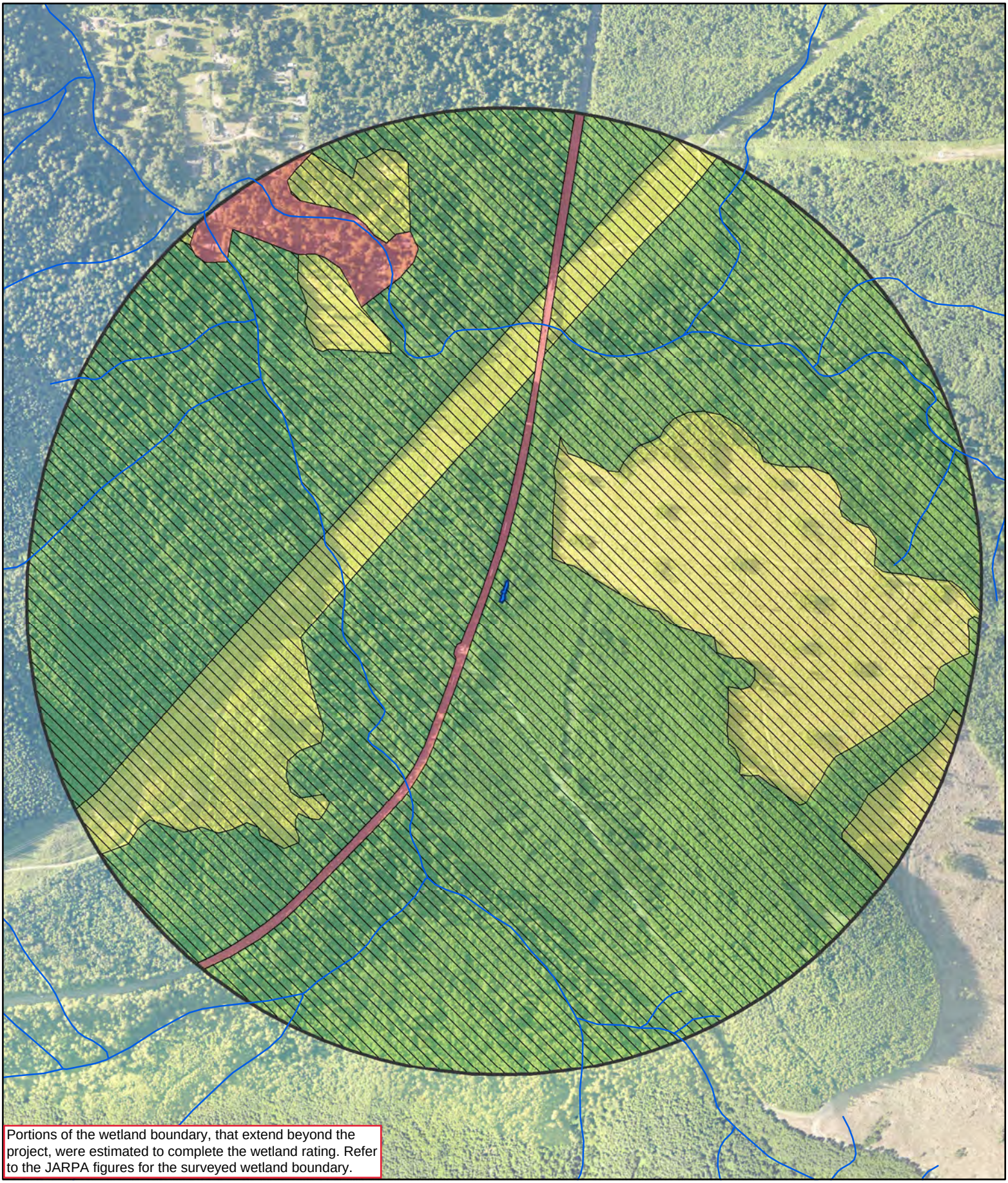
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 125 250 500 Feet

Wetland 23 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland RR-08
Contributing Basin
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 250 500 1,000 Feet

Wetland 23 (Approximate Boundary)
1-km Polygon
WDNR Streams

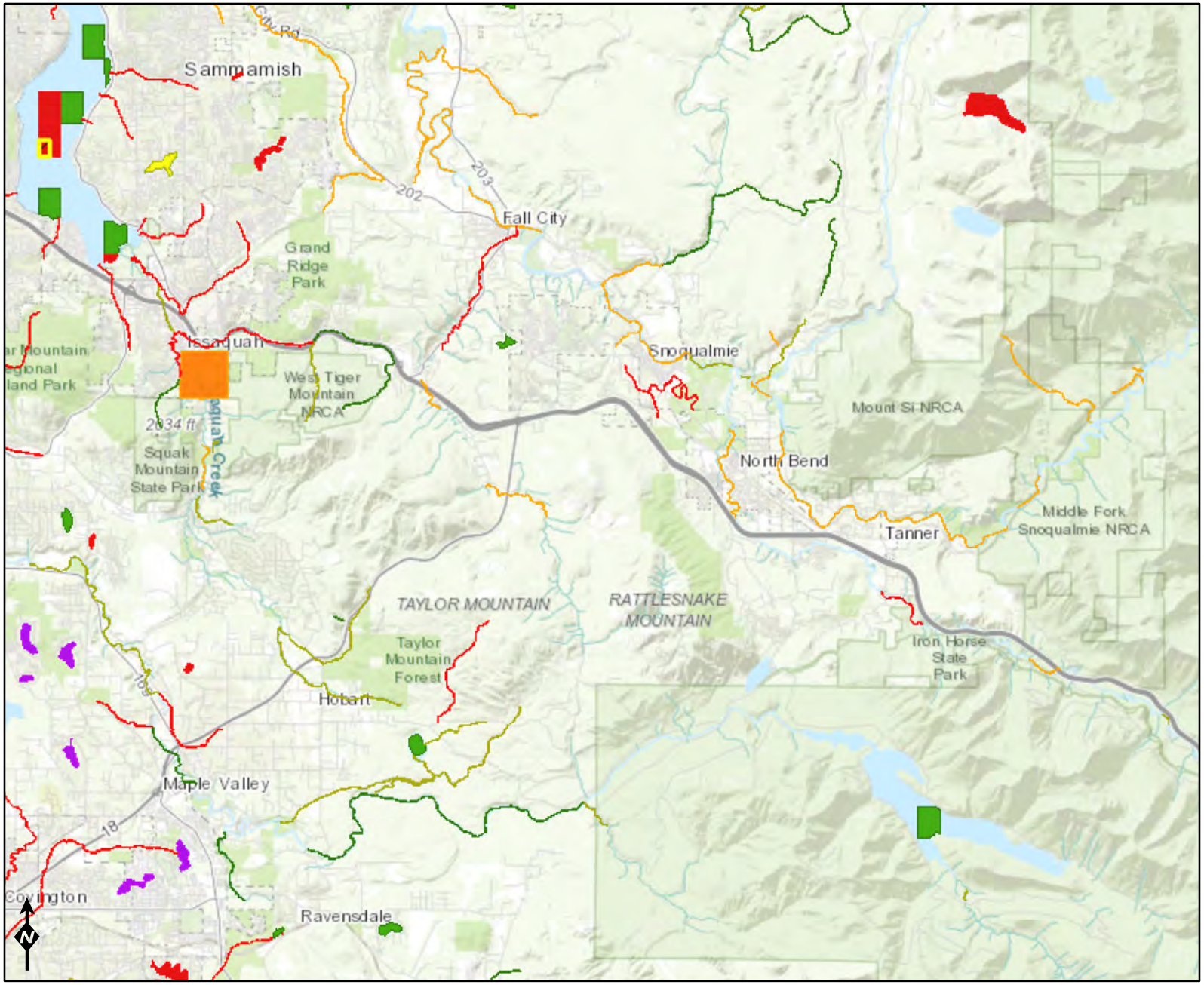
Accessible Habitat

Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland RR-08
Land Use & Accessible Habitat
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

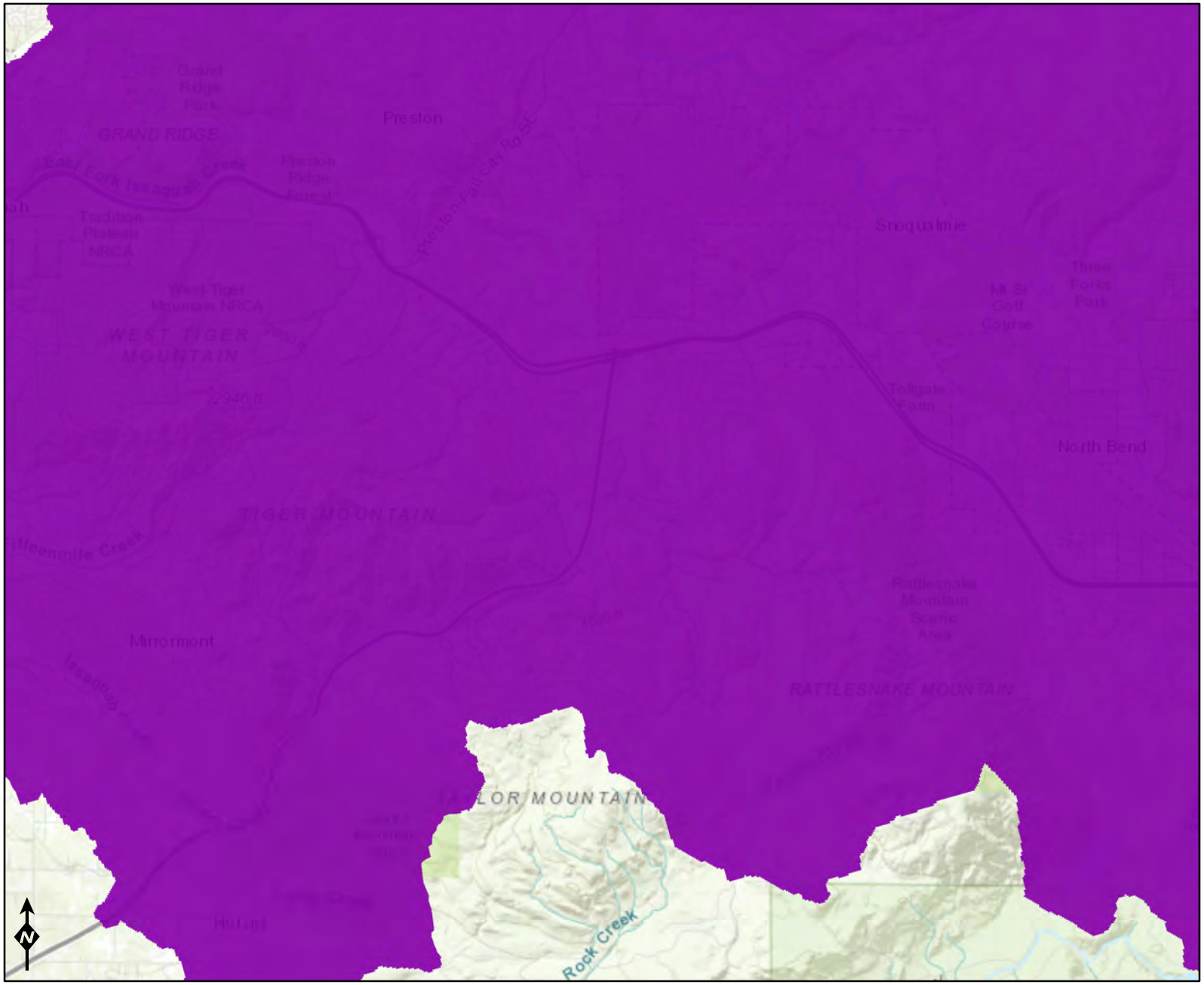
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland DC-01 Date of site visit: 8/27/2018

Rated by T. Parry, J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	M	M	
Landscape Potential	L	L	H	
Value	H	H	H	**Total**
Score Based on Ratings	5	6	8	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number DC-01

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less — points = 3 Slope is > 1% - 2% — points = 2 Slope is > 2% - 5% — points = 1 Slope is greater than 5% — points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 Dense, uncut, herbaceous plants > ½ of area — points = 3 Dense, woody, plants > ½ of area — points = 2 Dense, uncut, herbaceous plants > ¼ of area — points = 1 Does not meet any of the criteria above for plants — points = 0	2
Total for S 1 — Add the points in the boxes above	**3**

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Yes = 1 No = 0	0
Total for S 2 — Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **1 - 2 = M** ☑ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 — Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	1

Rating of Site Potential If score is: ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

Rating of Landscape Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

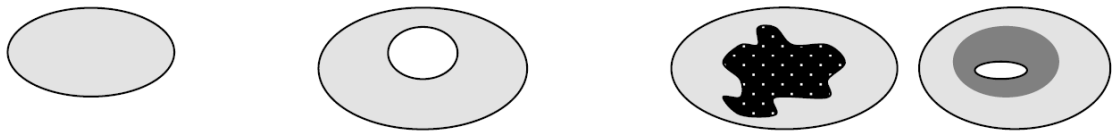
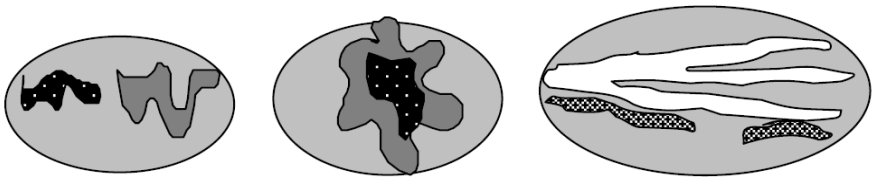
NOTES and FIELD OBSERVATIONS:

Wetland name or number DC-01

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 Add the points in the boxes above	**10**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 81 % undisturbed habitat + (18 % moderate & low intensity land uses / 2) = 90% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 81 % undisturbed habitat + (18 % moderate & low intensity land uses / 2) = 90% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number __DC-01__

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 25 50 100 Feet

Wetland 26 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland DC-01
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

Wetland (Approx. Boundary)
150-ft Boundary
Permanently Flowing Stream
Seasonally Flowing Stream
Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland DC-01
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 25 50 100 Feet

Wetland 26 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland DC-01
Dense Plant Cover
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

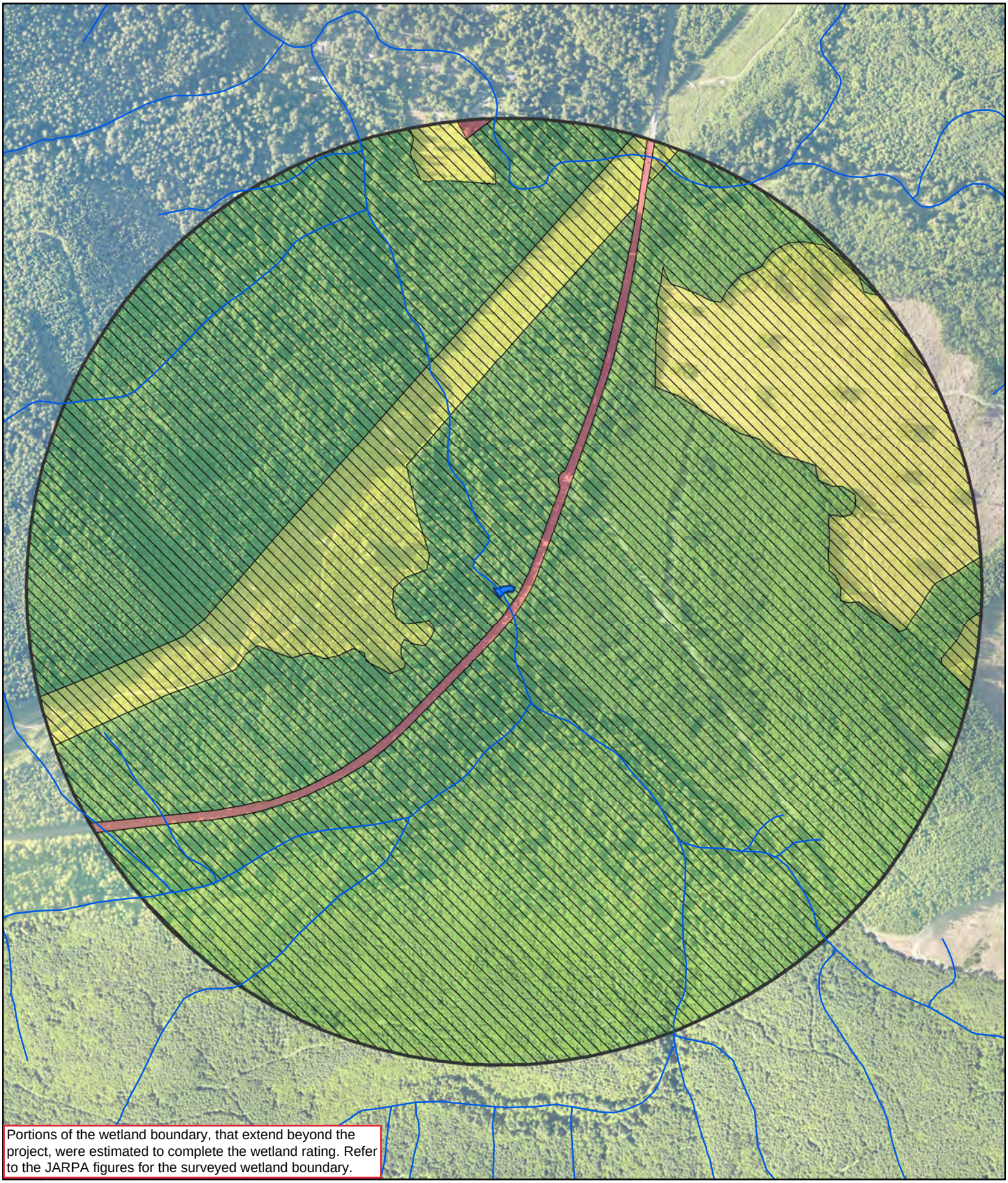
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 25 50 100 Feet

Wetland 26 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland DC-01
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 250 500 1,000 Feet

Wetland 26 (Approximate Boundary)
1-km Polygon
WDNR Streams

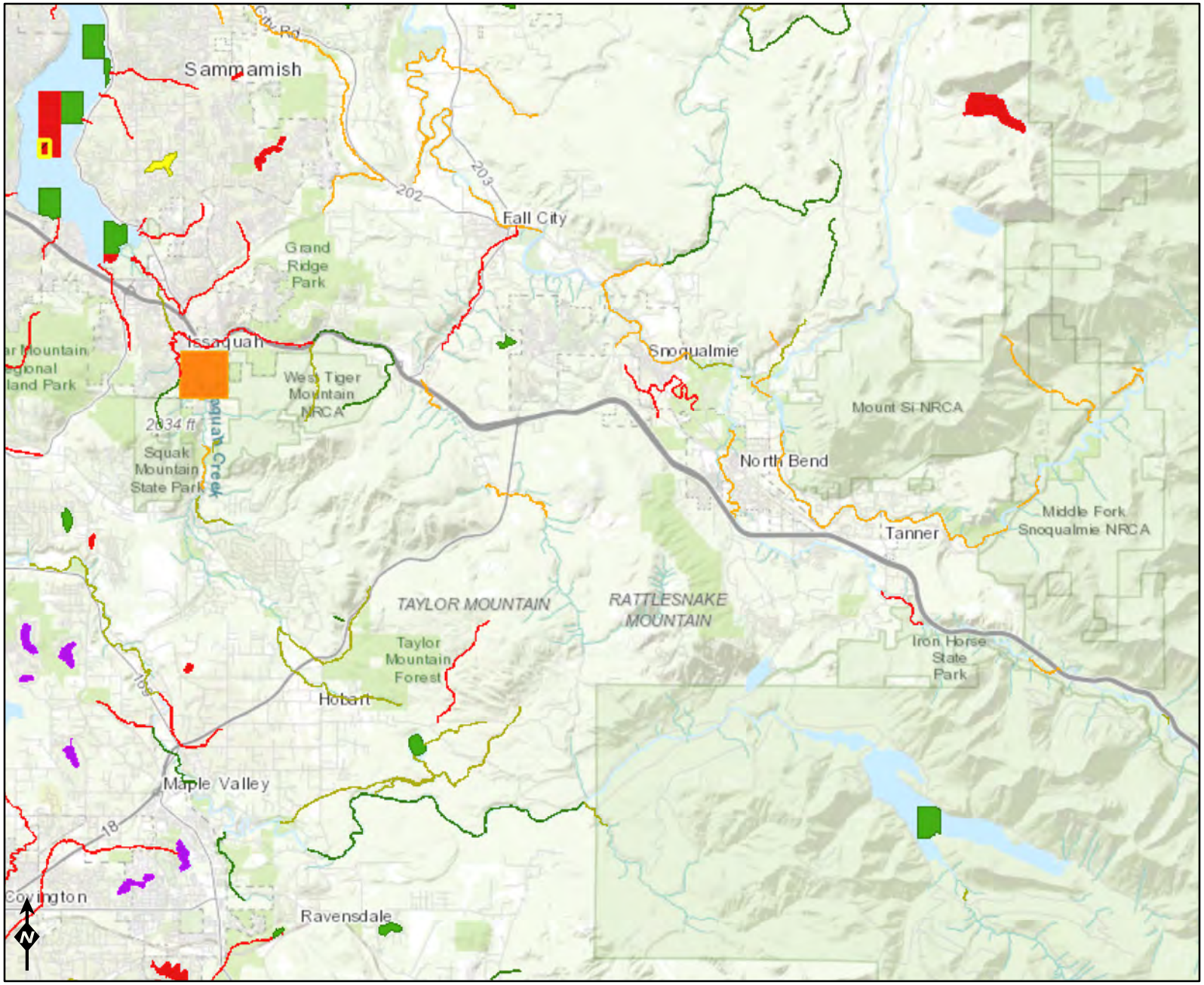
Accessible Habitat

Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland DC-01
Land Use & Accessible Habitat
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

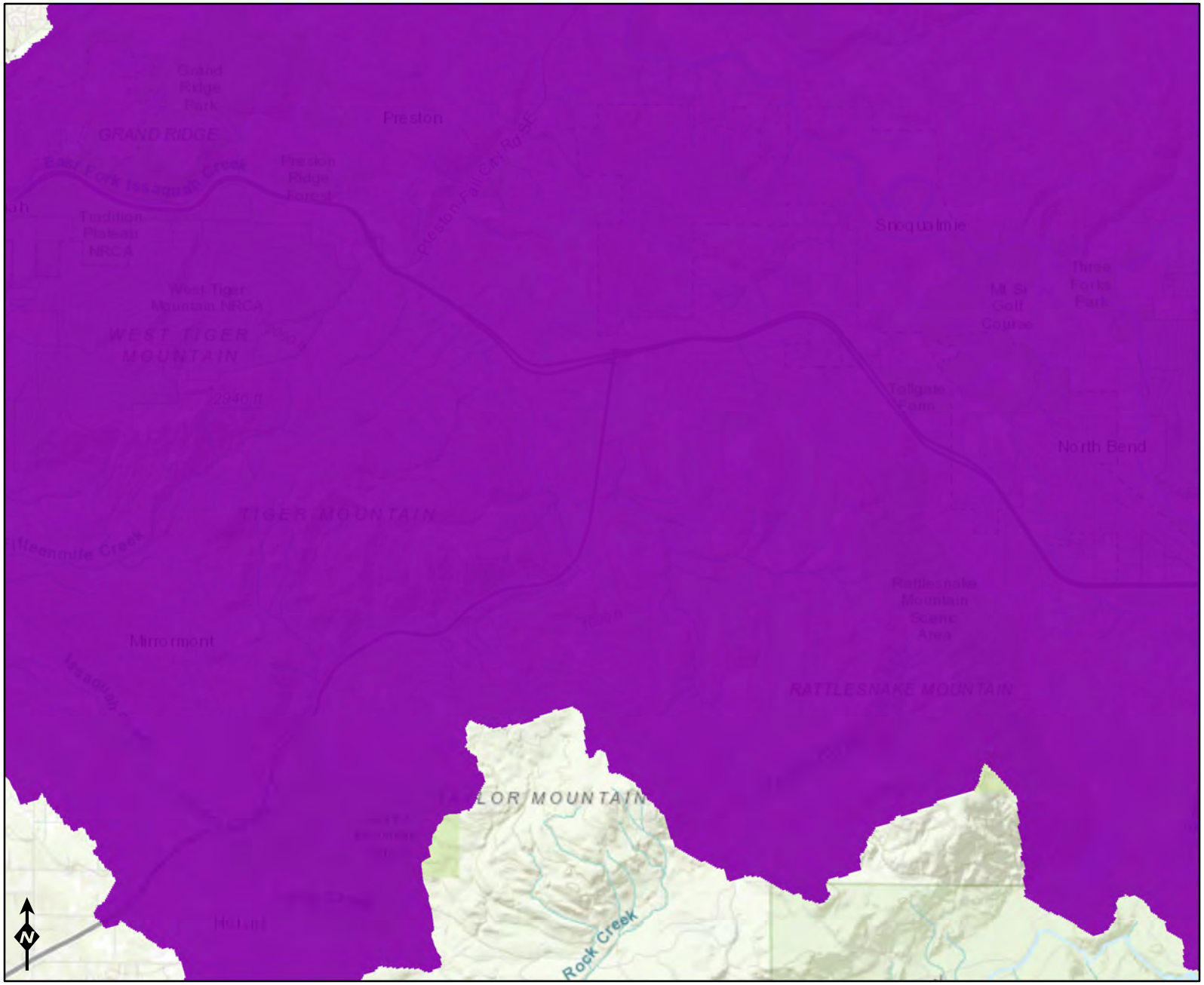
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland DC-02 Date of site visit: 8/15/2018

Rated by T. Parry and J. Wozniak Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Riverine & Fresh Water Tidal Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

	Category I - Total score = 23 - 27
X	**Category II** - Total score = 20 - 22
	Category III - Total score = 16 - 19
	Category IV - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	M	
Landscape Potential	M	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	7	7	8	**22**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number Wetland DC-02

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☑ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☑ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		2
Depressions cover > $^{3}/_{4}$ area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	
Depressions present but cover < ½ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		8
Trees or shrubs > $^{2}/_{3}$ area of the wetland	points = 8	
☑ Trees or shrubs > $^{1}/_{3}$ area of the wetland	points = 6	
☐ Herbaceous plants (> 6 in high) > $^{2}/_{3}$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > $^{1}/_{3}$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < $^{1}/_{3}$ area of the wetland	points = 0	
Total for R 1	Add the points in the boxes above	**10**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	0
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	Yes = 1 No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1 - R 2.4?		1
Other Sources Stormwater and road runoff.	Yes = 1 No = 0	
Total for R 2	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 - 6 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 No = 0	0
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	Yes = 2 No = 0	2
Total for R 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).*		1
If the ratio is more than 20	points = 9	
If the ratio is 10 - 20	points = 6	
If the ratio is 5 - < 10	points = 4	
If the ratio is 1 - < 5	points = 2	
If the ratio is < 1	points = 1	
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes*).		7
Forest or shrub for > $^{1}/_{3}$ area OR emergent plants > $^{2}/_{3}$ area	points = 7	
Forest or shrub for > $^{1}/_{10}$ area OR emergent plants > $^{1}/_{3}$ area	points = 4	
Plants do not meet above criteria	points = 0	
Total for R 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 No = 1	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 No = 0	0
R 5.3 Is the up-gradient stream or river controlled by dams?	Yes = 0 No = 1	1
Total for R 5	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

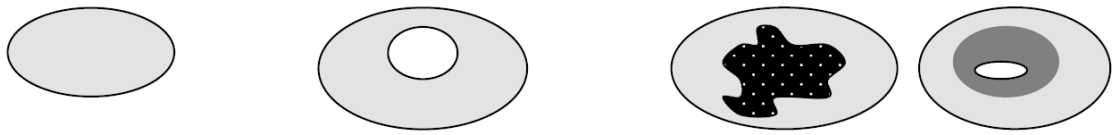
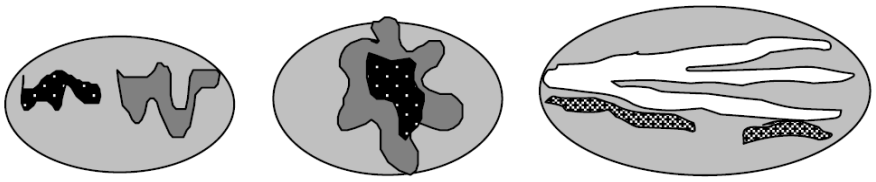
R 6.0. Are the hydrologic functions provided by the site valuable to society?		
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.*		2
The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for R 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☑ Occasionally flooded or inundated — 2 types present: points = 1 ☐ Saturated only — 1 types present: points = 0 ☑ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☑ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
Total for H 1 Add the points in the boxes above	**10**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 81 % undisturbed habitat + (17 % moderate & low intensity land uses / 2) = 89.5% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 81 % undisturbed habitat + (17 % moderate & low intensity land uses / 2) = 89.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number Wetland DC-02

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 27 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 25 50 100 Feet

Wetland DC-02
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 27 (Approx. Boundary)
150-ft Boundary
Permanently Flowing Stream
Seasonally Flowing Stream
Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland DC-02
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

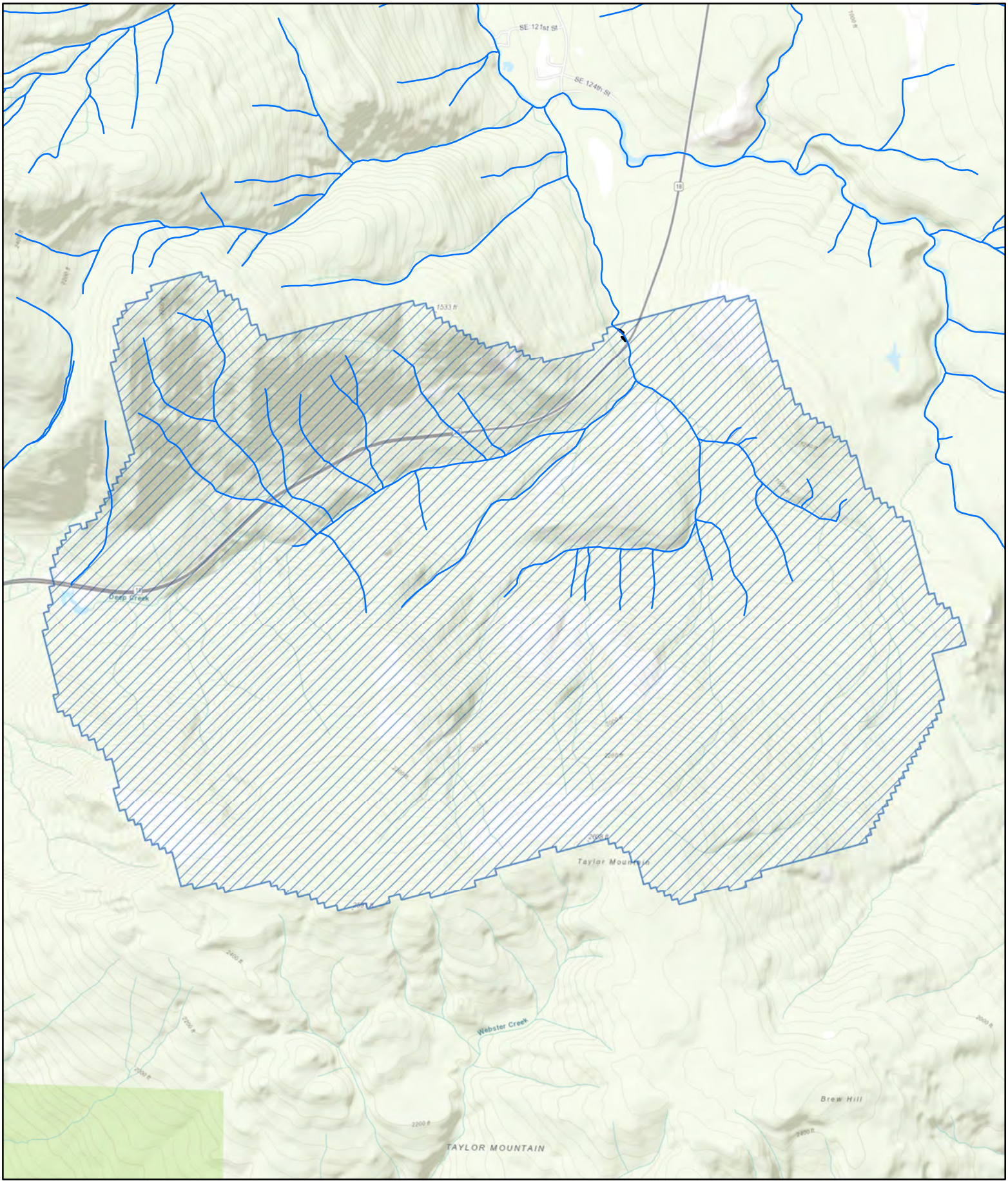
Source: WSDOT, WA DNR
King County

Wetland 27 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Ponded Depressions

0 25 50 100 Feet

Wetland DC-02
Ponded Depressions
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

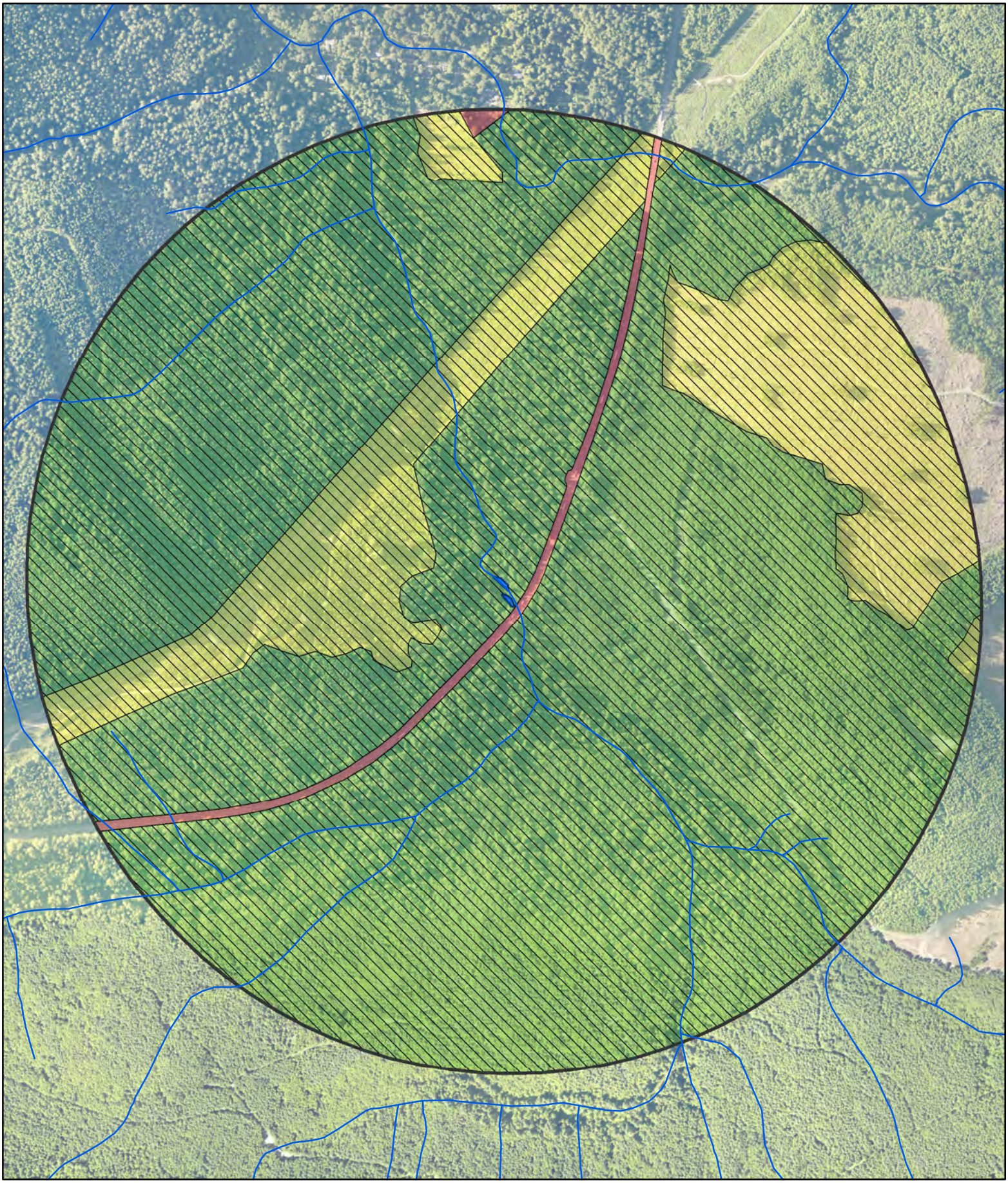
Source: WSDOT, WA DNR
King County

0 625 1,250 2,500 Feet

Wetland 27 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland DC-02
Contributing Basin
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 27 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

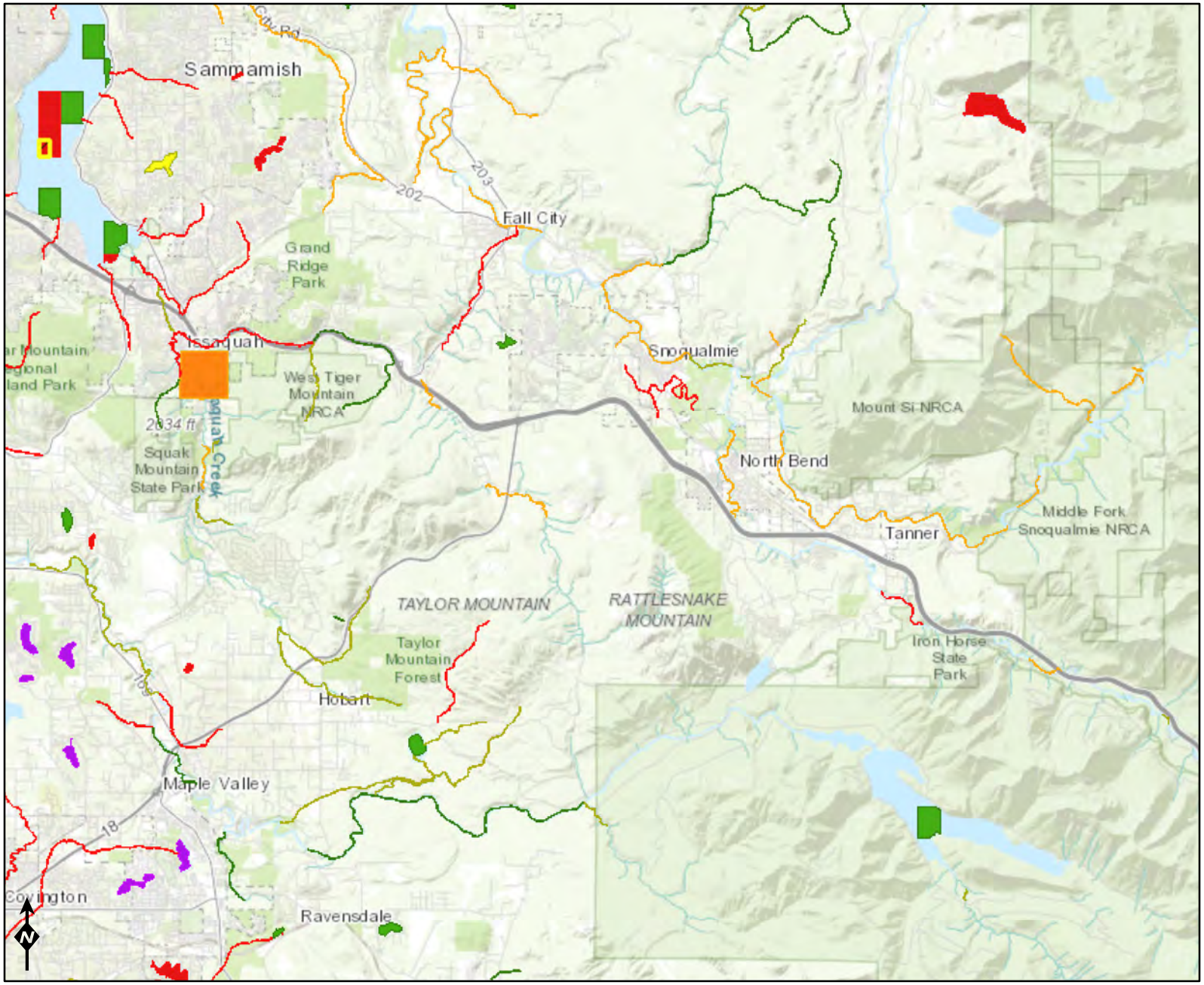
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland DC-02
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

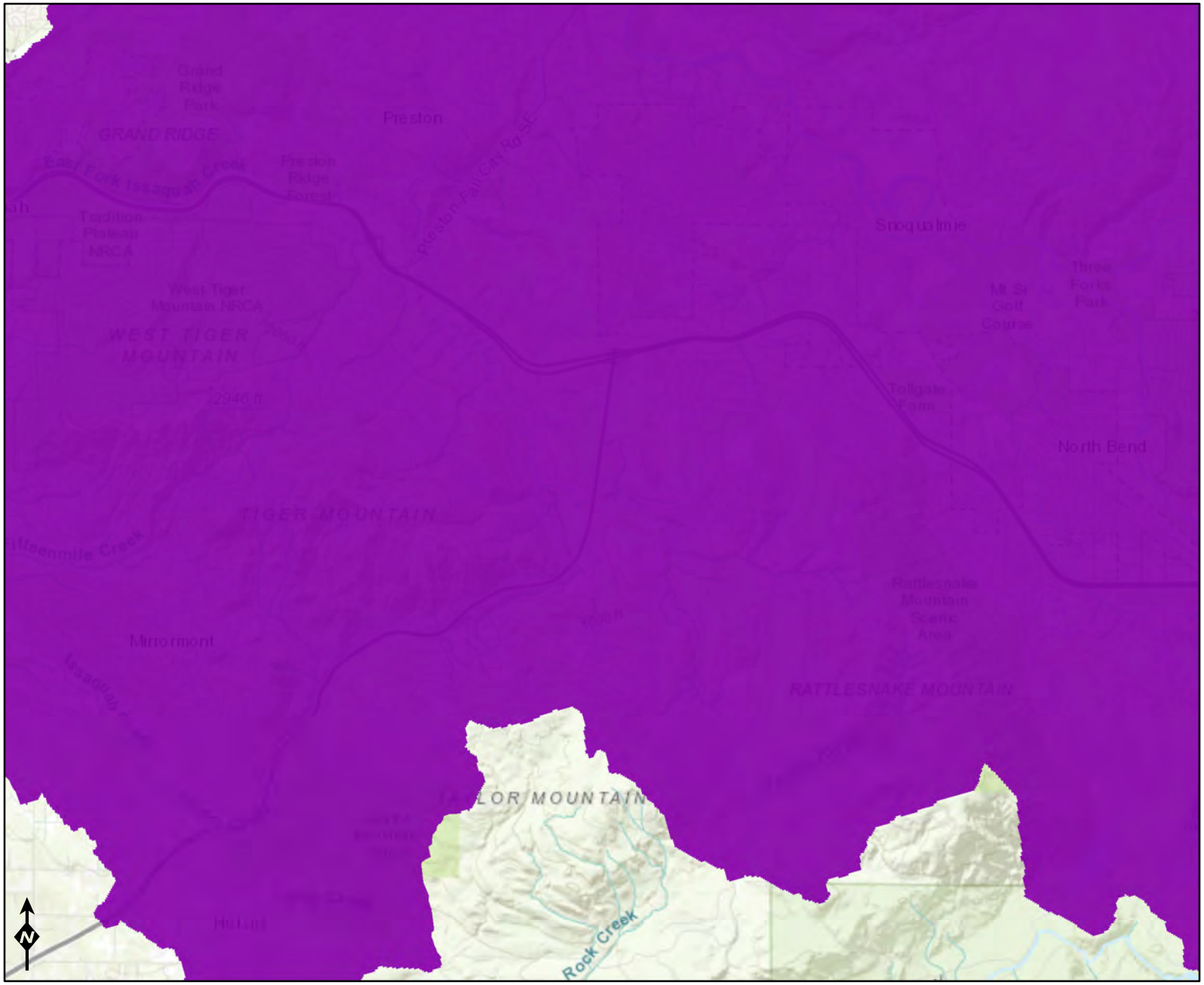
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland DC-03 Date of site visit: 11/16/2018

Rated by T. Parry and J. Meyer Trained by Ecology? ☑ Yes ☐ No Date of training Sep-16

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY **II** (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- **X** **Category II** - Total score = 20 - 22
- ____ **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	M	
Landscape Potential	M	M	H	
Value	H	M	H	**Total**
Score Based on Ratings	7	5	8	**20**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number DC-03

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number DC-03

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	**9**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number DC-03

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		0
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**5**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☐**6 - 11 = M** ☑**0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐**3 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		1
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☑ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**1**

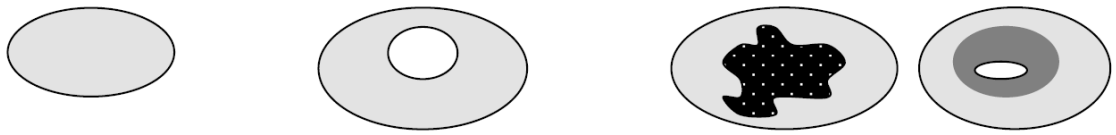
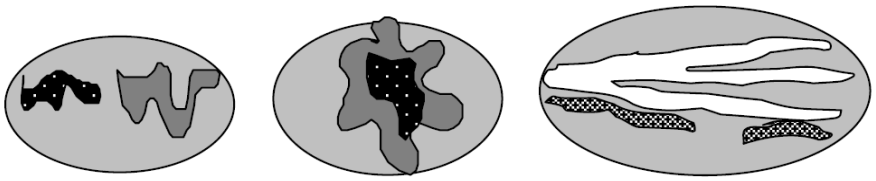
Rating of Value If score is: ☐ **2 - 4 = H** ☑**1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number DC-03

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 Add the points in the boxes above	**10**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 82 % undisturbed habitat + (16 % moderate & low intensity land uses / 2) = 90% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 82 % undisturbed habitat + (16 % moderate & low intensity land uses / 2) = 90% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**4**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 35 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 37.5 75 150 Feet

Wetland DC-03
Cowardin Plant Classes
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County

Wetland 35 (Approx. Boundary)
150-ft Boundary

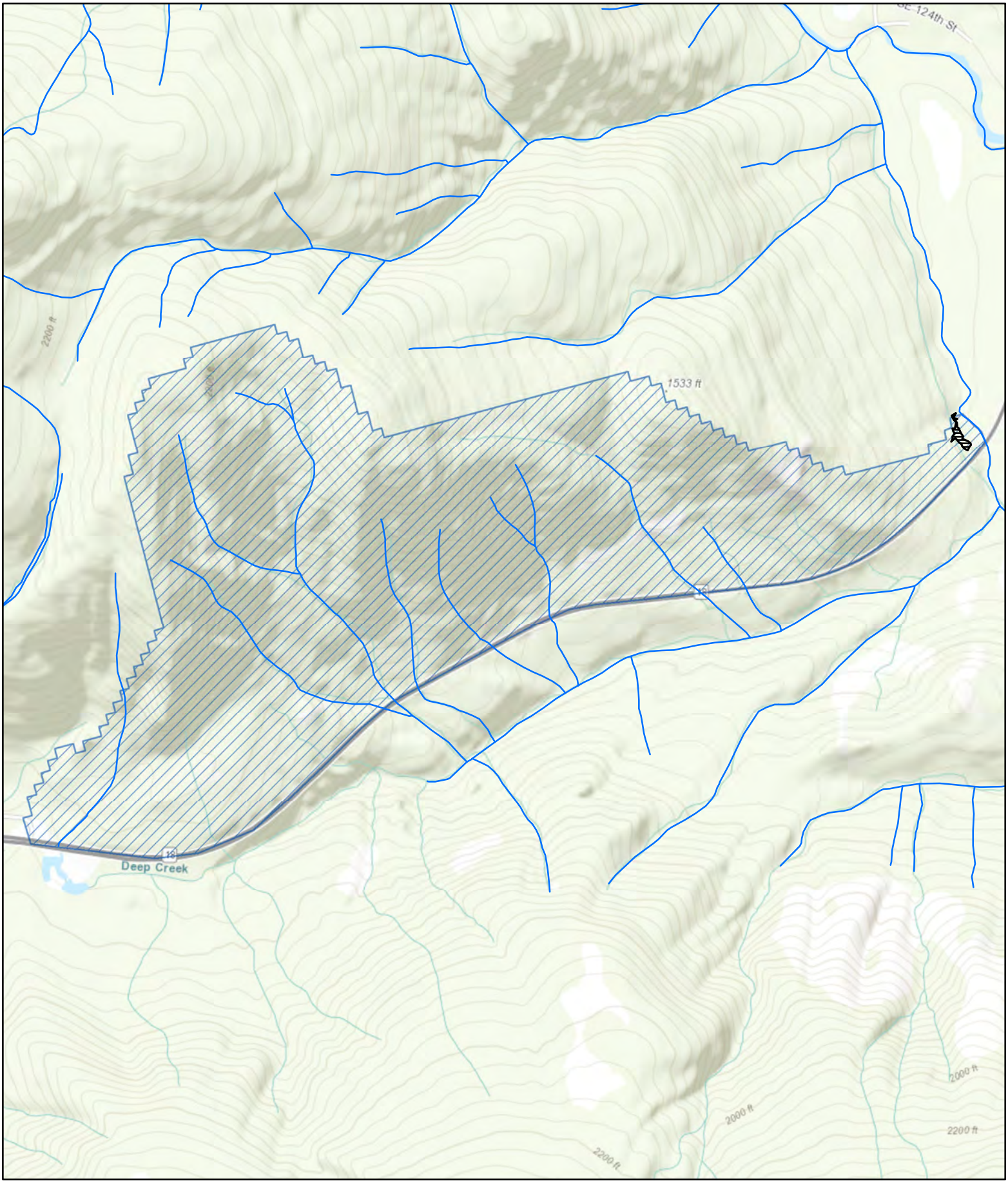
Location of Outlet
WDNR Streams
Permanently Flowing Stream
Seasonally Flowing Stream

Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 50 100 200 Feet

Wetland DC-03
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

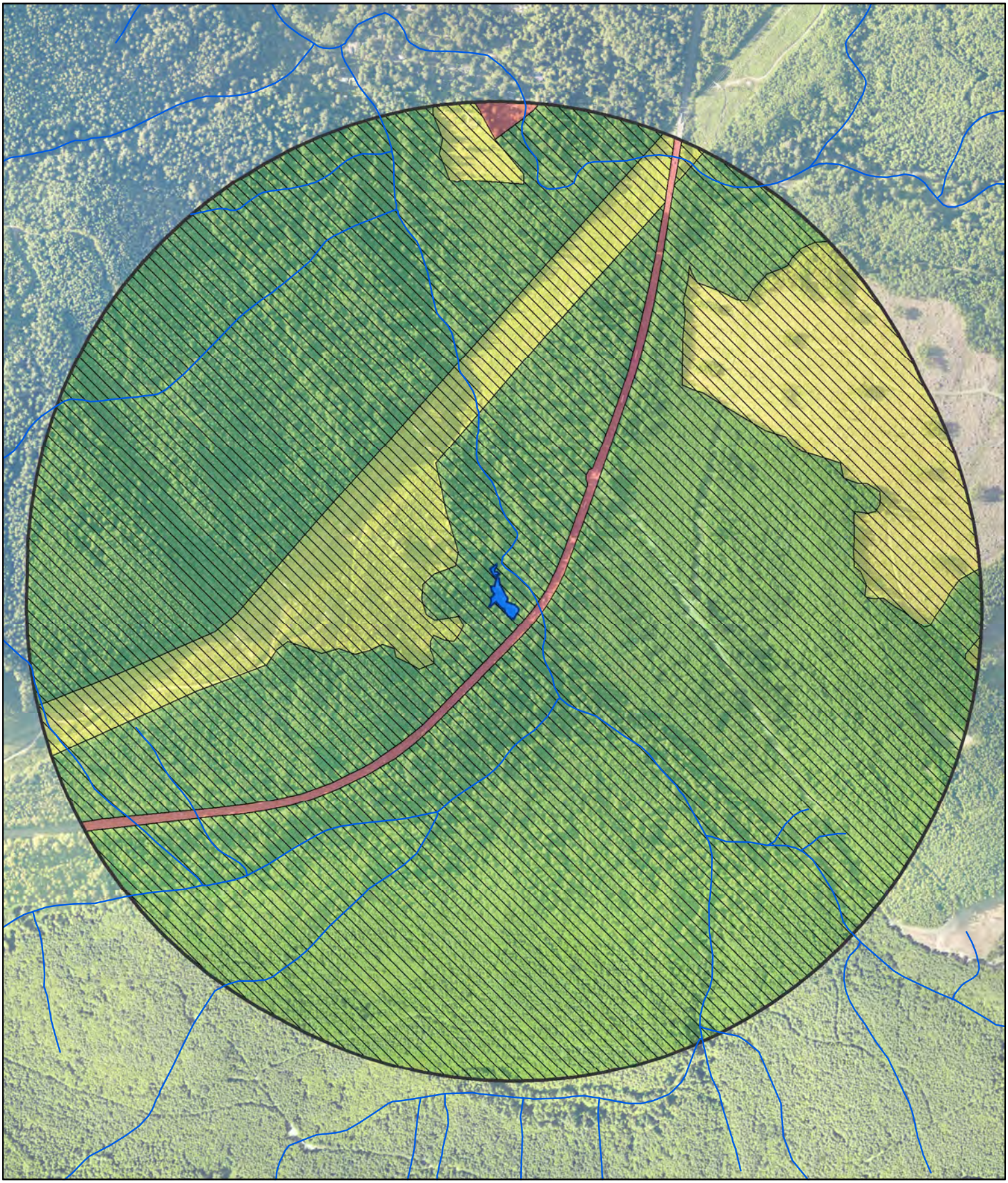
Source: WSDOT, WA DNR
King County

0 375 750 1,500 Feet

Wetland 35 (Approximate Boundary)
Contributing Basin
WDNR Streams

Wetland DC-03
Contributing Basin
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County

0 250 500 1,000 Feet

Wetland 35 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

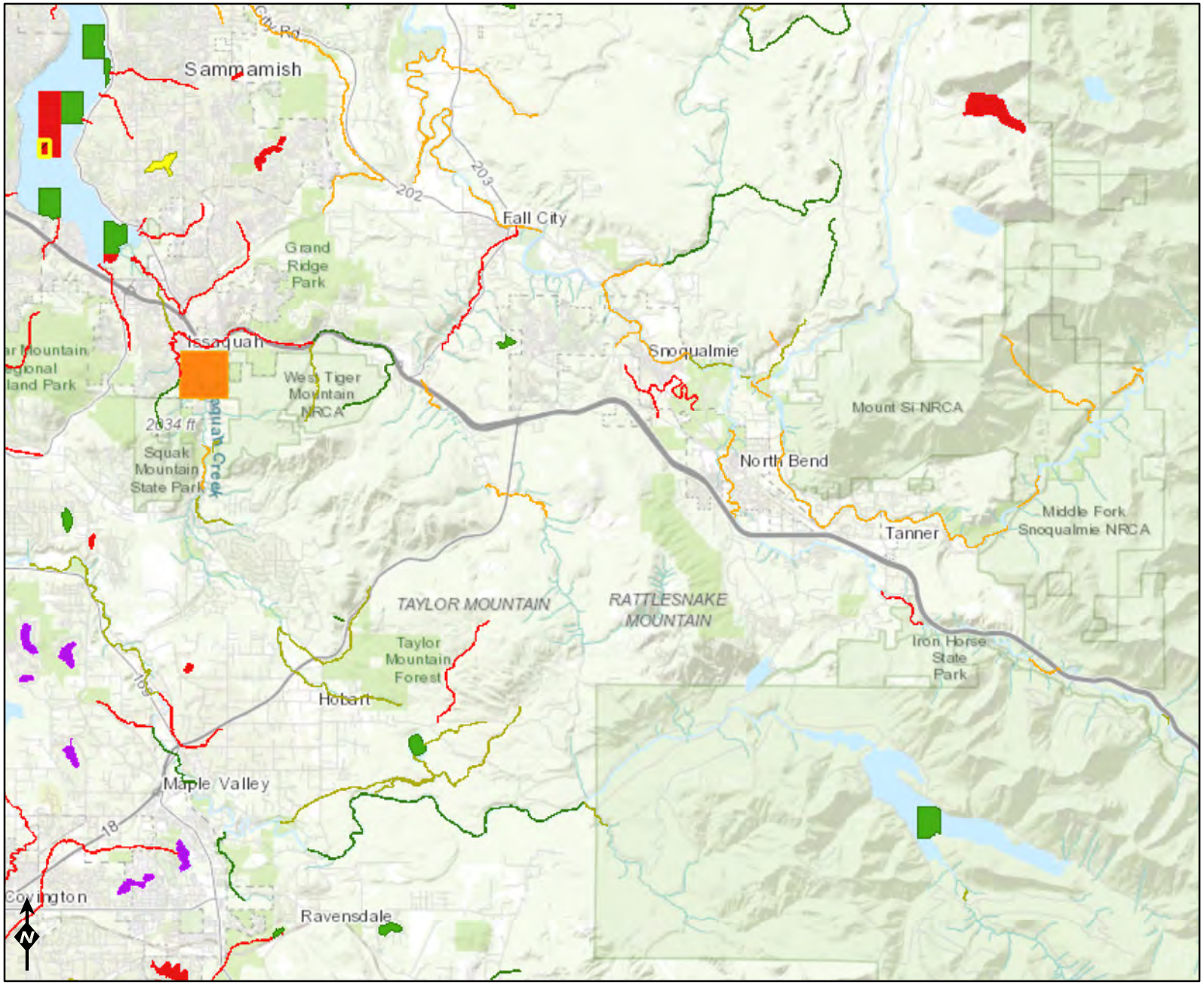
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland DC-03
Land Use & Accessible Habitat
I-90/SR 18 Interchange and
Weigh/Inspection Station
Design Services Project

King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

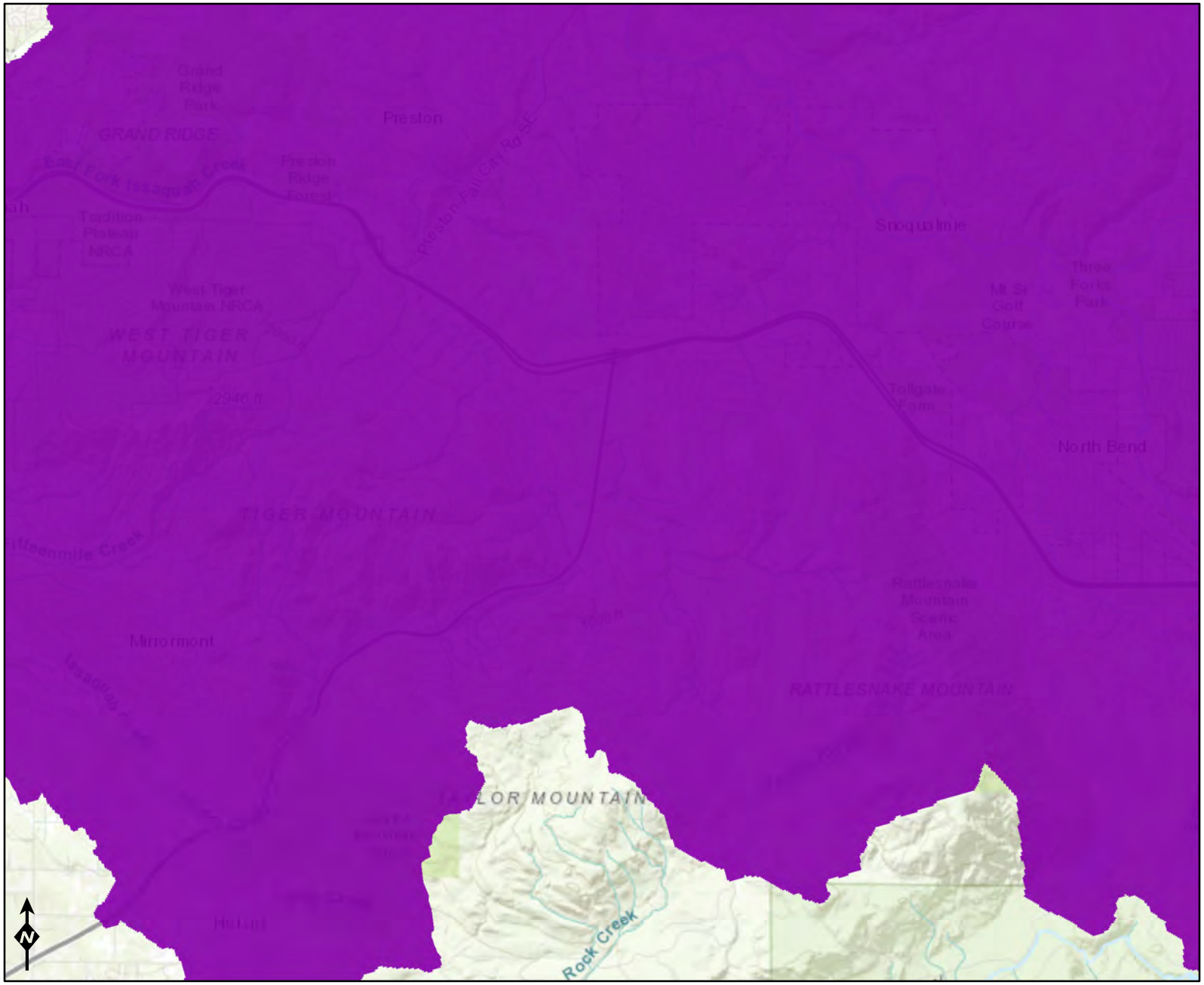
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland DC-04 Date of site visit: 10/24/2018

Rated by T. Parry, J. Meyer Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	L	M	
Landscape Potential	L	L	H	
Value	H	H	H	**Total**
Score Based on Ratings	5	5	8	**18**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number DC-04

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number DC-04

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less — points = 3 Slope is > 1% - 2% — points = 2 Slope is > 2% - 5% — points = 1 Slope is greater than 5% — points = 0	0
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 Dense, uncut, herbaceous plants > ½ of area — points = 3 Dense, woody, plants > ½ of area — points = 2 Dense, uncut, herbaceous plants > ¼ of area — points = 1 Does not meet any of the criteria above for plants — points = 0	3
Total for S 1 — Add the points in the boxes above	**3**

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Yes = 1 No = 0	0
Total for S 2 — Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **1 - 2 = M** ☑ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 — Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number DC-04

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

Rating of Landscape Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

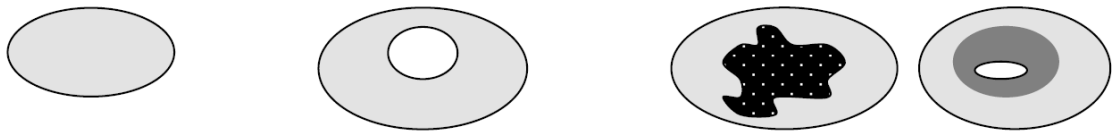
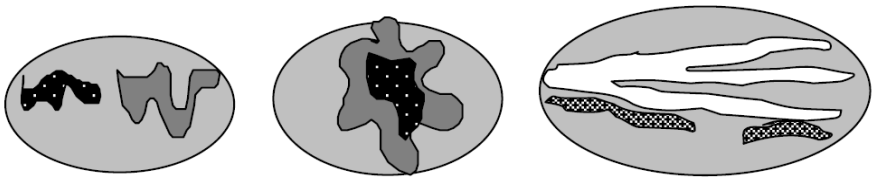
NOTES and FIELD OBSERVATIONS:

Wetland name or number DC-04

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☑ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	3
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 Add the points in the boxes above	**12**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 63 % undisturbed habitat + (8 % moderate & low intensity land uses / 2) = 67% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 83 % undisturbed habitat + (15 % moderate & low intensity land uses / 2) = 90.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number DC-04

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

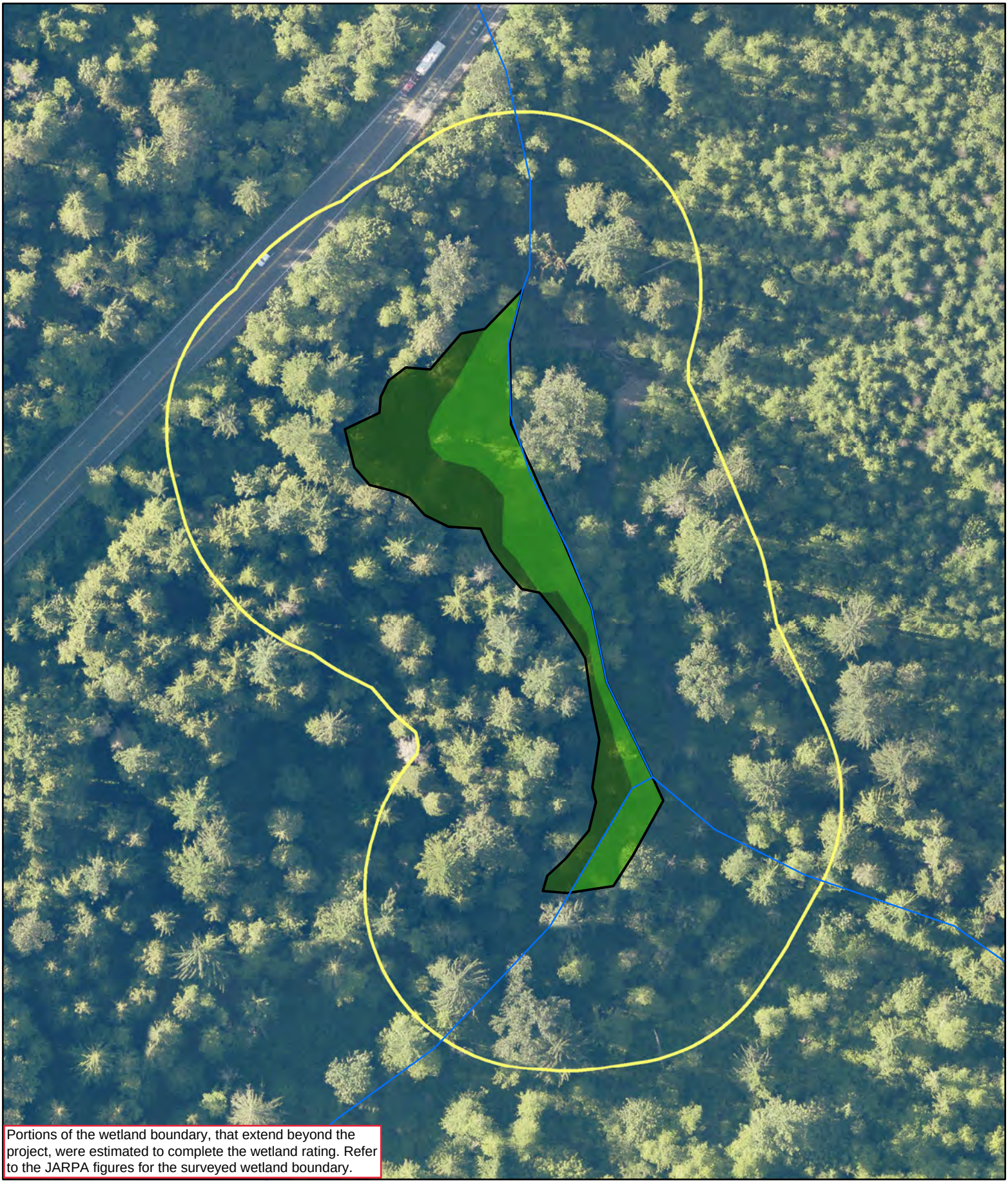
☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form



Parametrix

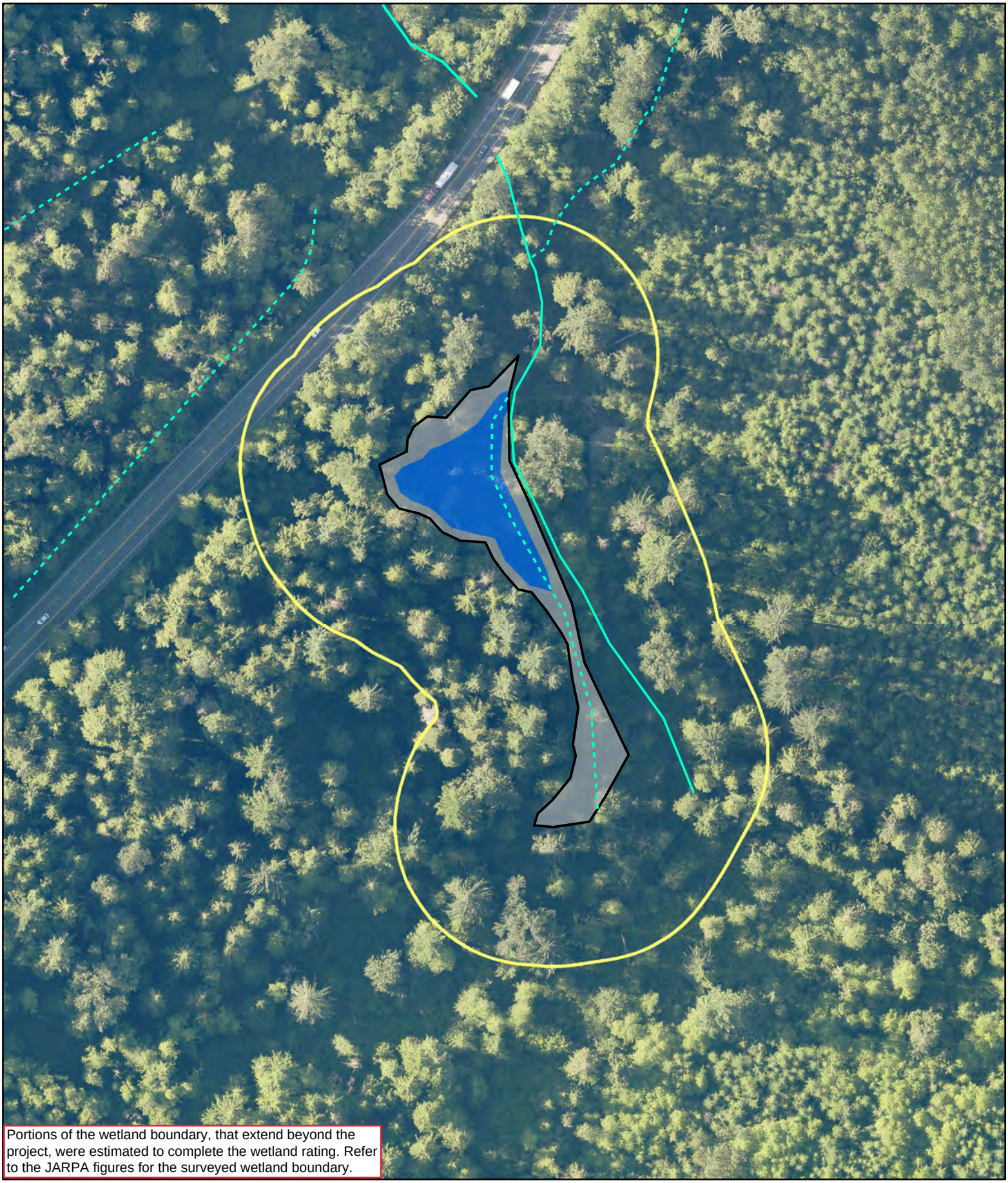
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

Wetland 22 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 50 100 200 Feet

Wetland DC-04
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

Wetland 22 (Approx. Boundary)
150-ft Boundary
Permanently Flowing Stream
Seasonally Flowing Stream
Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 62.5 125 250 Feet

Wetland DC-04
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 50 100 200 Feet

Wetland 22 (Approximate Boundary)
150-ft Boundary
WDNR Streams

Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland DC-04
Dense Plant Cover
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Parametrix

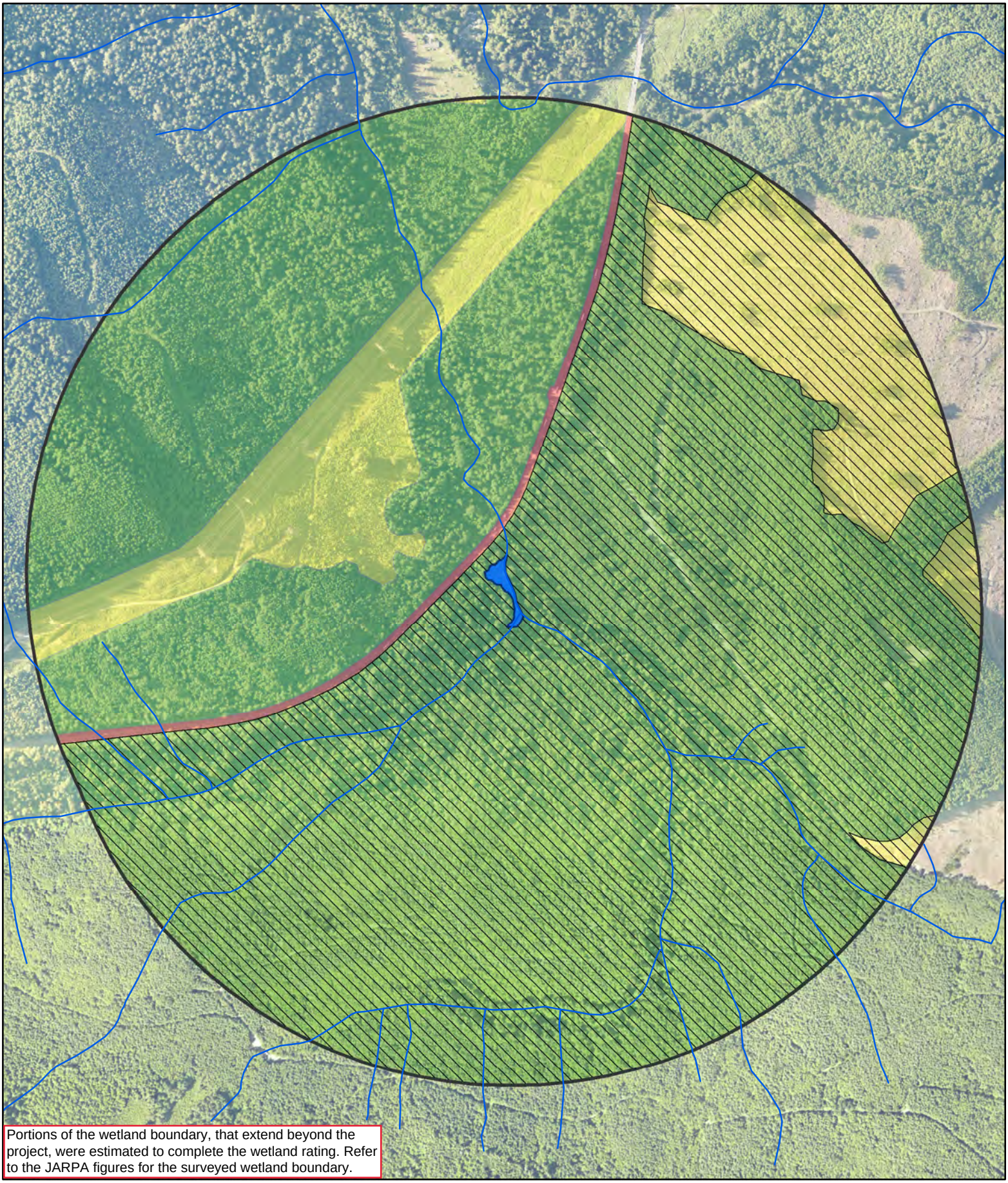
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 50 100 200 Feet

Wetland 22 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland DC-04
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 250 500 1,000 Feet

Wetland 22 (Approximate Boundary)
1-km Polygon
WDNR Streams

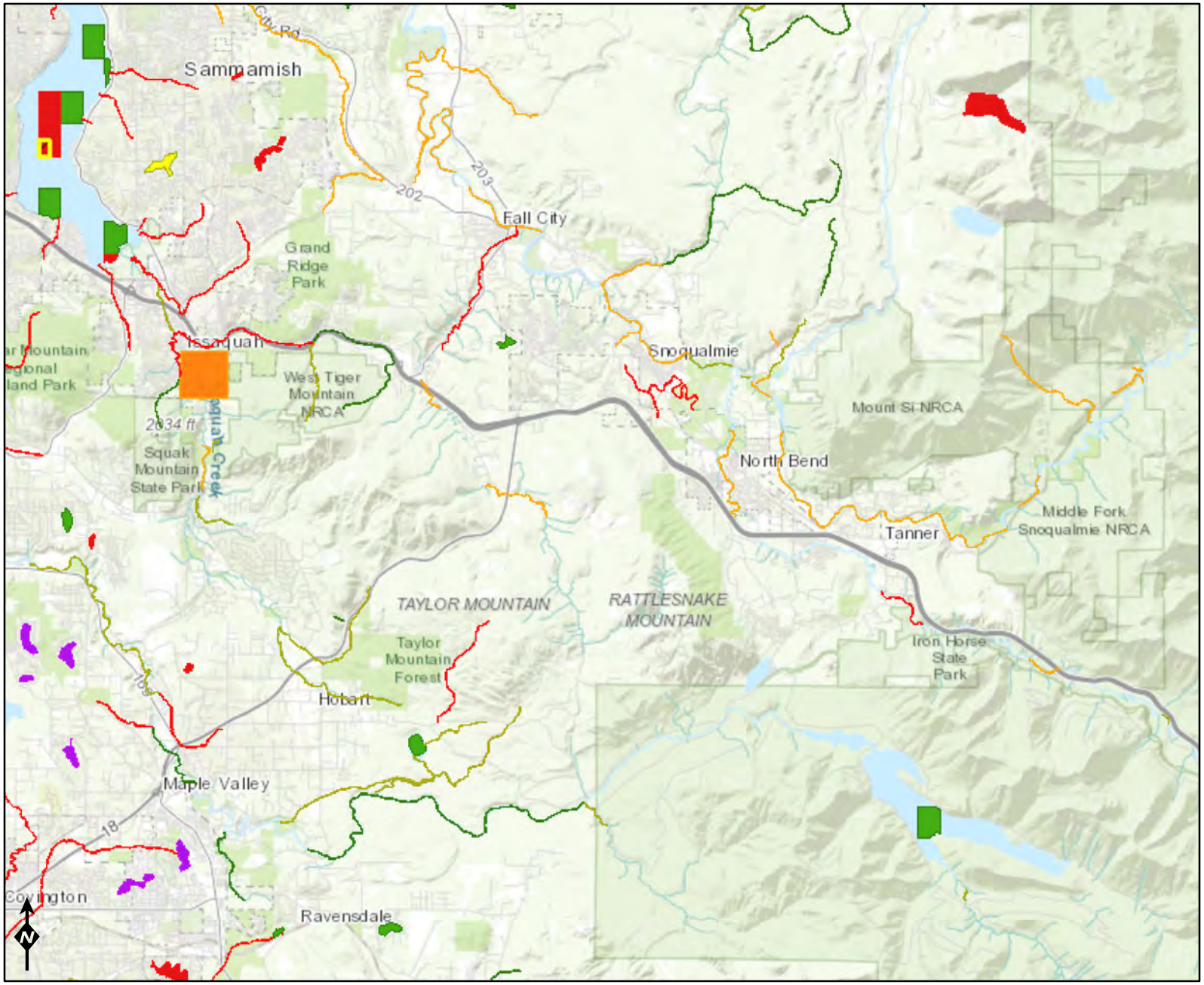
Accessible Habitat

Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland DC-04
Land Use & Accessible Habitat
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
King County, WA

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

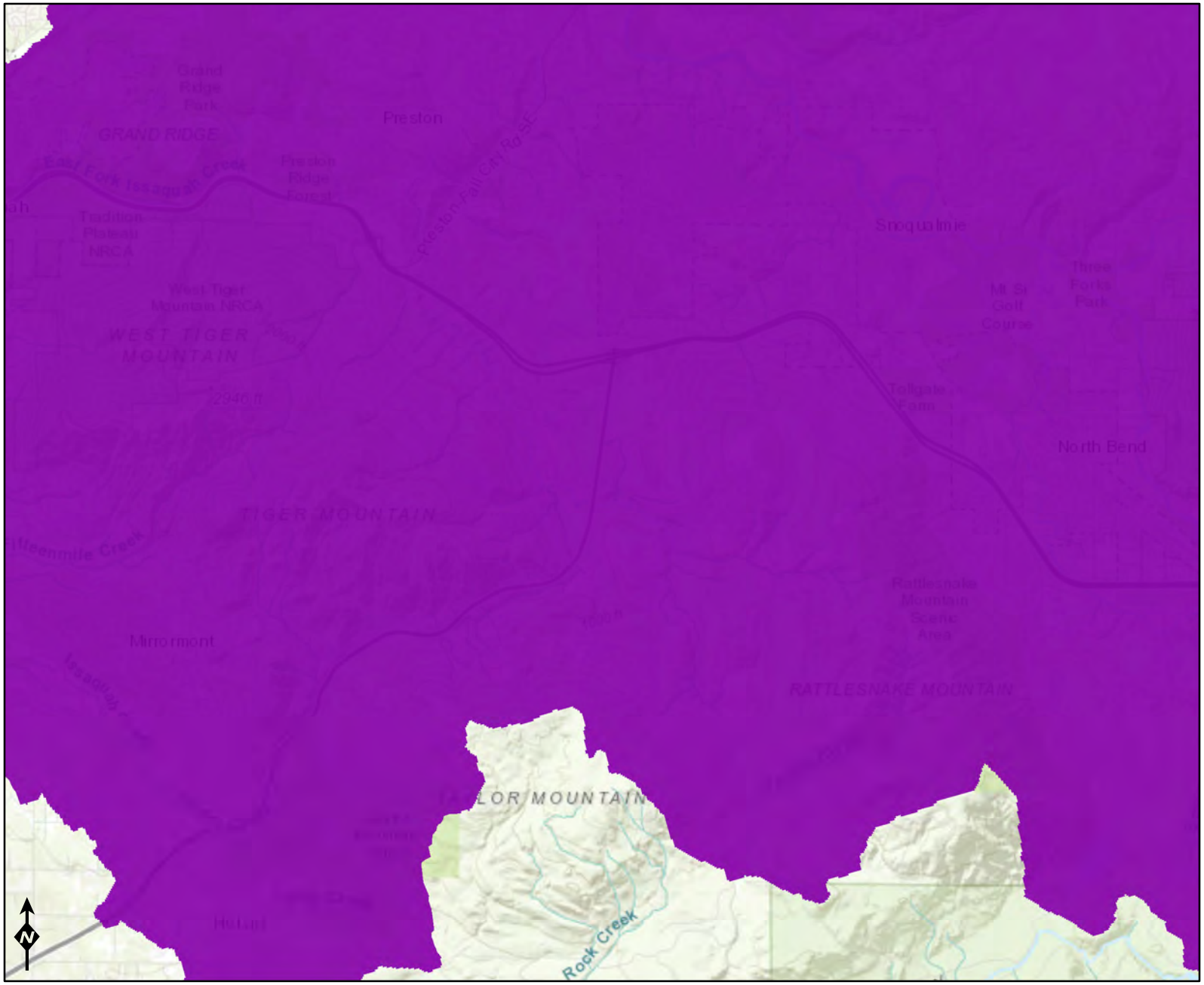
Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland DC-05 Date of site visit: 10/24/2018

Rated by T. Parry, J. Meyer Trained by Ecology? ☑ Yes ☐ No Date of training Sep-18

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map King County Aerials 2017. Res = 9 inches per pixel.

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	L	L	M	
Landscape Potential	M	L	H	
Value	H	H	H	**Total**
Score Based on Ratings	6	5	8	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number DC-05

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number DC-05

SLOPE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1% - 2% points = 2 Slope is > 2% - 5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	2
Total for S 1 Add the points in the boxes above	**3**

Rating of Site Potential If score is: ☐ **12 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other Sources Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☑ **1 - 2 = M** ☐ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 No = 0	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? A*nswer YES if there is a TMDL for the basin in which the unit is found*? Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number DC-05

SLOPE WETLANDS **Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream erosion	
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^{1}/_{8}$ in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

Rating of Landscape Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	2
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

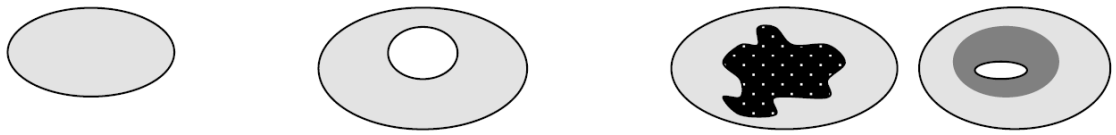
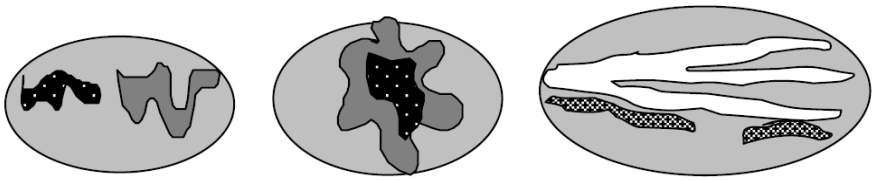
NOTES and FIELD OBSERVATIONS:

Wetland name or number DC-05

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	2
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	2
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
Total for H 1 Add the points in the boxes above	**13**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 81 % undisturbed habitat + (18 % moderate & low intensity land uses / 2) = 90% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 81 % undisturbed habitat + (18 % moderate & low intensity land uses / 2) = 90% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number DC-05

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

Wetland 34 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

0 50 100 200 Feet

Wetland DC-05
Cowardin Plant Classes
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA

Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

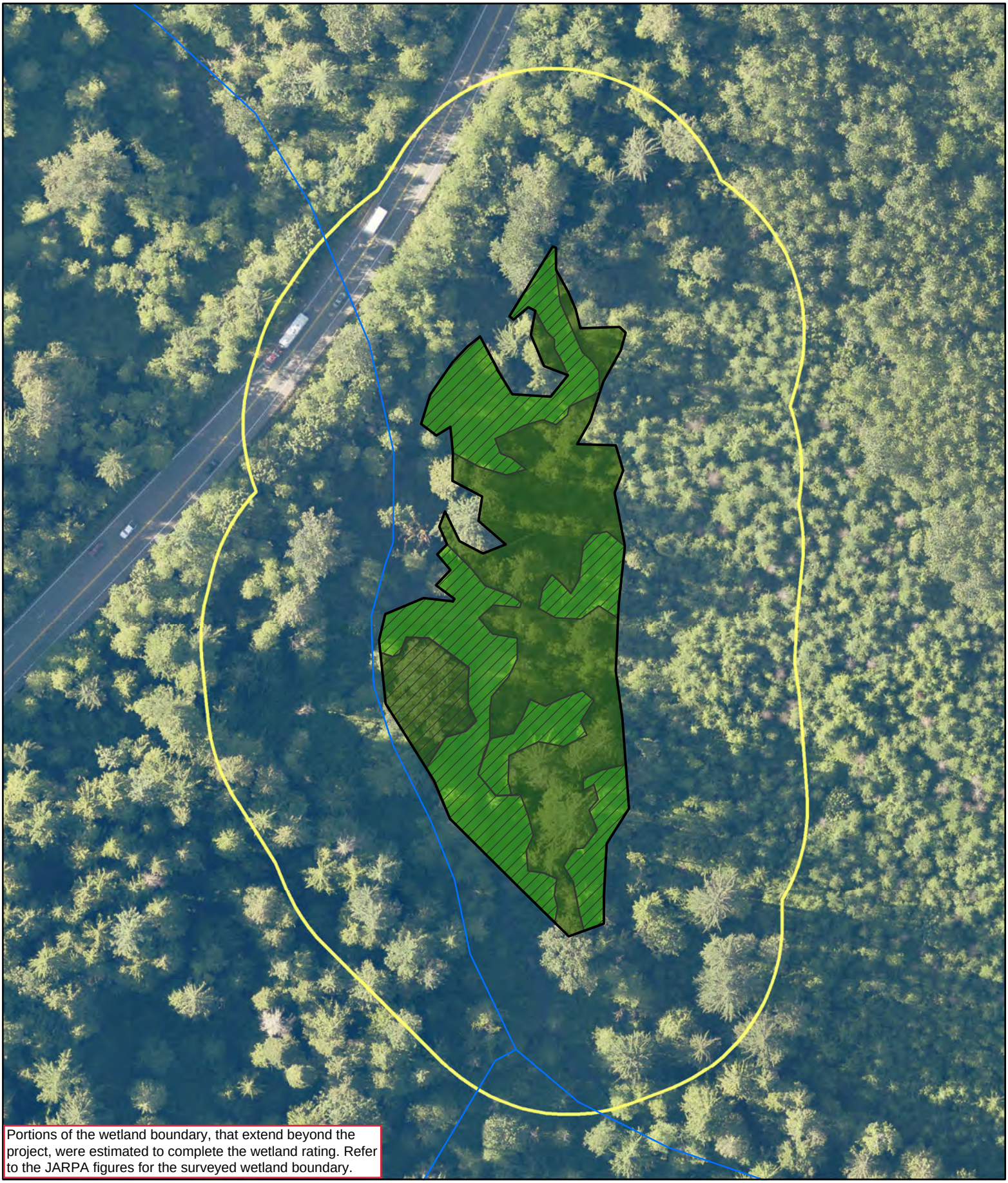
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

Wetland 34 (Approx. Boundary)
150-ft Boundary
Permanently Flowing Stream
Seasonally Flowing Stream
Permanently Flooded/Inundated
Seasonally Flooded/Inundated
Occasionally Flooded/Inundated
Saturated Only

0 62.5 125 250 Feet

Wetland DC-05
Hydroperiods & Outlet Locations
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

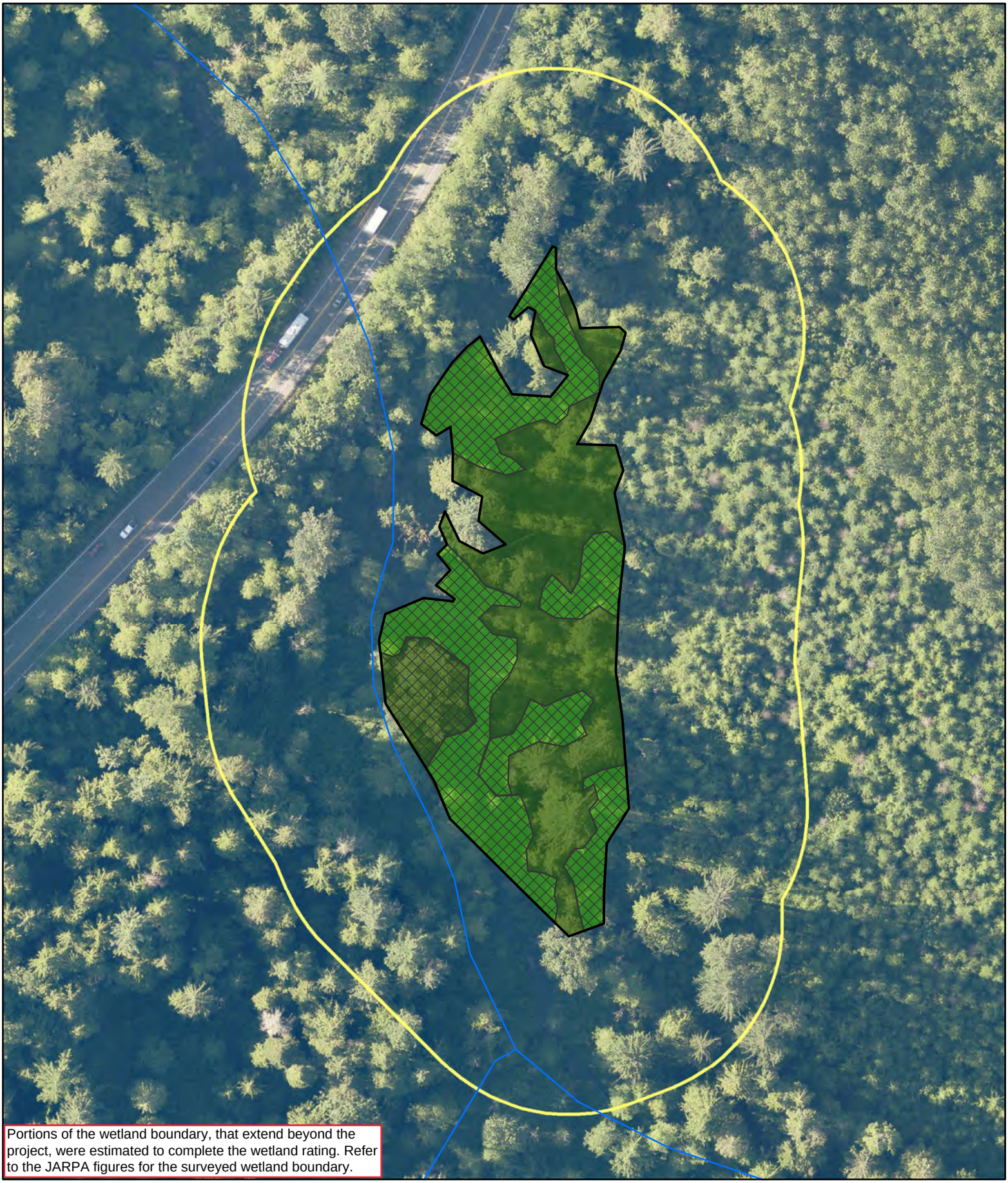
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 50 100 200 Feet

Wetland 34 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Dense Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland DC-05
Dense Plant Cover
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Portions of the wetland boundary, that extend beyond the project, were estimated to complete the wetland rating. Refer to the JARPA figures for the surveyed wetland boundary.

Parametrix

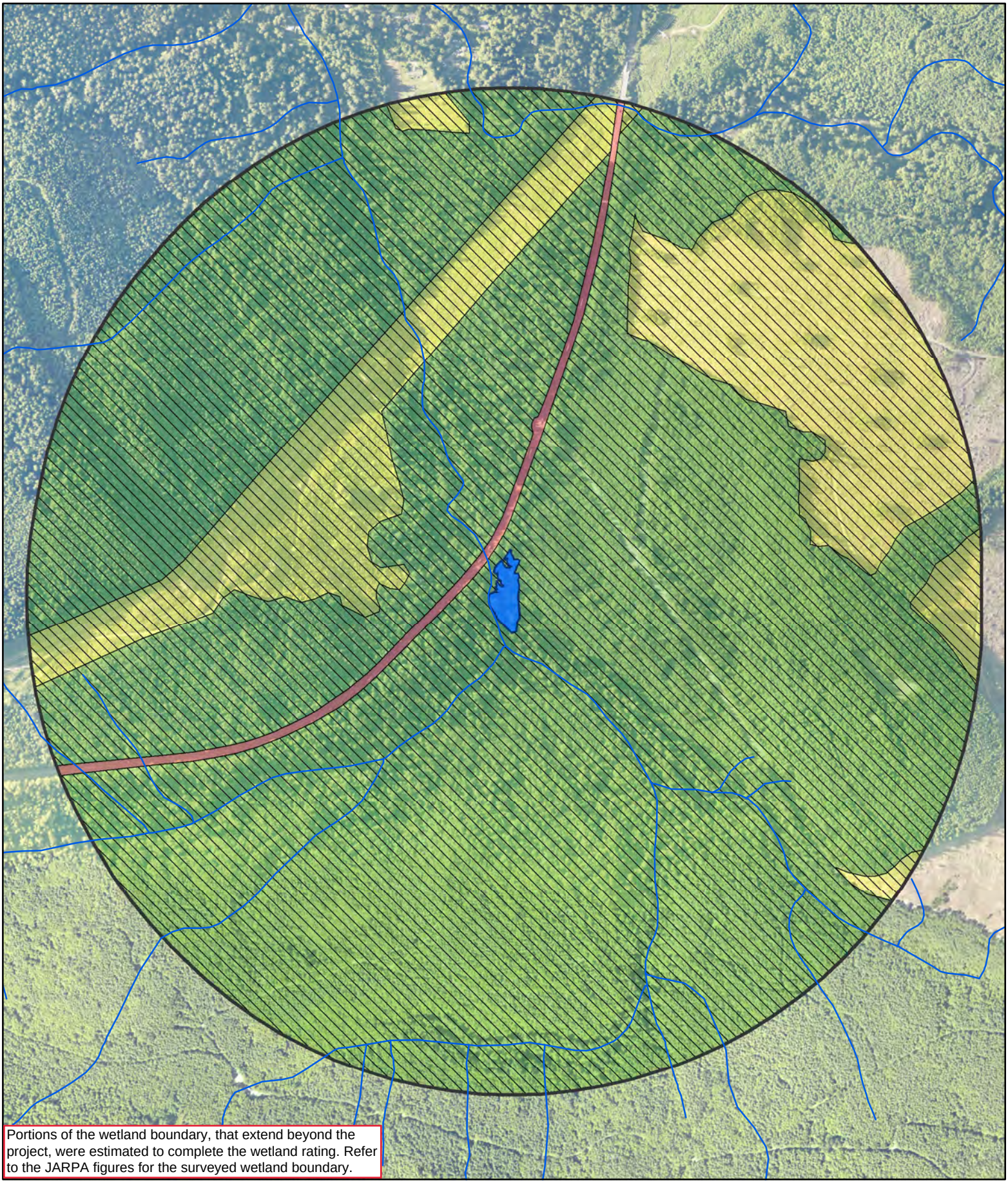
Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 50 100 200 Feet

Wetland 34 (Approximate Boundary)
150-ft Boundary
WDNR Streams
Dense & Rigid Plant Cover
Palustrine Forested (PFO)
Palustrine Scrub Shrub (PSS)
Palustrine Emergent (PEM)

Wetland DC-05
Dense & Rigid Plant Cover
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project

King County, WA



Parametrix

Source: WSDOT, WA DNR
King County
Updated 1/12/2022

0 250 500 1,000 Feet

Wetland 34 (Approximate Boundary)
1-km Polygon
WDNR Streams

Accessible Habitat

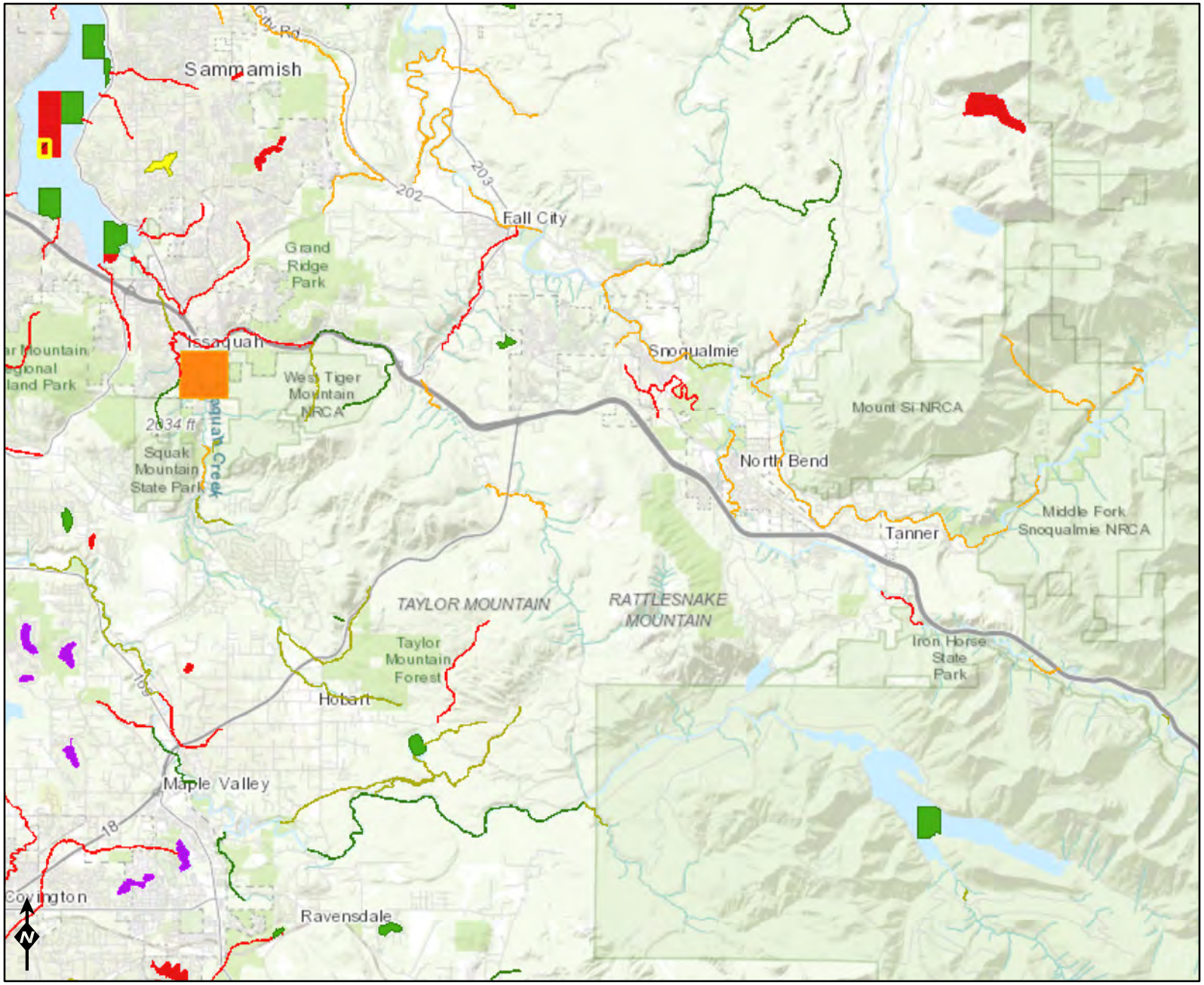
Land Use Intensity

High
Moderate and Low
Undisturbed

Wetland DC-05
Land Use & Accessible Habitat
I-90/SR 18 Interchange and Weigh/Inspection Station Design Services Project
King County, WA

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

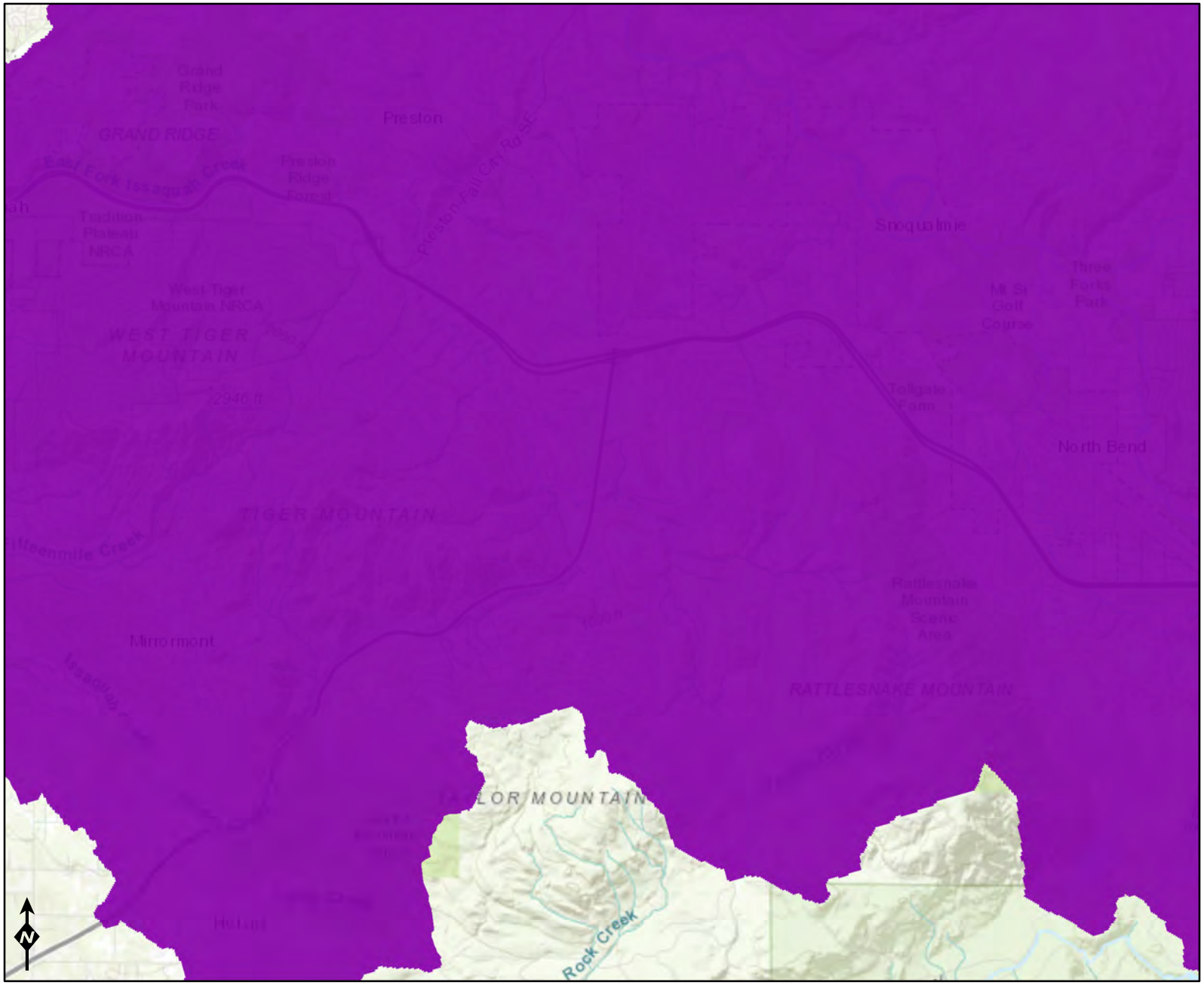
Miles 0 2 4 8

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

November 13, 2018

I-90 / SR 18 Interchange & Weigh Station Design Services



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

Wetland name or number DC-06

RATING SUMMARY – Western Washington

Name of wetland (or ID #): DC-06 Date of site visit: 3/13/2020

Rated by P. Johnson and T. Parry Trained by Ecology? ☑ Yes ☐ No Date of training Jun-14

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/ma ESRI

OVERALL WETLAND CATEGORY II (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
X **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	L	L	
Landscape Potential	H	M	H	
Value	H	H	H	**Total**
Score Based on Ratings	8	6	7	**21**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number DC-06

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number DC-06

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.
Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:
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Wetland name or number DC-06

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☑ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	1
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*). Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	0
Total for D 1 Add the points in the boxes above	**6**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Vehicle emmision particulates and roadside debris Yes = 1 No = 0	1
Total for D 2 Add the points in the boxes above	**3**

Rating of Landscape Potential If score is ☑ **3 or 4 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number DC 06

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	0
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 ☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 ☐ The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	0
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* ☐ The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 ☐ Entire wetland is in the Flats class points = 5	3
Total for D 4 Add the points in the boxes above	**3**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☐ **6 - 11 = M** ☑ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?	
D 5.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	0
Total for D 5 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 ☑ • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 ☐ Flooding from groundwater is an issue in the sub-basin. points = 1 ☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why points = 0 ☐ There are no problems with flooding downstream of the wetland. points = 0	2
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0

Wetland name or number DC-06

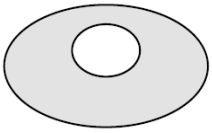
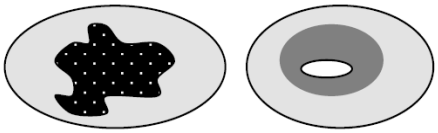
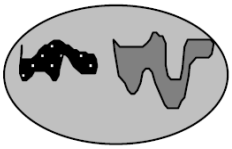
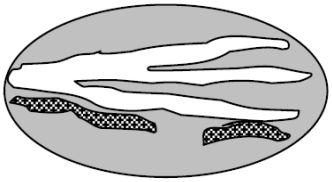
Total for D 6	Add the points in the boxes above	2

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☐ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☐ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	0
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	0
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points   	0

Wetland name or number DC-06

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by* ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**2**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 30 % undisturbed habitat + 10 % moderate & low intensity land uses / 2) = 35% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 70 % undisturbed habitat + 20 % moderate & low intensity land uses / 2) = 80% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Wetland name or number DC-06

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number DC-06

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they

are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☑ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☑ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	

Wetland name or number DC-06 ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**

Wetland name or number DC-08

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Wetland Rating for Western Washington 2014 Update

I/90 SR18 Interchange to Deep Creek
Wetland DC 6

N

0 20 40 80
Feet

Legend

- wetland
- open water
- PSS

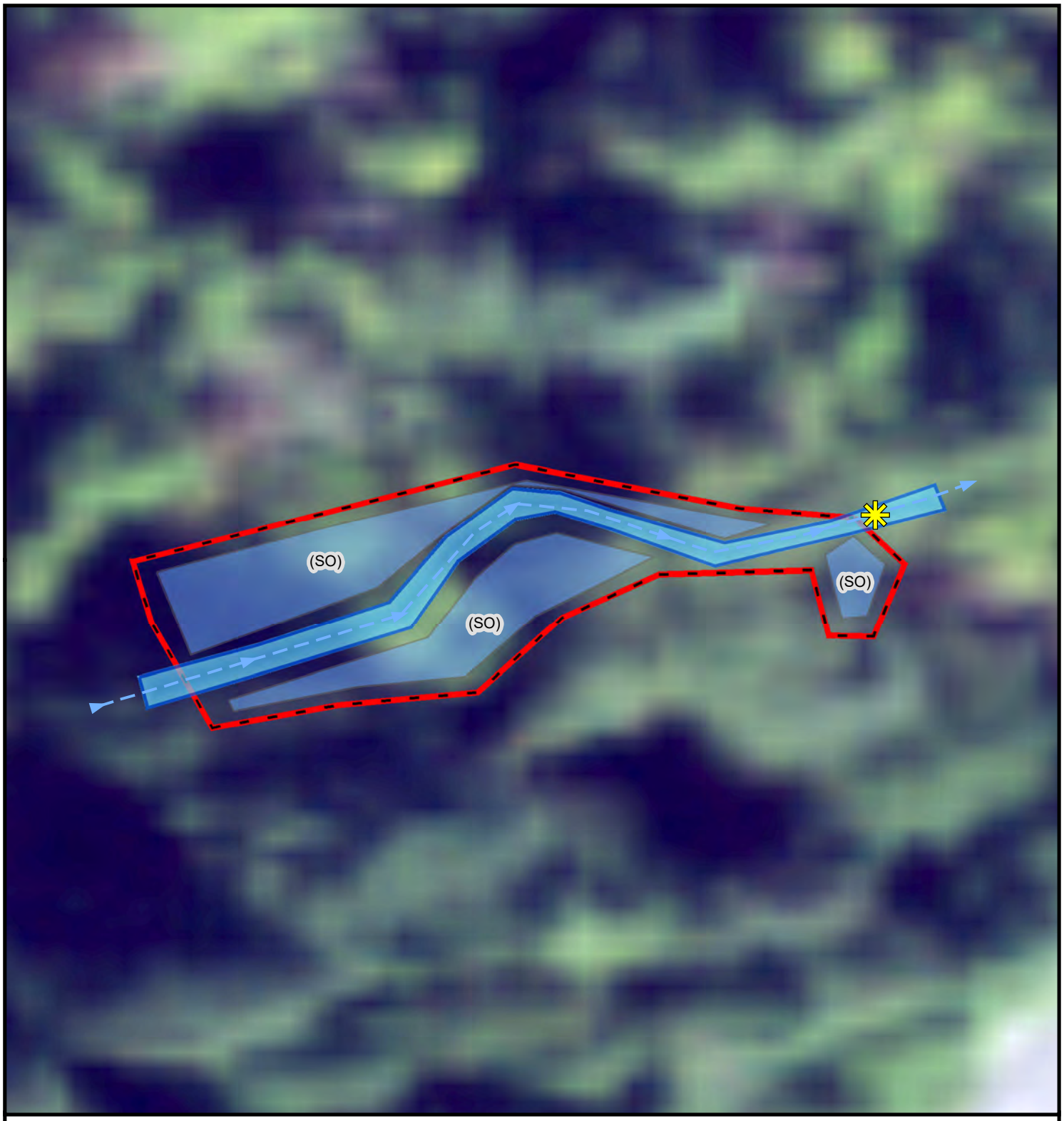
Cowardin Plant Classes Map
Questions D 1.3, H 1.1, H 1.4

Washington State Department of Transportation

Fig1_D_Cowardin_WL41_DC6

Date Saved: 4/9/2020

Figure 1



Wetland Rating for Western Washington 2014 Update

I/90 SR18 Interchange to Deep Creek Wetland DC 6

N

0 10 20 40
Feet

Legend

Representation: Outlet_depressional

outlet

Hydroperiod streams

Representation: Hydroperiod_streams_depress_Rep

seasonally flowing

Upland and open water

Representation: Upland_openwater_depressional

open water

Hydroperiods

Representation: Hydroperiods_depressional

saturated only (SO)

wetland

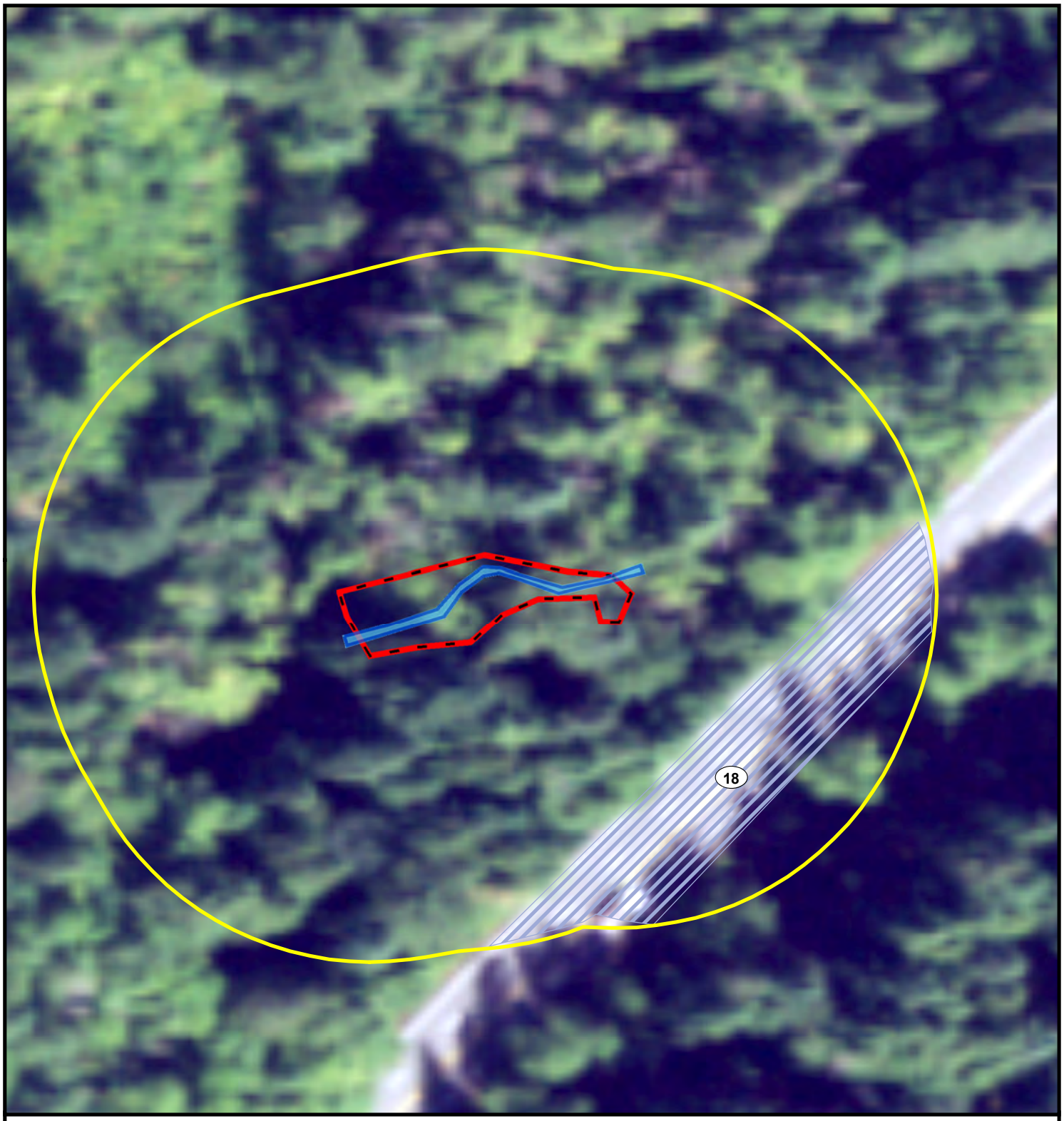
Washington State Department of Transportation

Fig2_D_HydroperiodsAndOutlet_WL41_DC6

Date Saved: 4/9/2020

Hydroperiods & Location of Outlet Map
Questions D 1.1, D 1.4, D 4.1, H 1.2

Figure 2



Wetland Rating for Western Washington 2014 Update

I/90 SR18 Interchange to Deep Creek Wetland DC 6

N

0 30 60 120
Feet

Legend

150 ft. Buffer

Generating surfaces:

Representation: Generating_surfaces_depressional

pollutant and excess runoff generating surfaces

Upland and open water

Representation: Upland_openwater_depressional

open water

wetland

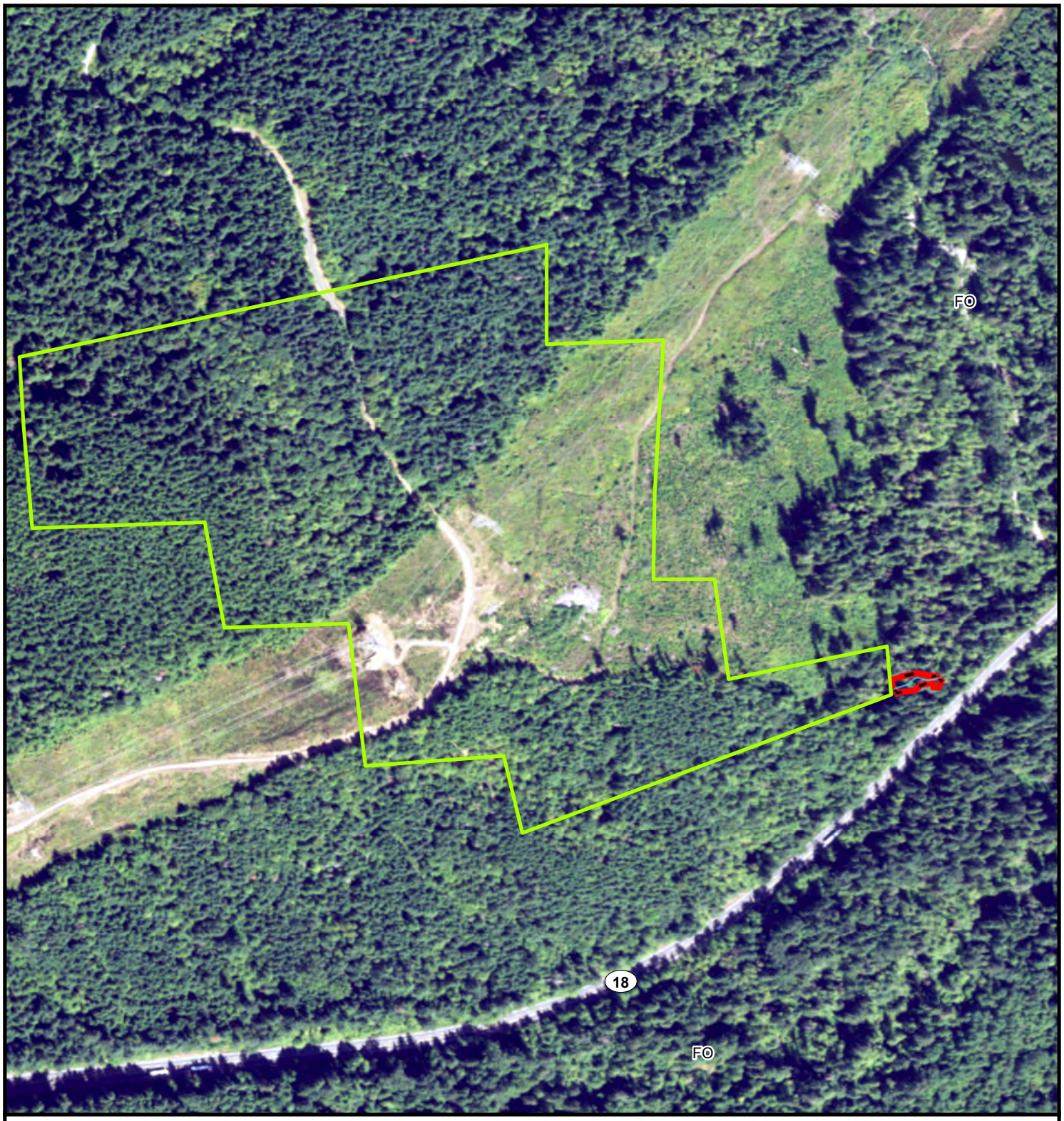
150 ft. Polygon Map
Questions D 2.2, D 5.2

Washington State Department of Transportation

Fig3_D_150ftPolygonMap_WL41_DC6

Date Saved: 4/9/2020

Figure 3



Wetland Rating for Western Washington 2014 Update

I/90 SR18 Interchange to Deep Creek
Wetland DC 6

N

0 195 390 780
Feet

Legend

Contributing Basin

Upland and open water

Representation: Upland_openwater_depressional

open water

Forested

wetland

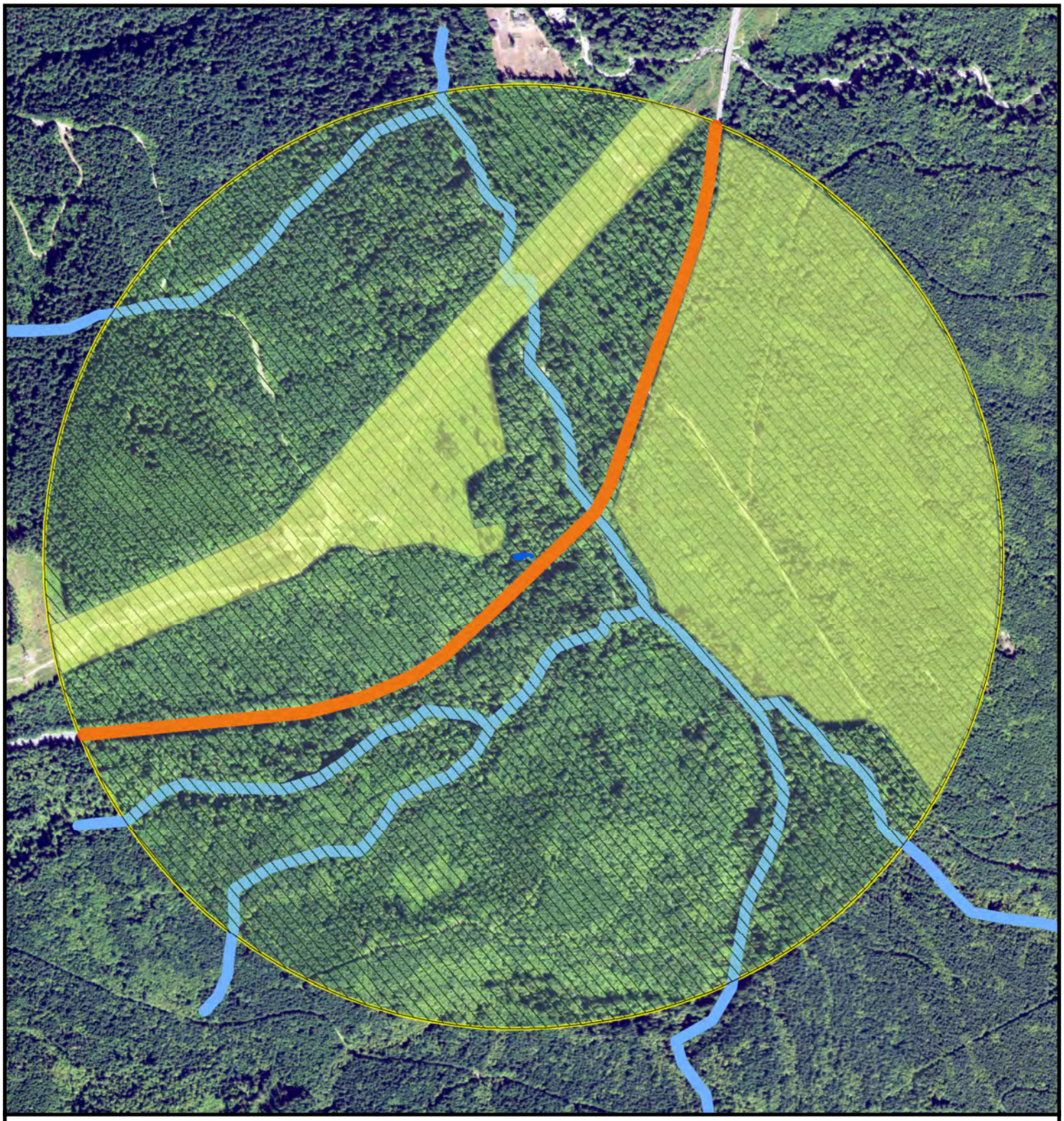
Washington State Department of Transportation

Fig4_D_ContributingBasin_WL41_DC6

Date Saved: 4/9/2020

Contributing Basin Map
Questions D 4.3, D 5.3

Figure 4



Wetland Rating for Western Washington 2014 Update

I/90 SR18 Interchange to Deep Creek
Wetland DC 6

N

0 435 870 1,740
Feet

Legend

- Wetland DC6
- 1km Polygon
- WDNR Streams
- Accessible Habitat
- High Intensity Land Use
- Moderate and Low Intensity Land Use
- Undisturbed Habitat

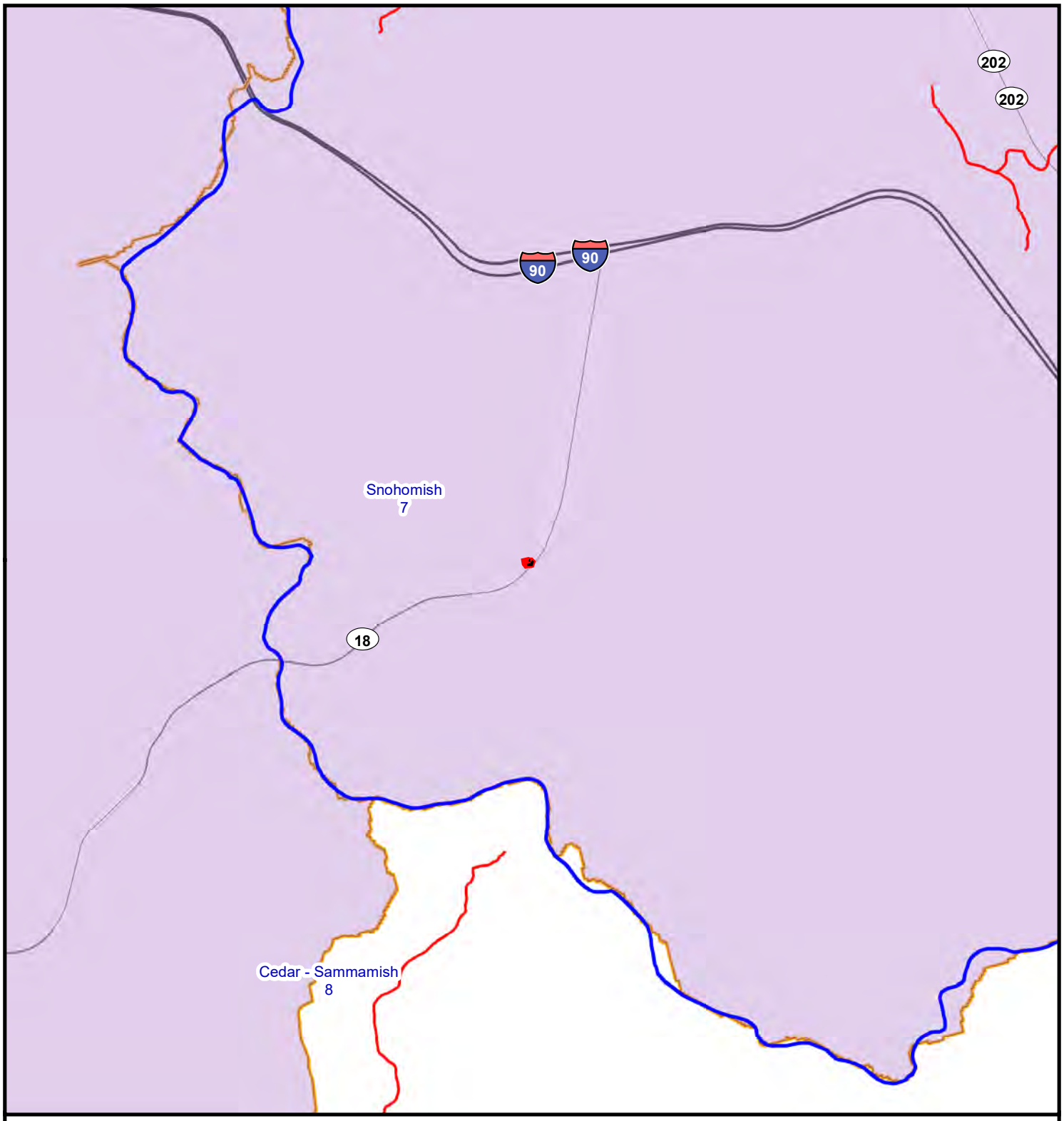
Washington State Department of Transportation

Fig5_D_1kmPolygon_WL41_DC6_XXXXXX

Date Saved: 4/9/2020

I km Polygon Map
Questions H 2.1, H 2.2, H 2.3

Figure 5



Wetland Rating for Western Washington 2014 Update

I/90 SR18 Interchange to Deep Creek
Wetland DC 6

N

0 2,300 4,600 9,200
Feet

Legend

- wetland
- WRIA (1:24K)
- Category 5 Impaired Waters
- Approved TMDLs
- TMDLs in Development

303(d) listed waters in basin & TMDL's for WRIA Map
Questions R 3.1, R 3.2, R 3.3

Washington State Department of Transportation

Fig6_D_303d&TMDLs_WL41_DC6

Date Saved: 4/9/2020

Figure 6

Wetland name or number DC-07

RATING SUMMARY – Western Washington

Name of wetland (or ID #): DC-07 Date of site visit: 3/13/2020

Rated by P. Johnson and T. Parry Trained by Ecology? ☑ Yes ☐ No Date of training Jun-14

HGM Class used for rating Riverine & Fresh Water Tidal Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map ESRI

OVERALL WETLAND CATEGORY II (based on functions ☑ or special characteristics☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
X **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	M	M	
Landscape Potential	M	M	H	
Value	H	M	H	**Total**
Score Based on Ratings	7	6	8	**21**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number DC-07

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number DC-07

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.
Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☑ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☑ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number DC-07

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		2
Depressions cover > $^3/_4$ area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	
Depressions present but cover < ½ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		6
Trees or shrubs > $^2/_3$ area of the wetland	points = 8	
☑ Trees or shrubs > $^1/_3$ area of the wetland	points = 6	
☐ Herbaceous plants (> 6 in high) > $^2/_3$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > $^1/_3$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < $^1/_3$ area of the wetland	points = 0	
Total for R 1	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	0
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	Yes = 1 No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1 - R 2.4? Other Sources Roadside debris and emission particulates	Yes = 1 No = 0	1
Total for R 2	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 - 6 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 No = 0	0
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	Yes = 2 No = 0	2
Total for R 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number DC-07

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).*		4
If the ratio is more than 20	points = 9	
If the ratio is 10 - 20	points = 6	
If the ratio is 5 - < 10	points = 4	
If the ratio is 1 - < 5	points = 2	
If the ratio is < 1	points = 1	
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes*).		7
Forest or shrub for > $^{1}/_{3}$ area OR emergent plants > $^{2}/_{3}$ area	points = 7	
Forest or shrub for > $^{1}/_{10}$ area OR emergent plants > $^{1}/_{3}$ area	points = 4	
Plants do not meet above criteria	points = 0	
Total for R 4	Add the points in the boxes above	**11**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?			
R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0	No = 1	0
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1	No = 0	0
R 5.3 Is the up-gradient stream or river controlled by dams?	Yes = 0	No = 1	1
Total for R 5	Add the points in the boxes above		**1**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

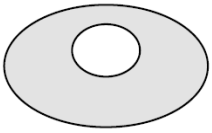
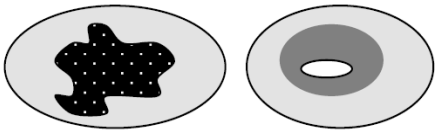
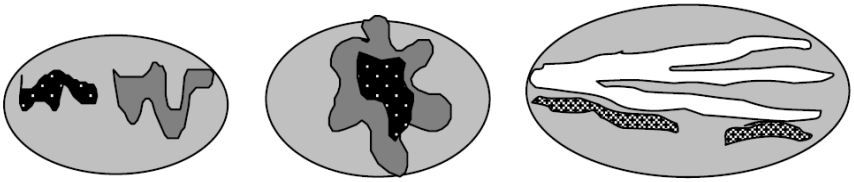
R 6.0. Are the hydrologic functions provided by the site valuable to society?		
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.*		1
The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for R 6	Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2 - 4 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☐ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*    **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

Wetland name or number DC-07

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by* ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 — Add the points in the boxes above	**7**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 30 % undisturbed habitat + 10 % moderate & low intensity land uses / 2) = 35% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 70 % undisturbed habitat + 20 % moderate & low intensity land uses / 2) = 80% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Wetland name or number DC-07

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number DC-07

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they

are addressed elsewhere.

Wetland name or number DC-07

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☑ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☑ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	

Wetland name or number DC-07 ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**

Wetland name or number BC-07

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Wetland Rating for Western Washington 2014 Update

I-90 SR18 Interchange to Deep Creek
Wetland DC 7

N

0 15 30 60
Feet

Legend

- wetland
- trees or shrubs
- PEM
- PSS

Cowardin Plant Classes Map
Questions H 1.1, H 1.4,
Plant Cover Map
Questions R 1.2, R 4.2

Washington State Department of Transportation

Fig1_R_Cowardin&PlantCover_WL43_DC7

Date Saved: 4/9/2020 5:32:36 PM

Figure 1

Wetland Rating for Western Washington 2014 Update

N

0 15 30 60
Feet

Washington State Department of Transportation

Fig2_R_HydroperiodsPD_WL43_DC7

Date Saved: 4/10/2020

Legend

Hydroperiod streams:

Representation: Hydroperiod_streams_riverine

seasonally flowing

Hydroperiods:

Representation: Hydroperiods_riverine

saturated only

ponded depression

wetland

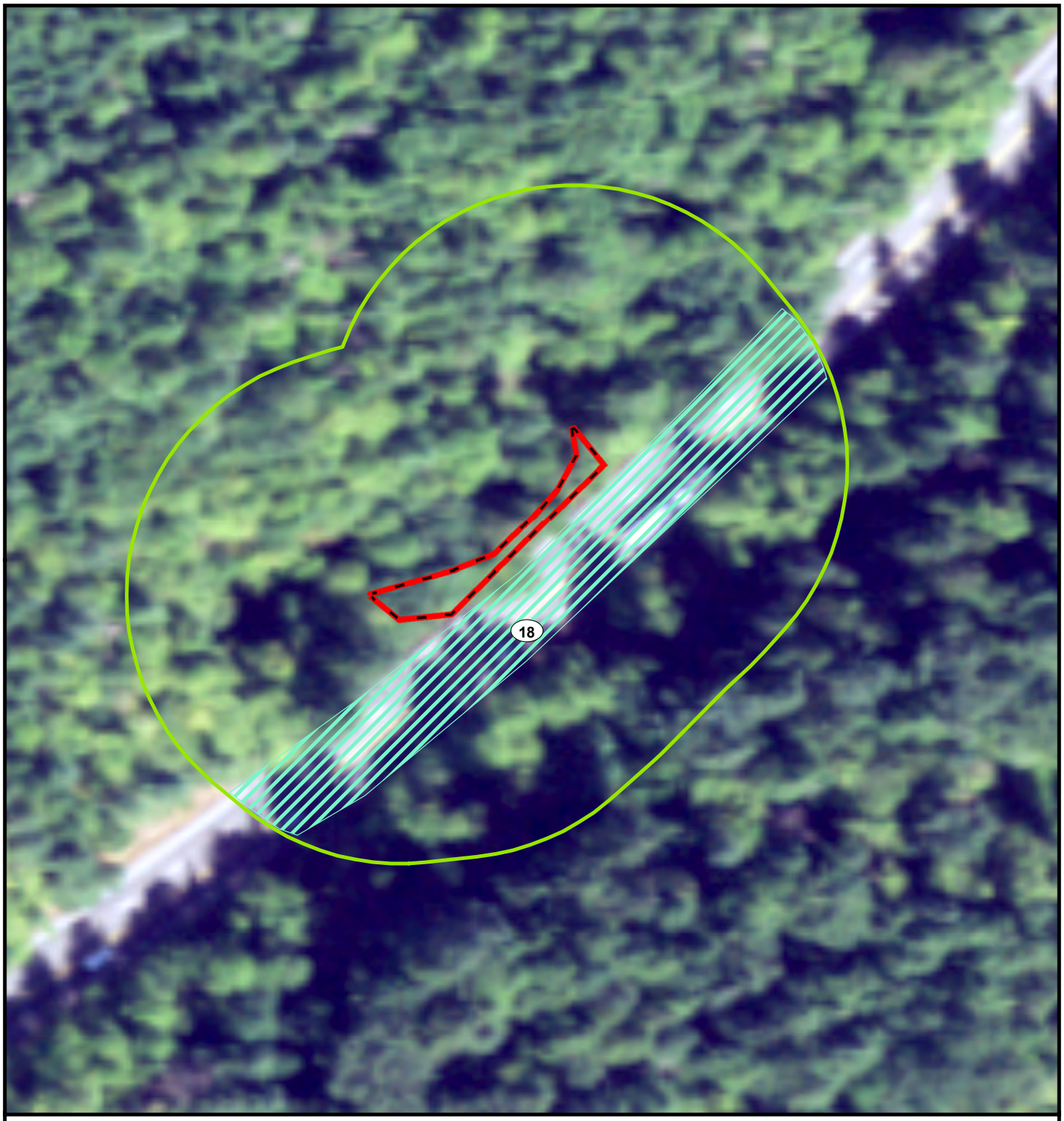
Representation: Wetland_width_riverine

average wetland width

I-90 SR18 Interchange to Deep Creek
Wetland DC 7

Hydroperiods & Ponded Depressions Map
Questions H 1.2, R 1.1

Figure 2



Wetland Rating for Western Washington 2014 Update

I-90 SR18 Interchange to Deep Creek
Wetland DC 7

N

0 37.5 75 150
Feet

Washington State Department of Transportation

Fig3_R_150ftPolygon_WL43_DC7

Date Saved: 4/10/2020

Legend

150ft. Polygon

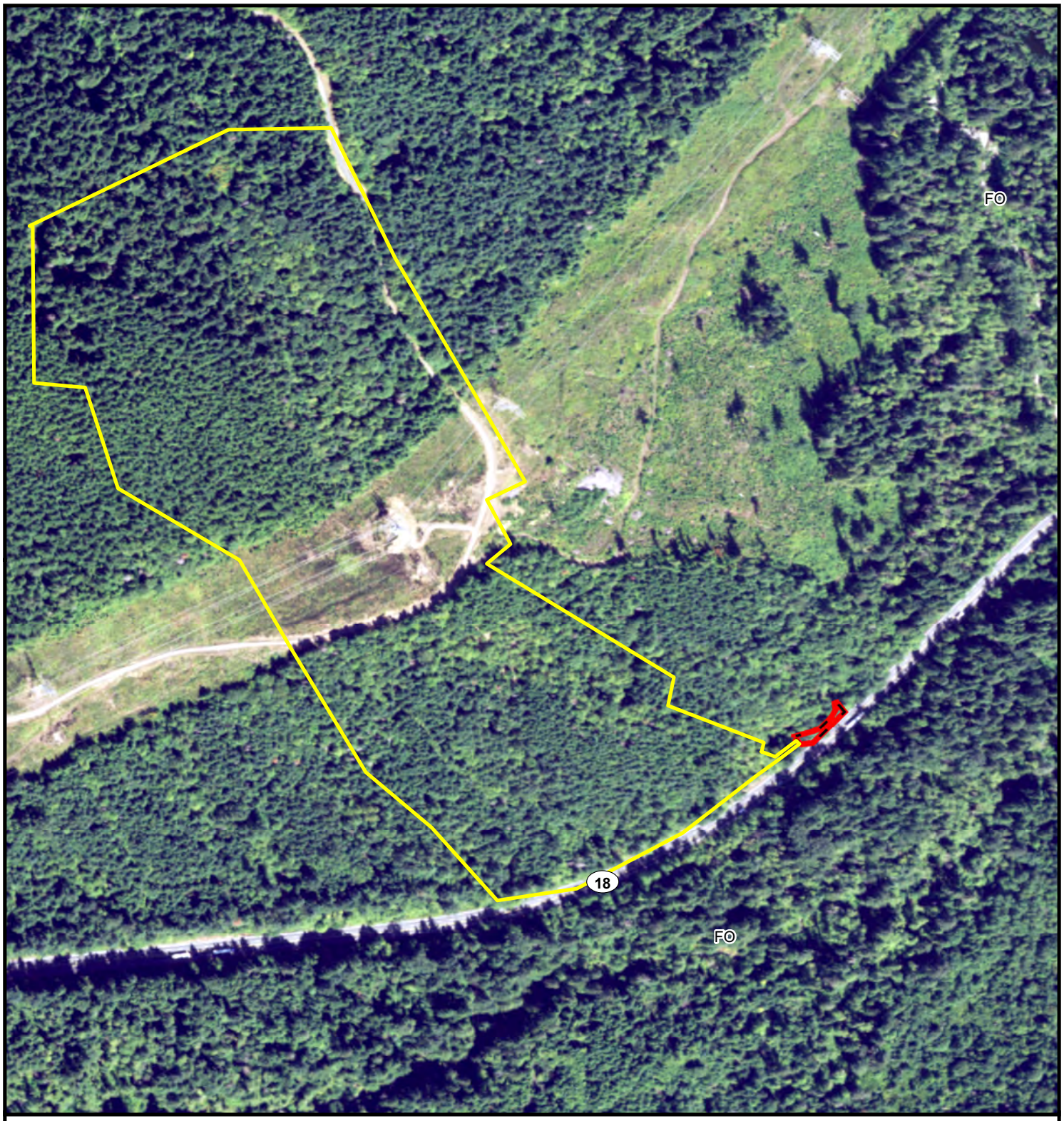
Representation: Generating_surfaces_riverine

pollutant generating surfaces

wetland

150 ft. Polygon Map
Questions R 2.4

Figure 3



Wetland Rating for Western Washington 2014 Update

I-90 SR18 Interchange to Deep Creek
Wetland DC 7

N

0 195 390 780
Feet

Washington State Department of Transportation

Fig4_R_ContributingBasin_WL43_DC7

Date Saved: 4/10/2020

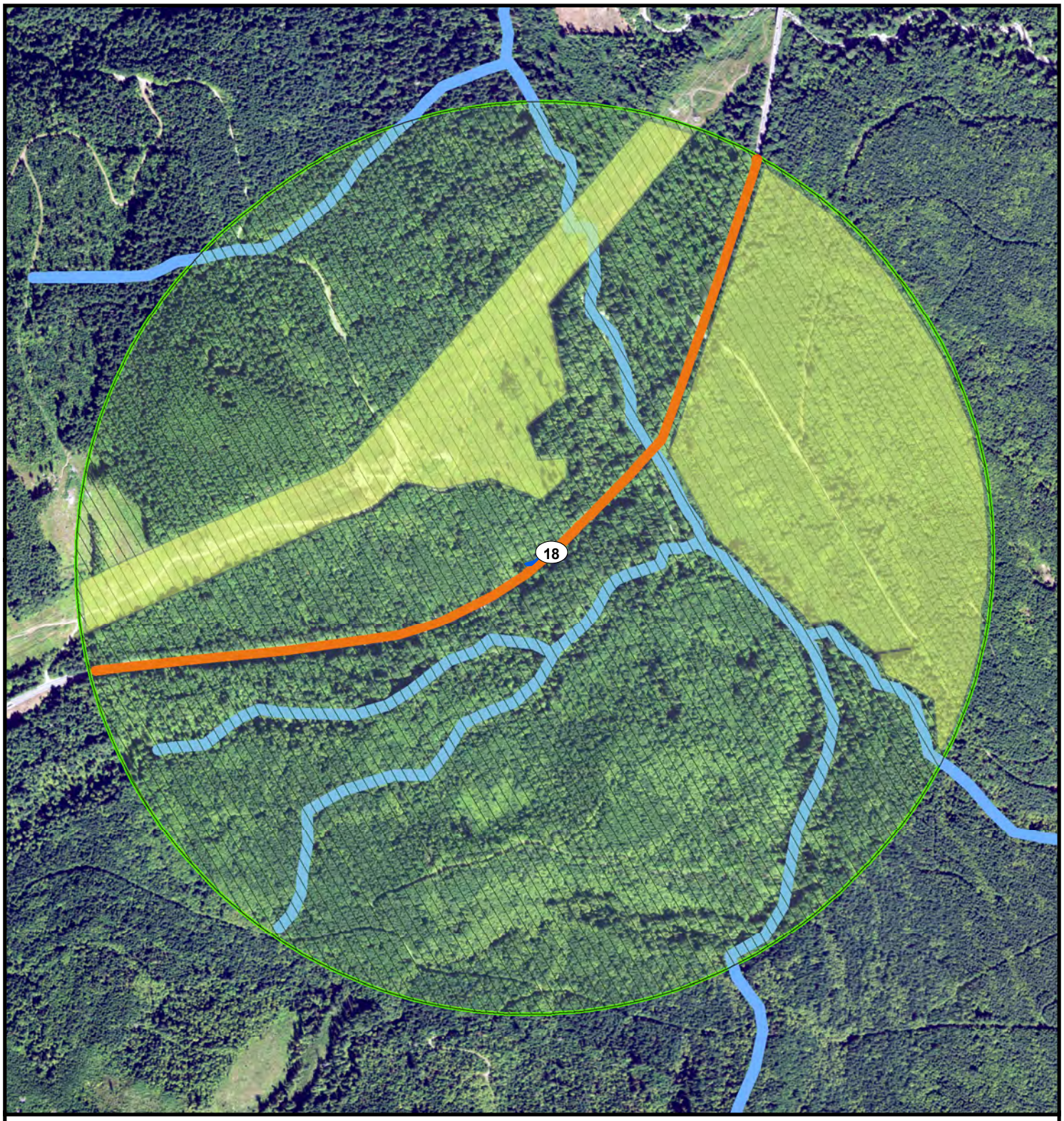
Legend

Contributing Basin

wetland

Contributing Basin Map
Questions R 2.2, R 2.3, R 5.2

Figure 4



Wetland Rating for Western Washington 2014 Update

I-90 SR18 Interchange to Deep Creek
Wetland DC 7

N

0 455 910 1,820
Feet

Legend

- Moderate & Low Intensity Land Use
- Wetland DC7
- High Intensity Land Use
- Undisturbed Habitat
- WDNR Streams
- Accessible Habitat
- 1 km Polygon

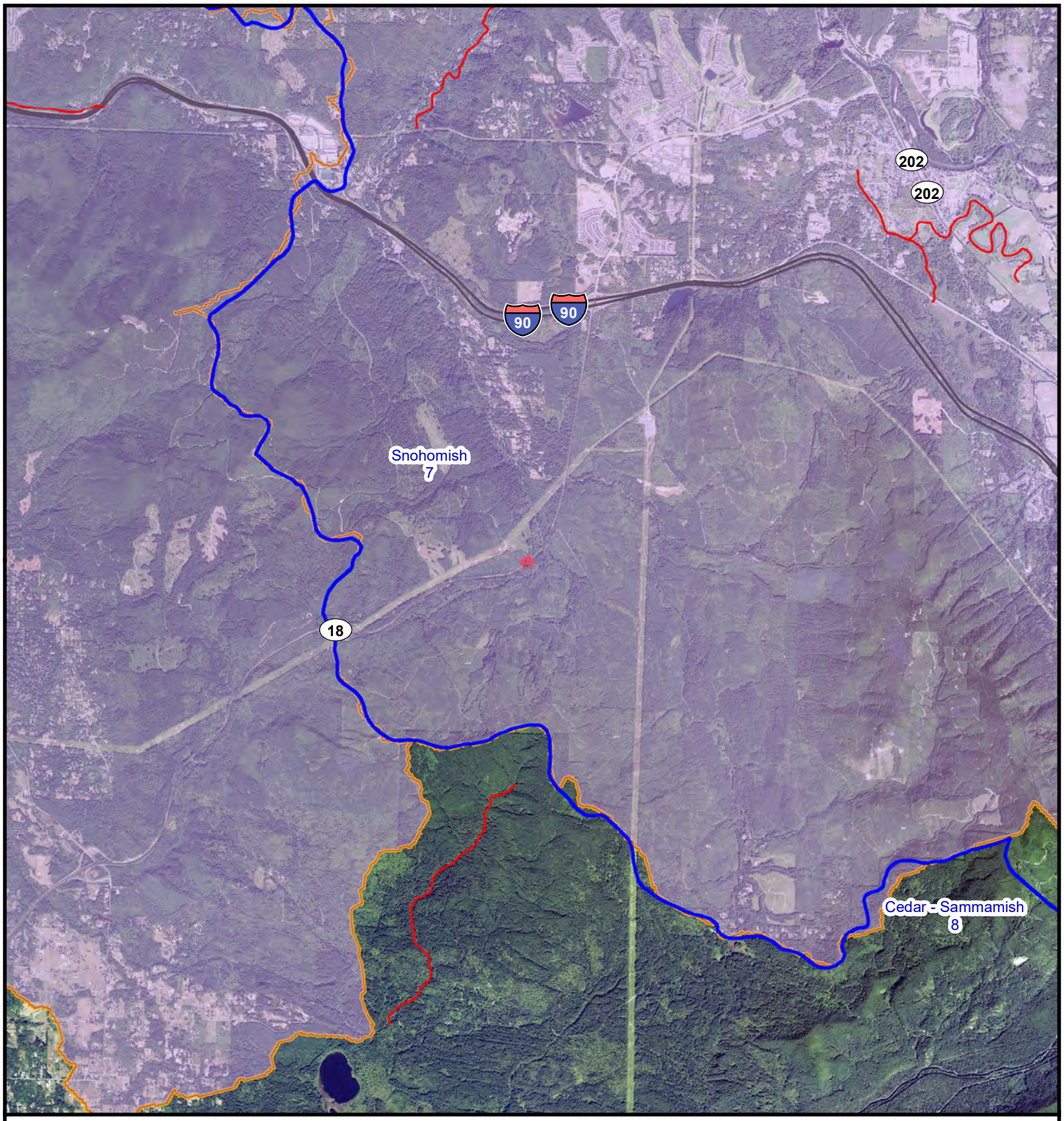
Washington State Department of Transportation

1 km Polygon Map
Questions H 2.1, H 2.2, H 2.3

Fig5_R_1kmPolygon_WL43_DC7

Date Saved: 4/10/2020

Figure 5



Wetland Rating for Western Washington 2014 Update

I-90 SR18 Interchange to Deep Creek
Wetland DC 7

N

0 2,850 5,700 11,400
Feet

Legend

- WRIA (1:24K)
- Category 5 Impaired Waters
- Approved TMDLs
- TMDLs in Development
- wetland

Washington State Department of Transportation

303(d) listed waters in basin & TMDL's for WRIA Map Questions R 3.1, R 3.2, R 3.3

Fig6_R_303d&TMDLs_WL43_DC7

Date Saved: 4/14/2020 9:41:56 AM

Figure 6

Wetland name or number DC-08

RATING SUMMARY – Western Washington

Name of wetland (or ID #): DC-08 Date of site visit: 3/13/2020

Rated by P. Johnson and T. Parry Trained by Ecology? ☑ Yes ☐ No Date of training Jun-14

HGM Class used for rating Riverine & Fresh Water Tidal Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map ESRI

OVERALL WETLAND CATEGORY II (based on functions ☑ or special characteristics☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- X **Category II** - Total score = 20 - 22
- ____ **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	M	H	M	
Landscape Potential	M	M	H	
Value	H	M	H	**Total**
Score Based on Ratings	7	7	8	**22**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number DC-08

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number DC-08

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.
Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The wetland is on a slope (*slope can be very gradual*),
- ☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☑ The water leaves the wetland **without being impounded.**

☐ NO - go to 5 ☑ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☑ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☑ The overbank flooding occurs at least once every 2 years.

☐ NO - go to 6 ☑ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number DC-08

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		4
Depressions cover > $^3/_4$ area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	
Depressions present but cover < ½ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		6
Trees or shrubs > $^2/_3$ area of the wetland	points = 8	
☑ Trees or shrubs > $^1/_3$ area of the wetland	points = 6	
☐ Herbaceous plants (> 6 in high) > $^2/_3$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > $^1/_3$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < $^1/_3$ area of the wetland	points = 0	
Total for R 1	Add the points in the boxes above	**10**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	0
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	Yes = 1 No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1 - R 2.4? Other Sources Roadside debris and vehicle emission particulates	Yes = 1 No = 0	1
Total for R 2	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 - 6 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 No = 0	0
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	Yes = 2 No = 0	2
Total for R 3	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number DC-08

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).*		6
If the ratio is more than 20	points = 9	
If the ratio is 10 - 20	points = 6	
If the ratio is 5 - < 10	points = 4	
If the ratio is 1 - < 5	points = 2	
If the ratio is < 1	points = 1	
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes*).		7
Forest or shrub for > $^{1}/_{3}$ area OR emergent plants > $^{2}/_{3}$ area	points = 7	
Forest or shrub for > $^{1}/_{10}$ area OR emergent plants > $^{1}/_{3}$ area	points = 4	
Plants do not meet above criteria	points = 0	
Total for R 4	Add the points in the boxes above	**13**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?			
R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0	No = 1	0
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1	No = 0	0
R 5.3 Is the up-gradient stream or river controlled by dams?	Yes = 0	No = 1	1
Total for R 5	Add the points in the boxes above		**1**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

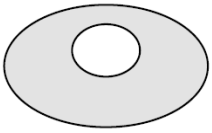
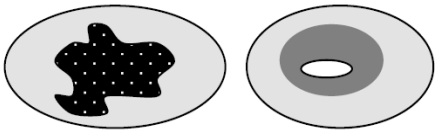
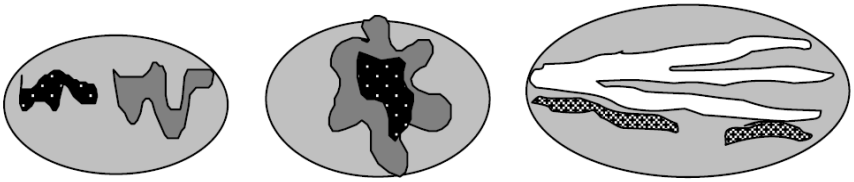
R 6.0. Are the hydrologic functions provided by the site valuable to society?		
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.*		1
The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for R 6	Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2 - 4 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☐ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☐ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☐ Permanently flooded or inundated — 4 or more types present: points = 3 ☐ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*    **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	1

Wetland name or number DC-08

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by* ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 — Add the points in the boxes above	**8**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 50 % undisturbed habitat + 10 % moderate & low intensity land uses / 2) = 55% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 70 % undisturbed habitat + 20 % moderate & low intensity land uses / 2) = 80% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (-2) ≤ 50% of 1km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	**6**

Rating of Landscape Potential If Score is: ☑ **4 - 6 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1 Site does not meet any of the criteria above — points = 0	2

Wetland name or number DC-08

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number DC-08

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE** : This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☑ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they

are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☑ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☑ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	

Wetland name or number DC-08 ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**

Wetland name or number DC-08

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

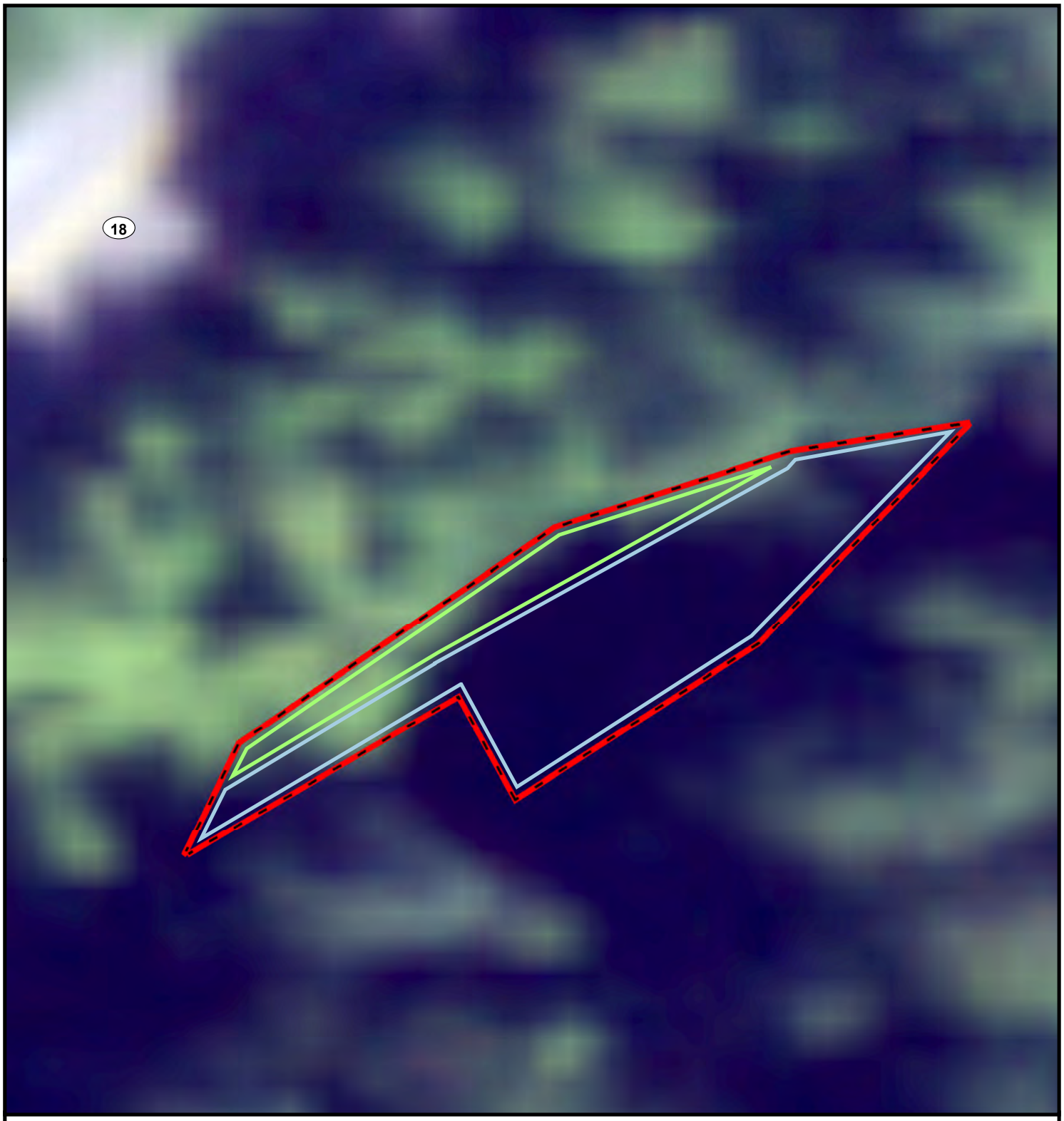
☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form



Wetland Rating for Western Washington 2014 Update

N

0 5 10 20
Feet

Washington State
Department of Transportation

Cowardin:

I-90 SR18 Interchange to Deep Creek
Wetland DC 8

Representation: Cowardin_riverine

PEM

PSS

Cowardin Plant Classes Map
Questions H 1.1, H 1.4,

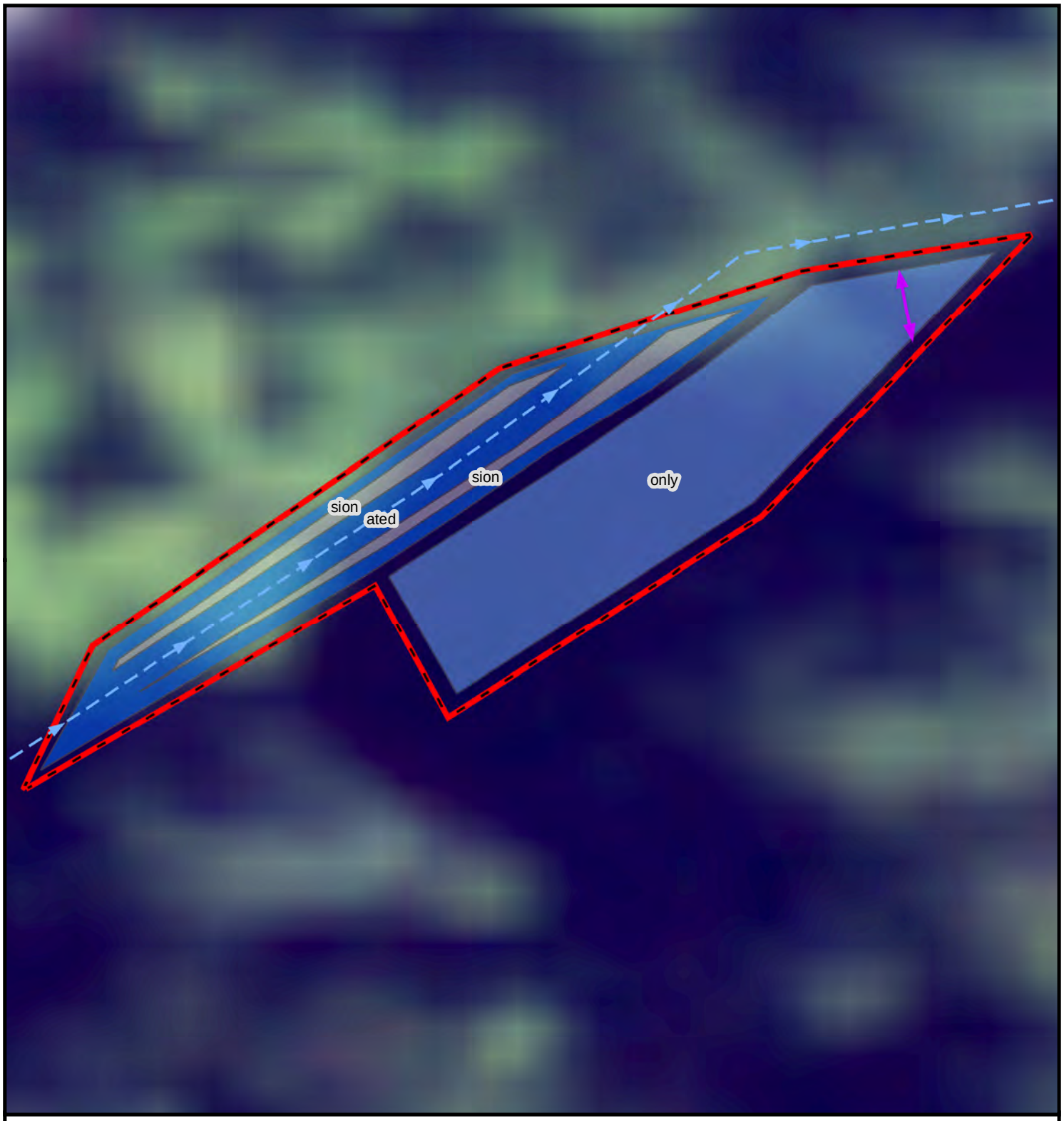
Representation: Wetland_riverine

wetland

Fig1_R_PlantCover_WL44_DC_8

Date Saved: 4/14/2020 9:18:37 AM

Figure 1



Wetland Rating for Western Washington 2014 Update

N

0 5 10 20
Feet

Washington State Department of Transportation

Representation: Wetland_riverine
wetland
Representation: Wetland_width_riverine
average wetland width
Hydroperiod streams:
Representation: Hydroperiod_streams_riverine
seasonally flowing
Hydroperiods:
Representation: Hydroperiods_riverine
occasionally inundated
saturated only
ponded depression

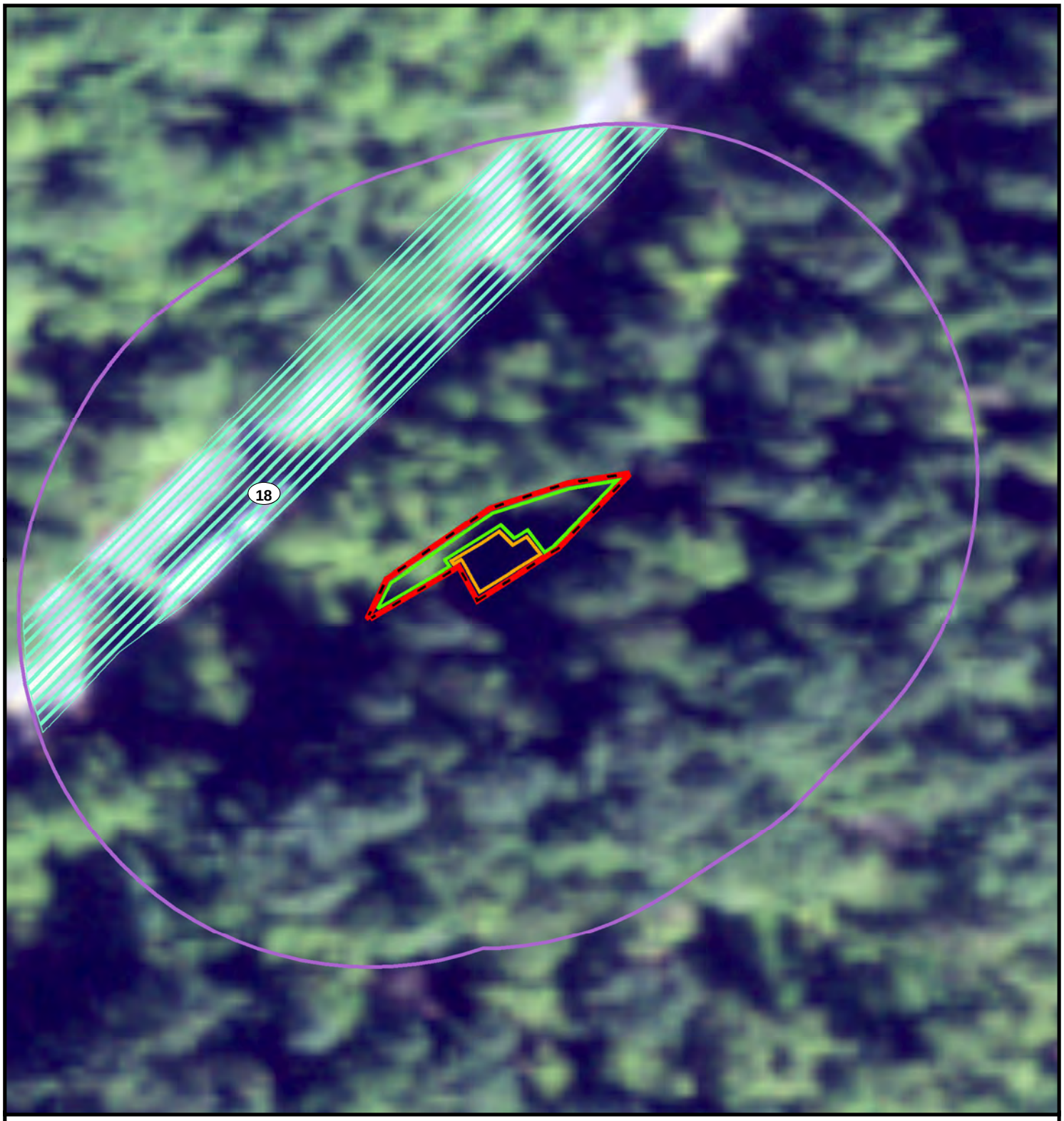
I-90 SR18 Interchange to Deep Creek
Wetland DC 8

Hydroperiods & Ponded Depressions Map
Questions H 1.2, R 1.1

Fig2_R_Hydroperiods_WL44_DC_8

Date Saved: 4/21/2020 9:18:04 AM

Figure 2



Wetland Rating for Western Washington 2014 Update

I-90 SR18 Interchange to Deep Creek
Wetland DC 8

N

0 25 50 100
Feet

Washington State Department of Transportation

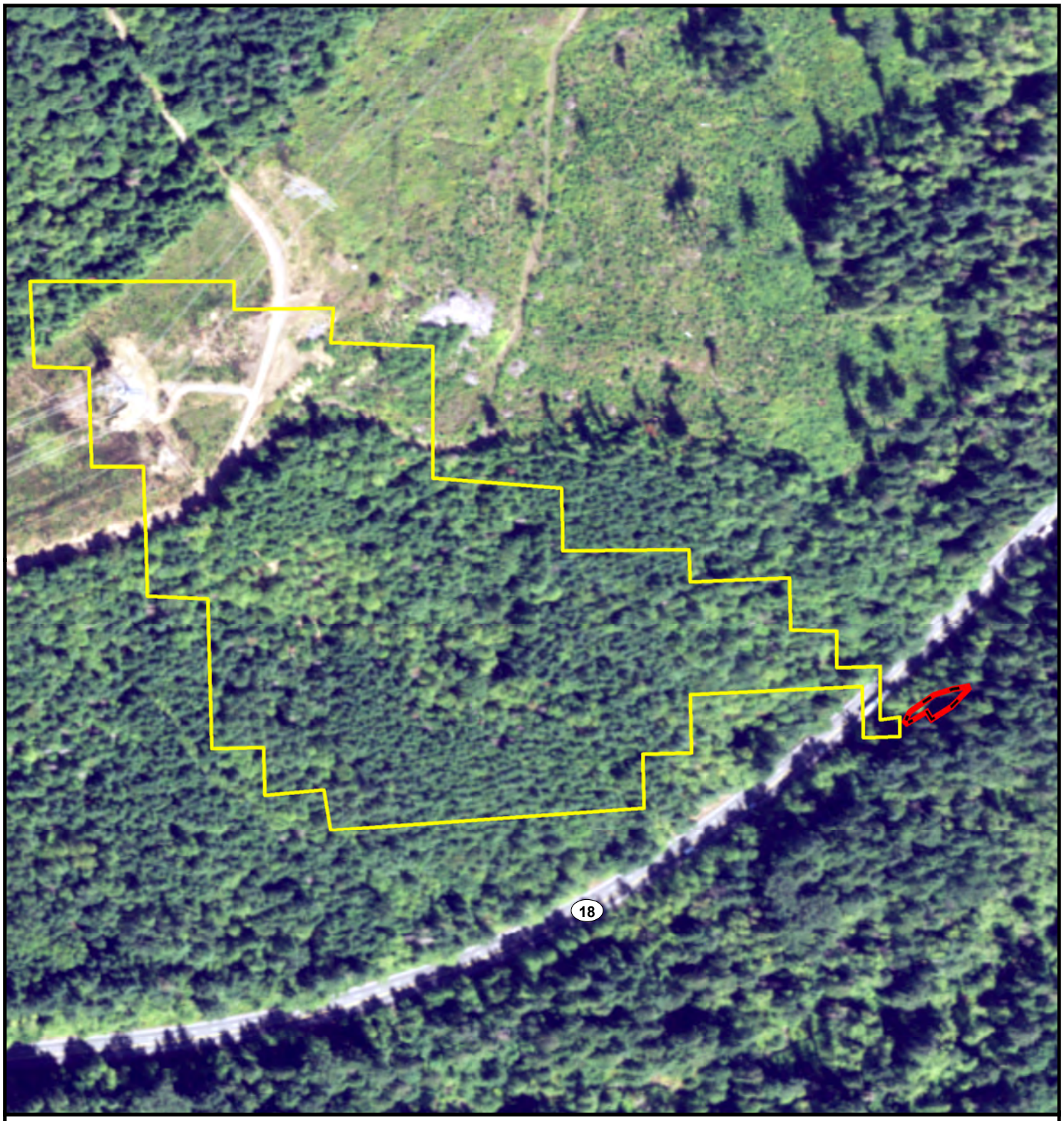
Representation: Generating_surfaces_riverine
pollutant generating surfaces
Representation: Wetland_riverine
wetland
Plant cover:
Representation: Plant_cover_riverine
herbaceous
trees or shrubs
150ft Polygon

150 ft. Polygon & Plant Cover Map
Questions R 1.2, R 2.4, R 4.2

Fig3_R_150ftPolyandPlantCover_WL44_DC_8

Date Saved: 04/13/2020

Figure 3



Wetland Rating for Western Washington 2014 Update

I-90 SR18 Interchange to Deep Creek
Wetland DC 8

N

0 115 230 460
Feet

Washington State Department of Transportation

Representation: Wetland_riverine

wetland

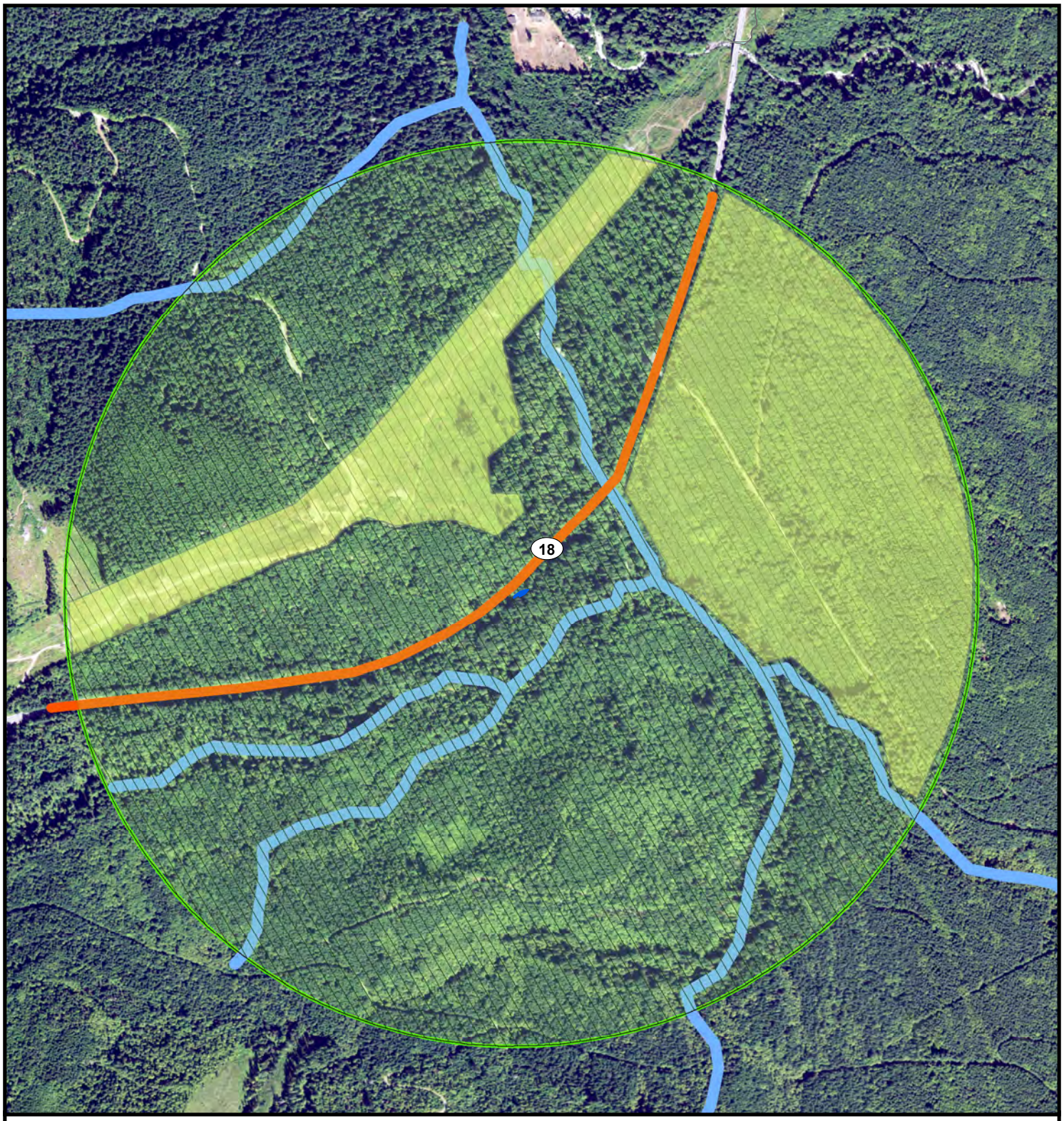
Contributing Basin

Contributing Basin Map
Questions R 2.2, R 2.3, R 5.2

Fig4_R_ContributingBasin_WL44_DC_8

Date Saved: 4/14/2020 9:33:33 AM

Figure 4



Wetland Rating for Western Washington 2014 Update

I-90 SR18 Interchange to Deep Creek
Wetland DC 8

N

0 455 910 1,820
Feet

Legend

- Wetland DC8
- WDNR Streams
- Accessible Habitat
- 1 km Polygon
- High Intensity Land Use
- Moderate & Low Intesity Land Use
- Undisturbed Habitat

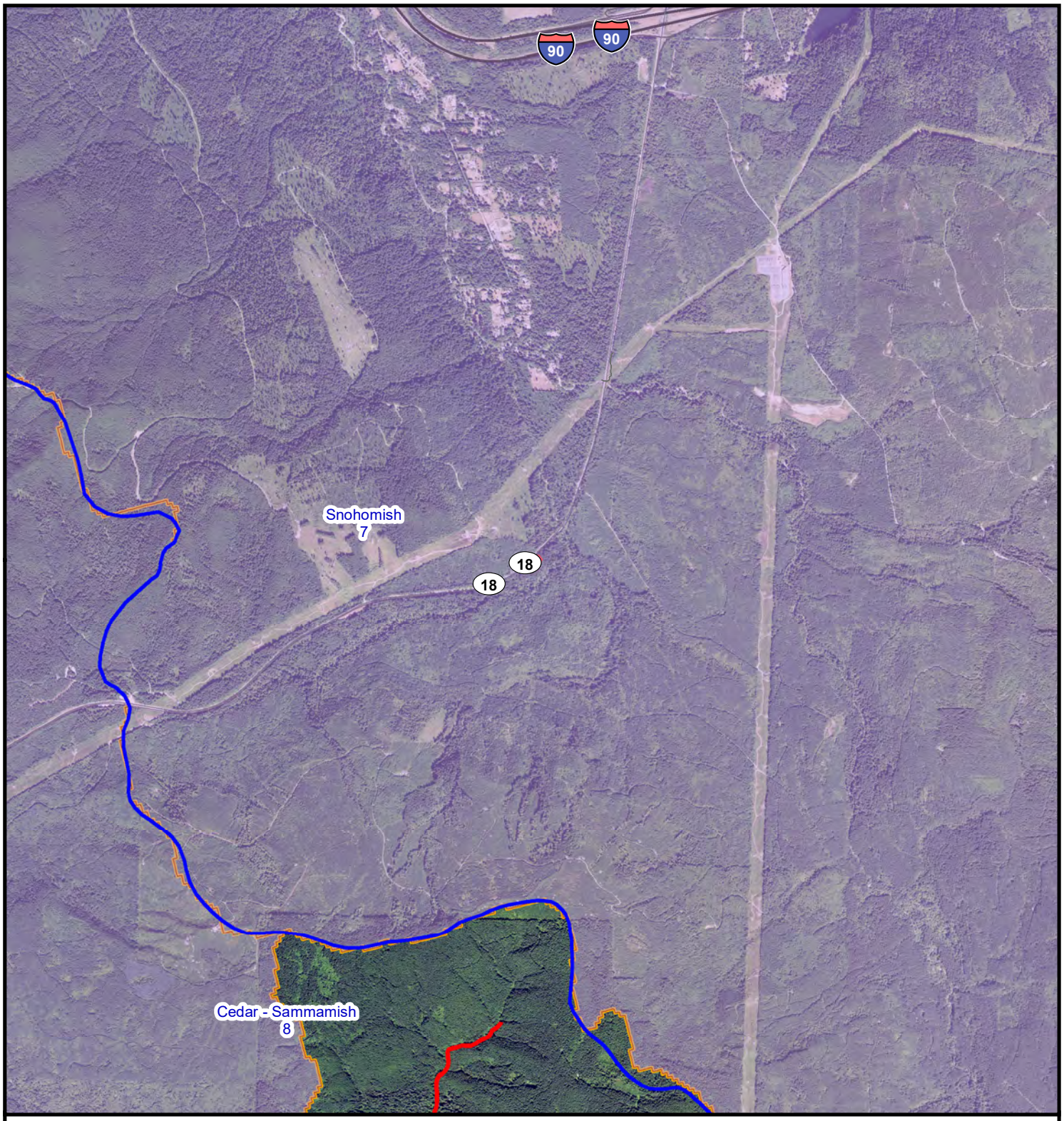
Washington State Department of Transportation

1 km Polygon Map
Questions H 2.1, H 2.2, H 2.3

Fig5_R_1kmPolygon_WL44_DC_8

Date Saved: 4/13/2020 5:15:37 PM

Figure 5



Wetland Rating for Western Washington 2014 Update

I-90 SR18 Interchange to Deep Creek
Wetland DC 8

N

0 1,375 2,750 5,500
Feet

Representation: Wetland_riverine

- wetland
- WRIA (1:24K)
- Category 5 Impaired Waters
- Approved TMDLs
- TMDLs in Development

Washington State Department of Transportation

303(d) listed waters in basin & TMDL's for WRIA Map Questions R 3.1, R 3.2, R 3.3

Fig6_R_303d&TMDLs_WL44_DC_8

Date Saved: 4/14/2020 9:37:55 AM

Figure 6

Appendix E. Plant List

Scientific Name[a]	Common Name[b]	Wetland Indicator Status[a]
Acer circinatum	vine maple	FAC
Acer macrophyllum	bigleaf maple	FACU
Agrostis capillaris	colonial bentgrass	FAC
Agrostis exarata	spike bentgrass	FACW
Alnus rubra	red alder	FAC
Alopecurus pratensis	meadow foxtail	FAC
Athyrium cyclosorum	common ladyfern	FAC
Blechnum spicant	deer fern	FAC
Cardamine oligosperma	little western bittercress	FAC
Carex laeviculmis	smoothstem sedge	FACW
Carex obnupta	slough sedge	OBL
Carex ovalis	eggbract sedge	FACW
Carex spp.	sedges	-
Carex stipata	sawbeak sedge	OBL
Cirsium arvense	Canada thistle	FAC
Cornus alba	redosier dogwood	FACW
Cyperus esculentus	yellow nutsedge	FAC
Cytisus scoparius	Scotch broom	UPL
Dactylis glomerata	orchard grass	FACU
Dryopteris expansa	spreading wood fern	FACW
Elymus repens	quackgrass	FAC
Epilobium ciliatum	fringed willowherb	FACW
Equisetum arvense	field horsetail	FAC
Equisetum hyemale	scouringrush horsetail	FACW
Equisetum telmateia	giant horsetail	FACW
Fallopia japonica	Japanese knotweed	NL
Festuca rubra	red fescue	FAC
Frangula purshiana	cascara buckthorn	FAC
Gaultheria shallon	salal	FACU
Geranium molle	dovefoot geranium	UPL
Geranium robertianum	Robert geranium	FACU
Geum macrophyllum	largeleaf avens	FAC
Glyceria elata	fowl mannagrass	FACW
Ilex aquifolium	English holly	NL
Holcus lanatus	common velvetgrass	FAC
Hypericum perforatum	common St. Johnswort	FACU
Hypochaeris radicata	hairy cat's ear	FACU
Juncus acuminatus	tapertip rush	OBL
Juncus articulatus	joint-leaf rush	OBL
Juncus effusus	soft rush	FACW
Lactuca muralis	wall-lettuce	NL
Leersia oryzoides	rice cutgrass	OBL
Lonicera involucrata	twinberry honeysuckle	FAC
Ludwigia palustris	common water-primrose	OBL
Lysichiton americanus	American skunkcabbage	OBL
Mahonia aquifolium tall	Oregon-grape	FACU
Maianthemum dilatatum	false lily-of-the-valley	FAC
Malus fusca	Pacific crabapple	FACW
Oemleria cerasiformis	osoberry	FACU
Oenanthe sarmentosa	water parsley	OBL
Oplopanax horridus	devil's club	FAC
Phalaris arundinacea	reed canarygrass	FACW

Physocarpus capitatus	Pacific ninebark	FACW
Picea sitchensis	Sitka spruce	FAC
Plantago lanceolata	narrowleaf plantain	FACU
Poa annua	annual bluegrass	FAC
Poa pratensis	Kentucky bluegrass	FAC
Polypodium glycyrrhiza	licorice fern	NL
Polystichum munitum	western swordfern	FACU
Populus balsamifera	black cottonwood	FAC
Prunella vulgaris	common selfheal	FACU
Pseudotsuga menziesii	Douglas-fir	FACU
Pteridium aquilinum	brackenfern	FACU
Ranunculus repens	creeping buttercup	FAC
Rhamnus purshiana	cascara buckthorn	FACU
Ribes bracteosum	stink currant	FAC
Rubus armeniacus	Himalayan blackberry	FAC
Rubus spectabilis	salmonberry	FAC
Rubus ursinus	trailing blackberry	FACU
Rumex crispus	curly dock	FAC
Salix lucida	shining willow	FACW
Salix scouleriana	Scouler's willow	FAC
Salix spp.	willows	-
Sambucus racemosa	red elderberry	FACU
Scirpus cyperinus	woolgrass	OBL
Scirpus microcarpus	small-fruited bulrush	OBL
Solidago canadensis	Canadian goldenrod	FACU
Spiraea douglasii	hardhack	FACW
Stachys cooleyae	coastal hedgenettle	FACW
Symphoricarpos albus	common snowberry	FACU
Tanacetum vulgare	common tansy	FACU
Tellima grandiflora	fringe cups	FACU
Thuja plicata	western red cedar	FAC
Tolmiea menziesii	youth on age	FAC
Trillium ovatum	Pacific trillium	FACU
Tsuga heterophylla	western hemlock	FACU
Typha latifolia	broadleaf cattail	OBL
Urtica dioica	stinging nettle	FAC
Vaccinium parvifolium	red huckleberry	FACU
Verbascum thapsus	common mullein	FACU
Veronica americana	American speedwell	OBL
Vicia americana	American vetch	FAC

[a] Scientific names are consistent with Corps 2018
[b] Common names consistent with USDA Plants Database
OBL = Occur almost always under natural conditions in wetlands
FACW = Usually occur in wetlands but occasionally found in non-wetlands
FAC = Equally likely to occur in wetlands and nonwetlands
FACU = Usually occur in non-wetlands but occasionally found in wetlands
UPL = Occur in wetlands in another region, but occur almost always under natural conditions in non-wetlands in the region specified.
If the plant is not listed on the National Wetland Plant List (Corps 2018) and it does not occur on the list in and adjacent region the plant is assumed to be UPL.
Note, this is an updated version of the plant list reported by WSDOT (2013), which now includes species reported by WSDOT (2013) and species observed during the 2018-2019 assessment.

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Appendix F. Ditch Field Forms

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	A. Thom, M. Murphy, A. Weiss				
Date:	3/4/2020				
Ditch Name:	D1				
Ditch Location:	NE of SE 104th St.				
Weather in Past 12 Hrs:	Clear				
Ditch Drains From:	Groundwater, surrounding uplands, and stormwater runoff; Flows from the north to south				
Ditch Drains To:	D34➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	36				
Avg. Ditch Depth (in.):	14				
Flow Regime:	Intermittent				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	X	No		
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes		No	X	
Standing Water	Yes	X	No		
Flowing Water	Yes	X	No		
Comments: D1 has standing water with a depth of 6 inches. Flows north to south and drains through culvert to D34 and then to Lake Creek. This is a low gradient and low energy ditch.					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	A. Thom, M. Murphy, A. Weiss				
Date:	3/4/2020				
Ditch Name:	D2				
Ditch Location:	Along SR 18 near SE 104th St.				
Weather in Past 12 Hrs:	Clear				
Ditch Drains From:	Groundwater, surrounding uplands, and stormwater runoff; Flows from the north to south				
Ditch Drains To:	D34➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	36				
Avg. Ditch Depth (in.):	18				
Flow Regime:	Intermittent				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	X	No		
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes		No	X	
Standing Water	Yes	X	No		
Flowing Water	Yes	X	No		
Comments: Flows north to south and drains through culvert to D34 and then Lake Creek. This is a low gradient and low energy ditch.					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	A. Thom, M. Murphy, A. Weiss				
Date:	3/4/2020				
Ditch Name:	D3				
Ditch Location:	Along SR 18 near I-90 eastbound on-ramp				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater, surrounding uplands, and stormwater runoff, and flows from D4; Flows from north to south				
Ditch Drains To:	Stream LC-I ➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	48				
Avg. Ditch Depth (in.):	20				
Flow Regime:	Intermittent				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	X	No		
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes		No	X	
Standing Water	Yes	X	No		
Flowing Water	Yes	X	No		
Comments:					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	A. Thom, M. Murphy, A. Weiss				
Date:	3/4/2020				
Ditch Name:	D4				
Ditch Location:	Along SR 18 near I-90 eastbound on-ramp				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Wetland LC-23, groundwater, surrounding uplands, stormwater runoff; Flows north to south.				
Ditch Drains To:	D3➔Stream LC-I➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	40				
Avg. Ditch Depth (in.):	13				
Flow Regime:	Intermittent				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	X	No		
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes		No	X	
Standing Water	Yes	X	No		
Flowing Water	Yes		No	X	
Comments: Wetland LC-23, located across the on-ramp is hydrologically connected to D4 via a stormwater drain.					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	A. Thom, M. Murphy, A. Weiss				
Date:	3/4/2020				
Ditch Name:	D5				
Ditch Location:	North side of northern on-ramp to east bound I-90.				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater, surrounding uplands, and stormwater runoff; Flows east to west.				
Ditch Drains To:	Metal storm drain to west➔ Assumed connection to Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	60				
Avg. Ditch Depth (in.):	36				
Flow Regime:	Intermittent				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes		No	X	
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes	X	No		
Standing Water	Yes		No	X	
Flowing Water	Yes	X	No		
Comments: Bed and bank is not as evident throughout; main section of bed and bank is located on the far west end of the site.					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	A. Thom, M. Murphy, A. Weiss				
Date:	3/4/2020				
Ditch Name:	D6				
Ditch Location:	North side of northern on-ramp to east bound I-90 and to the west of D5.				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Uplands, stormwater runoff (I-90); Flows from the east to west.				
Ditch Drains To:	D5➔stormwater drain➔Assumed connection to Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	14				
Avg. Ditch Depth (in.):	5				
Flow Regime:	Intermittent				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	X	No		
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes	X	No		
Standing Water	Yes		No	X	
Flowing Water	Yes	X	No		
Comments:					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	M. Murphy, A. Thom				
Date:	3/5/2020				
Ditch Name:	D25				
Ditch Location:	Within the I-90 median to the west of D24 and east of SR 18				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Uplands, stormwater runoff, and some groundwater expression; Flows from the west to east.				
Ditch Drains To:	Stormwater drain➔Assumed connection to Stream LC-F➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	20				
Avg. Ditch Depth (in.):	4				
Flow Regime:	Intermittent				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes		No	X
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes		No	X
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: D25 has the following OHWM characteristics:
Natural line on bank, plant community change and vegetation bent/matted. Angular rock has been installed as erosion control.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	M. Murphy, A. Thom				
Date:	3/5/2020				
Ditch Name:	D26				
Ditch Location:	Within the I-90 median to the west of D25 and east of SR 18				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Uplands, stormwater runoff, and some groundwater expression; Flows from the west to east.				
Ditch Drains To:	Stormwater drain➔Assumed connection to Stream LC-F➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	20				
Avg. Ditch Depth (in.):	6				
Flow Regime:	Intermittent				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes	X	No	
Lack of Vegetation	Yes		No	X
Bed/Bank	Yes	X	No	
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: D26 has the following OHWM characteristics:
Natural line on bank, changes in soil character, veg bent/matted.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	M. Murphy, A. Thom				
Date:	3/5/2020				
Ditch Name:	D27				
Ditch Location:	Within the I-90 median to the east of SR 18				
Weather in Past 12 Hrs:	Cloudy				
Ditch Drains From:	Groundwater, uplands, and stormwater; Flows from the east to west.				
Ditch Drains To:	Stormwater drain➔Assumed to drain to Stream LC-F➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	20				
Avg. Ditch Depth (in.):	3				
Flow Regime:	Intermittent				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes		No	X
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes		No	X
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: D27 has the following OHWM characteristics:
Natural line on bank, multiple observed flow events, veg. bent/matted, signs of terrestrial vegetation destruction.
Water is only connected to the stormwater drain in high flow events.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	M. Murphy, A. Thom				
Date:	3/5/2020				
Ditch Name:	D31				
Ditch Location:	North of west bound I-90 and east of SR 18				
Weather in Past 12 Hrs:	Cloudy				
Ditch Drains From:	Groundwater and surface water flow; Flows from the east to west.				
Ditch Drains To:	Stream LC-H➔stormwater drain➔Assumed connection to Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	20				
Avg. Ditch Depth (in.):	4				
Flow Regime:	Seasonal				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes	X	No	
Lack of Vegetation	Yes		No	X
Bed/Bank	Yes	X	No	
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: D31 has the following OHWM characteristics: Water staining, plant community change, sediment soring natural line on bank, vegetation bent/matted.

Additional notes: 1st quarter of D31 was dry and sloping to the east. The flow changes from west to east until it flows east to west.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy, A. Thom				
Date:	3/6/2020				
Ditch Name:	D34				
Ditch Location:	SE 104th St and SR 18 intersection				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater and stormwater runoff; Flows east to west and then from north to south.				
Ditch Drains To:	Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	36				
Avg. Ditch Depth (in.):	12				
Flow Regime:	Intermittent				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	X	No		
Lack of Vegetation	Yes		No	X	
Bed/Bank	Yes		No	X	
Standing Water	Yes	X	No		
Flowing Water	Yes	X	No		
Comments: D34 has the following OHWM characteristics:					
Deposition, vegetation bent/matted, leaf litter washed away, water staining, wracking.					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy, A. Thom				
Date:	3/6/2020				
Ditch Name:	D37				
Ditch Location:	West side of Snoqualmie Parkway SE				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater and stormwater runoff; Flows from the north to south				
Ditch Drains To:	Stream LC-E➔Stream LC-G➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	30				
Avg. Ditch Depth (in.):	4				
Flow Regime:	Intermittent				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	x	No		
Lack of Vegetation	Yes		No		
Bed/Bank	Yes	x	No		
Standing Water	Yes	x	No		
Flowing Water	Yes	x	No		

Comments: D37 is lined with angular rock. Ditch 37 Is vegetated by *Poa pretense* and *Alnus rubra.* D37 has the following OHWM characteristics: Shelving, lack of vegetation, debris/litter present, leaf litter washed away, plant community change, wracking.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy, A. Thom				
Date:	3/6/2020				
Ditch Name:	D38				
Ditch Location:	NW of I-90 on-ramp				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater and stormwater runoff; Flows from the west to east.				
Ditch Drains To:	Stream LC-E➔Stream LC-G➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	36				
Avg. Ditch Depth (in.):	6				
Flow Regime:	Intermittent				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	X	No		
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes		No	X	
Standing Water	Yes	X	No		
Flowing Water	Yes	X	No		

Comments: D38 has the following OHWM characteristics: Deposition, sediment sorting, changes in soil character, lack of vegetation, vegetation bent/matted, debris/litter present, leaf litter washed away, plant community change water staining, and wracking.

Additional notes: The lower portion of D38 is wide and deeper and is sparsely vegetated. In comparison, the upper extent of D38, which has more areas of prominent plant communities.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy, A. Thom				
Date:	3/6/2020				
Ditch Name:	D39				
Ditch Location:	North of I-90 Weigh Station				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater and stormwater runoff; Flows from the east to west.				
Ditch Drains To:	Wetland LC-6➔Stream LC-D➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	36				
Avg. Ditch Depth (in.):	6				
Flow Regime:	Seasonal				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes	X	No	
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes	X	No	
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: D39 drains to a SW intake at the confluence of D40. It then drains to Wetland LC-6. Other OHWM indicators include water staining and natural line on the bank.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy, A. Thom				
Date:	3/6/2020				
Ditch Name:	D43				
Ditch Location:	North of I-90 Weigh Station				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater and stormwater runoff: Flows from the west to east				
Ditch Drains To:	D37➔Stream LC-E➔Stream LC-G➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	24				
Avg. Ditch Depth (in.):	4				
Flow Regime:	Seasonal				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes		No	X	
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes		No	X	
Standing Water	Yes	X	No		
Flowing Water	Yes	X	No		
Comments: Other OHWM indicators include natural lines on the bank, changes in the soil character, plant community change, and water staining.					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy, A. Thom				
Date:	3/6/2020				
Ditch Name:	D44				
Ditch Location:	North of I-90 Weigh Station				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater and stormwater runoff: Flows from the west to east				
Ditch Drains To:	D37➔Stream LC-E➔Stream LC-G➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	18				
Avg. Ditch Depth (in.):	4				
Flow Regime:	Seasonal				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes		No	X	
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes		No	X	
Standing Water	Yes		No	X	
Flowing Water	Yes		No	X	
Comments: Other OHWM indicators include natural line on the bank, and plant community change.					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy, A. Thom				
Date:	3/6/2020				
Ditch Name:	D55				
Ditch Location:	Southeast of the I-90 / SR 18 Interchange				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater and stormwater runoff; Flows from the east to west.				
Ditch Drains To:	Stream LC-D➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	60				
Avg. Ditch Depth (in.):	8				
Flow Regime:	Seasonal				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	X	No		
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes	X	No		
Standing Water	Yes	X	No		
Flowing Water	Yes	X	No		
Comments: D55 and D56 are different ditches because they originate at the crest of the hill and flow different directions.					
Other OHWM indicators include deposition, sediment sorting, leaf litter washed away, plant community change, and debris present.					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy, A. Thom				
Date:	3/6/2020				
Ditch Name:	D56				
Ditch Location:	Southeast of the I-90 / SR 18 Interchange				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater and stormwater runoff; Flows from the west to east and then north to south.				
Ditch Drains To:	Stream LC-I➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	36				
Avg. Ditch Depth (in.):	8				
Flow Regime:	Seasonal				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	X	No		
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes	X	No		
Standing Water	Yes	X	No		
Flowing Water	Yes	X	No		
Comments: D55 and D56 are different ditches because they originate at the crest of the hill and flow different directions.					
Other OHWM indicators include deposition, shelving, sediment sorting, changes in soil character, bent vegetation, and leaf litter washed away.					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy, A. Thom				
Date:	3/6/2020				
Ditch Name:	D57				
Ditch Location:	Southeast of the I-90 / SR 18 Interchange				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Groundwater and stormwater runoff; Flows from the north to south.				
Ditch Drains To:	Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	30				
Avg. Ditch Depth (in.):	10				
Flow Regime:	Seasonal				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes		No	X
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes		No	X
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: D57 receives hydrologic inputs from D58.

Other OHWM indicators include deposition, debris/litter present, and a plant community change.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy				
Date:	3/9/2020				
Ditch Name:	D58				
Ditch Location:	Southeast of the I-90 / SR 18 Interchange in the WSDOT staging area.				
Weather in Past 12 Hrs:	Dry and overcast				
Ditch Drains From:	Wetland LC-F and groundwater; Flows from the west to east.				
Ditch Drains To:	D57➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	48				
Avg. Ditch Depth (in.):	12				
Flow Regime:	Seasonal				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes	X	No	
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes	X	No	
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: This ditch was recently maintained and is a deeply excavated. The ditch is unvegetated and contains a lot of gravels.

Other OHWM indicators include sediment sorting and water staining.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy				
Date:	3/9/2020				
Ditch Name:	D61				
Ditch Location:	West of SR-18 and north of the Raging River				
Weather in Past 12 Hrs:	Dry and overcast				
Ditch Drains From:	Groundwater and stormwater runoff; Flows from the north to south.				
Ditch Drains To:	Raging River to the west of SR 18.				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	30				
Avg. Ditch Depth (in.):	4				
Flow Regime:	Intermittent				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes	X	No	
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes		No	X
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: Other OHWM indicators include sediment sorting, debris/litter present, water staining, wracking, and leaf litter washed away. The gradient of the ditch increases as it nears the Raging River.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy				
Date:	3/9/2020				
Ditch Name:	D65				
Ditch Location:	West of SR 18, south of Raging River, and north of Deep Creek				
Weather in Past 12 Hrs:	Dry and overcast				
Ditch Drains From:	Groundwater and stormwater runoff; Flows from the south to north.				
Ditch Drains To:	Raging River				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	66				
Avg. Ditch Depth (in.):	12				
Flow Regime:	Seasonal				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes	X	No	
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes	X	No	
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: The ditch flows from south to north adjacent to SR 18 before flowing to the west and discharging to uplands upslope of a steep road fill prism associated with the SR 18 bridge. A swale continues downslope. No channel could be located but there is an assumed surface hydrologic connection.

The upper extent of the ditch and start of D66 is marked by the crest of the hill.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy				
Date:	3/4/2020				
Ditch Name:	D69				
Ditch Location:	East of SR 18 and north of Deep Creek				
Weather in Past 12 Hrs:	Dry				
Ditch Drains From:	Groundwater; Flows from the north to south.				
Ditch Drains To:	Stream DC-E➔Deep Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	54				
Avg. Ditch Depth (in.):	10				
Flow Regime:	Seasonal				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes		No	X
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes		No	X
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: D69 was installed upslope of SR 18 to intercept groundwater.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	P. Johnson, A. Thom				
Date:	3/9/2020				
Ditch Name:	D72				
Ditch Location:	Between WB I-90 onramp and WB travel lane, east of D71				
Weather in Past 12 Hrs:	Clear				
Ditch Drains From:	Uplands, stormwater runoff, and groundwater; west to east				
Ditch Drains To:	Wetland LC-7➔Stream LC-E➔ Stream LC-G➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	30				
Avg. Ditch Depth (in.):	1				
Flow Regime:	Seasonal				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes		No	X
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes	X	No	
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: Wetland conditions appear to have developed in places along the ditch. D72 drains to Echo Glen Rd where flow enters from 2 additional ditches.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	P. Johnson, A. Thom				
Date:	3/9/2020				
Ditch Name:	D73				
Ditch Location:	Between westbound I-90 onramps				
Weather in Past 12 Hrs:	Clear				
Ditch Drains From:	Uplands and stormwater runoff; Flows from the west to east.				
Ditch Drains To:	Wetland LC-7➔Stream LC-E➔Stream LC-G➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	30				
Avg. Ditch Depth (in.):	1				
Flow Regime:	Ephemeral				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes		No	X
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes		No	X
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: Ponding was observed in ruts and low spots.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy				
Date:	3/10/2020				
Ditch Name:	D88				
Ditch Location:	Near Exit 25 offramp of eastbound I-90				
Weather in Past 12 Hrs:	Dry				
Ditch Drains From:	Groundwater and stormwater runoff; Flows from the east to west.				
Ditch Drains To:	Stream LC-D➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	36				
Avg. Ditch Depth (in.):	10				
Flow Regime:	Seasonal - Intermittent				
Jurisdictional Ditch Indicators Observed:					
Scour	Yes	X	No		
Lack of Vegetation	Yes	X	No		
Bed/Bank	Yes	X	No		
Standing Water	Yes	X	No		
Flowing Water	Yes	X	No		
Comments: D88 drains directly to Stream LC-D.					

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	M. Murphy, A. Thom				
Date:	3/12/2020				
Ditch Name:	D91				
Ditch Location:	North of westbound I-90 Exit 25				
Weather in Past 12 Hrs:	Dry				
Ditch Drains From:	Groundwater, surrounding uplands, and Wetland LC-11; Flows from the northwest to southeast.				
Ditch Drains To:	Stream LC-G➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	36				
Avg. Ditch Depth (in.):	9				
Flow Regime:	Seasonal/Intermittent				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes	X	No	
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes		No	X
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: Leaf litter present in ditch (not washed a[illegible]) indicative of low gradient system.

Jurisdictional Ditch Determination Field Form

JDD	Yes	X	No		
Project Name:	I-90 / SR 18 Interchange and SR Widening				
County:	King				
Work Order/WIN #:	-				
Biologist(s):	T. Parry, M. Murphy, A. Thom				
Date:	3/6/2020				
Ditch Name:	D93				
Ditch Location:	North of I-90 Weigh Station				
Weather in Past 12 Hrs:	Rainy				
Ditch Drains From:	Stormwater runoff, groundwater, and surrounding uplands; Flows from east to west before being conveyed under the recently decommissioned road to the south.				
Ditch Drains To:	Stream LC-E➔Stream LC-G➔Lake Creek				
Is receiving body TNW?	Yes	X	No		
Avg. Ditch Width (in.):	24				
Avg. Ditch Depth (in.):	6				
Flow Regime:	Seasonal				

Jurisdictional Ditch Indicators Observed:				
Scour	Yes		No	X
Lack of Vegetation	Yes	X	No	
Bed/Bank	Yes		No	X
Standing Water	Yes	X	No	
Flowing Water	Yes	X	No	

Comments: Low energy and low gradient ditch. Other OHWM indicators include water staining.

Appendix G. WSDOT 2013 WSAR

WETLAND AND STREAM ASSESSMENT REPORT

I-90/SR 18 Interchange – Westbound Flyover Ramp

King County, Washington

XL2041

WIN A09070F

Prepared by

WSDOT Headquarters

Environmental Services Office

June 2013

Washington State
Department of Transportation

WETLAND AND STREAM ASSESSMENT REPORT

I-90/SR 18 Interchange – Westbound Flyover Ramp

June 2013

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Executive Summary

The Federal Highway Administration and the Washington State Department of Transportation are proposing construction of a flyover ramp from westbound Interstate 90 (I-90) to westbound State Route (SR) 18 in King County, Washington, to address safety and improve mobility. The project will extend from I-90 milepost (MP) 25.54 to MP 26.54 and from SR 18 MP 26.90 to MP 27.90. The flyover ramp will include a bridge over Lake Creek. Stormwater facilities will be constructed to treat stormwater runoff from new impervious surface created by the project.

This report provides necessary information to help the project avoid or minimize potential impacts to wetlands, streams, and their buffers.

Twenty wetlands were delineated within the project limits. Additional wetlands adjacent to the project were reconnoitered; several to the southeast and one to the northwest. All of the wetlands are regulated by the U.S. Army Corps of Engineers as waters of the United States and by the Washington State Department of Ecology as waters of the state. Other jurisdictions in the project include the U.S. Forest Service, Washington Department of Natural Resources, and King County.

In general, the wetlands are depressional and/or slope, palustrine forested, scrub-shrub, and emergent wetlands dominated by native vegetation. Wetlands range from Category I to IV, providing a range of water quality, hydrologic, and wildlife habitat functions. A number of high quality wetlands are present in the project limits including two mature forested Category I wetlands, one Category I based on functions, and four Category II wetlands. Vegetated buffers around the wetlands perform various levels of buffering functions. Some buffer areas include mature forested and shrub communities, while other buffers are riparian areas or mowed strips of vegetation directly adjacent to the road in maintained right of way. A tall right of way fence bisects many of the wetlands, streams, and buffers.

Four streams are present within the project limits and one directly adjacent to it. Lake Creek drains Echo Lake, originating south of the eastern project limits. It drains to the Raging River, a tributary to the Snoqualmie River, approximately one linear mile west of the project. One unnamed creek entirely within the project limits parallels SR 18 westbound lanes and another unnamed creek lies just east of project limits, paralleling SR 18 eastbound lanes. These streams join Lake Creek on either side of the Lake Creek culvert under SR 18. Two additional unnamed creeks are present in the southeast quadrant of the interchange, between the I-90 eastbound on-ramp and SE 104th St. Both of these streams drain through a reconnoitered wetland east of the project before entering Lake Creek.

Federally listed species are known to occur in the Project. Puget Sound Chinook distinct population segment (DPS) and Puget Sound steelhead DPS have been documented in the study area (WDFW 2012a). Designated critical habitat and Washington State listed sensitive plant and animal species are not likely to occur in the Project. A separate Biological Assessment will be prepared to address federally listed species and designated and proposed critical habitat. The Washington Department of Fish and Wildlife Priority Habitats and Species data show wetlands adjacent to the project and winter elk range present in the southwestern portion of the project (WDFW 2012b).

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Acronyms and Abbreviations

Ecology	Washington State Department of Ecology
DBH	diameter-at-breast-height
DPS	distinct population segment
ESU	evolutionarily significant unit
FHWA	Federal Highway Administration
GIS	geographic information system
GPS	global positioning system
HGM	Hydrogeomorphic Wetland Classification
I	interstate
LWD	large woody debris
MP	mile post
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PEM	palustrine emergent
PFO	palustrine forested
PHS	priority habits and species
PSS	palustrine scrub-shrub
ROW	right of way
SR	state route
TES	threatened, endangered, and sensitive species
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
UGA	Urban Growth Area
W	wetland
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WSDOT	Washington State Department of Transportation
WRIA	Water Resource Inventory Area

1. Introduction

This report was prepared for Washington State Department of Transportation (WSDOT) Northwest Region to assess potential wetland and stream impacts within the proposed Interstate 90 (I-90)/State Route (SR) 18 Interchange – Westbound Flyover Ramp Project, hereinafter referred to as the project. WSDOT is proposing to improve safety and traffic flow at this interchange.

The purpose of the report is to identify and describe wetlands and streams in the project limits. This report helps WSDOT avoid or minimize impacts to wetlands and streams during the design process, document wetland and stream boundary determinations for review by regulatory authorities, and provide background information for the wetland mitigation report if unavoidable wetland impacts are imminent.

This report provides supporting documentation for permit applications if wetland impacts are unavoidable, in which case it would be reviewed at minimum by U.S. Army Corps of Engineers (USACE) and Washington State Department of Ecology (Ecology).

2. Proposed Project

2.1. Project Location

The I-90/SR 18 interchange is located about 300 feet south of the City of Snoqualmie with North Bend to the east and Issaquah to the west (Figure 1). The project is located in township 23 north, range 7 east, and sections 2, 3, 10 and 11. The project extends from I-90 milepost (MP) 25.54 to 26.54 and SR 18 MP 26.90 to 27.90 (Figure 2). The project is outside of the Urban Growth Area (UGA) in King County, Washington with portions of the project occurring on U.S. Forest Service (USFS) land in the Mount Baker-Snoqualmie National Forest, King County property, Washington Department of Natural Resources (WDNR) parcels, WSDOT right of way (ROW), and private property (Appendix A-1).

2.2. Project Purpose and Description

The Federal Highway Administration (FHWA) and WSDOT are proposing to construct a flyover ramp from westbound I-90 to westbound SR 18 to improve mobility and address safety concerns. The existing I-90/SR 18 interchange consists of a diamond-type interchange with at-grade intersections on SR 18. Demand at the ramp terminal intersections exceeds capacity during weekday peak commute periods, resulting in severe congestion. Traffic queues often extend onto mainline I-90, which causes an increased risk of high-speed rear-end collisions.

Work will also include grading, pavement markings, drainage improvements, permanent signing, illumination, intelligent transportation systems, and barriers. Stormwater facilities will be constructed to treat stormwater runoff from new impervious surface. The flyover ramp will span Lake Creek. Fill for the SR 18 on-ramp will require relocating a section of an unnamed tributary/Stream 2 (Figure 3; Appendix B, Plot 5) to Lake Creek.

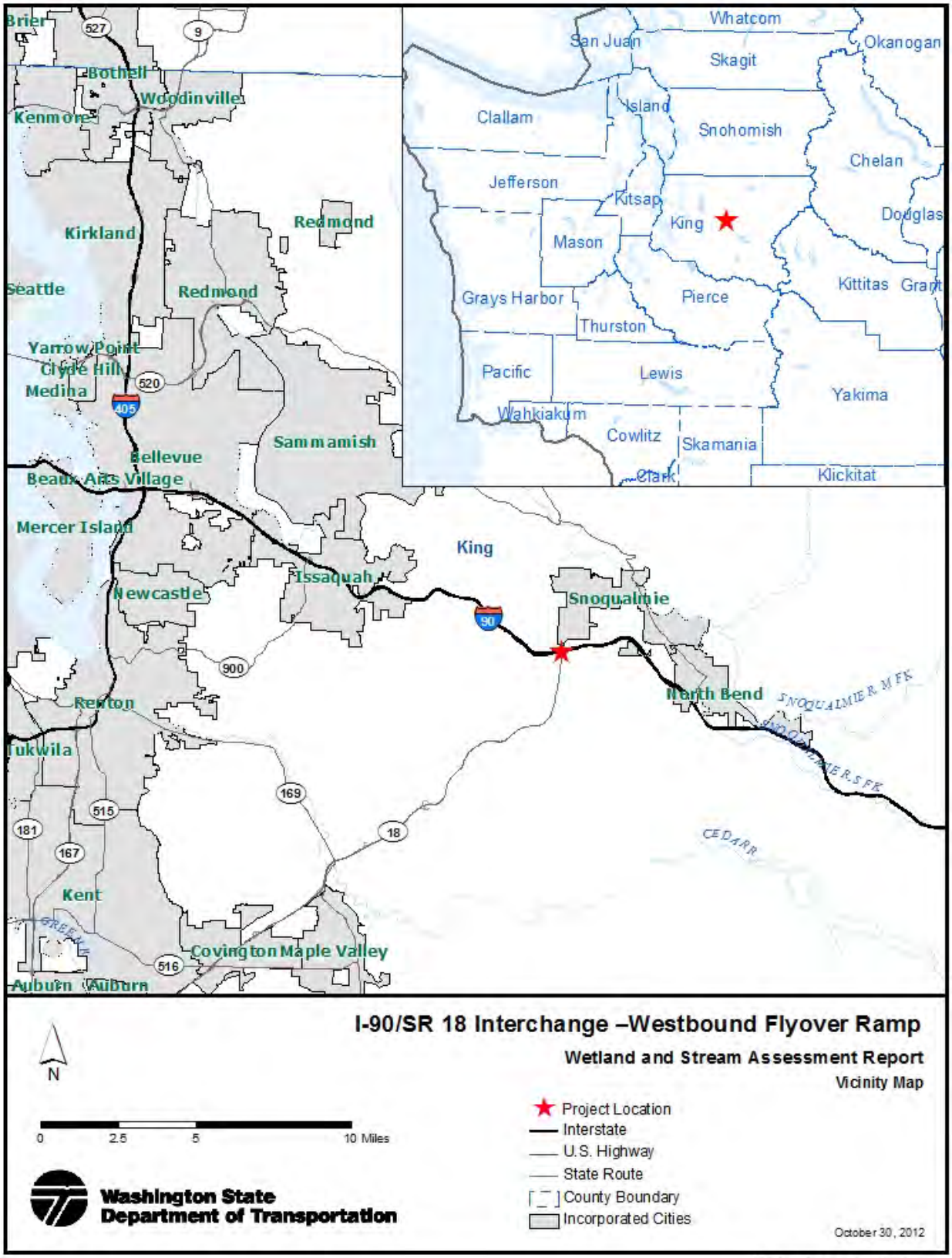


Figure 1. Project vicinity.

2.3. Study Area

The area examined for wetlands and streams is referred to as the study area and it includes all potential impact areas within the project limits (Figure 2). The study area includes:

- areas west of SR 18 between MP 26.90 and MP 27.90; referred to as the southwest quadrant of the interchange
- areas east of SR 18, south of the eastbound I-90 on-ramp, and north and west of SE 104th St.; referred to as the southeast quadrant
- areas north of westbound I-90 lanes between MP 25.54 and MP 26.54; referred to as the northeast quadrant
- The areas within the four quadrants of the current diamond type on and off-ramps

Several wetlands outside of the study area, east of SR 18, and one wetland west of the WSDOT maintenance yard were reconnoitered and were not delineated (Figure 3; Appendix B). The reconnoitered wetlands were not delineated because project designs do not include work in those areas. Other wetlands and streams are present in the project vicinity. Should design plans change, all new areas beyond the study area boundary identified in Figure 2 would need to be assessed for wetlands and streams.

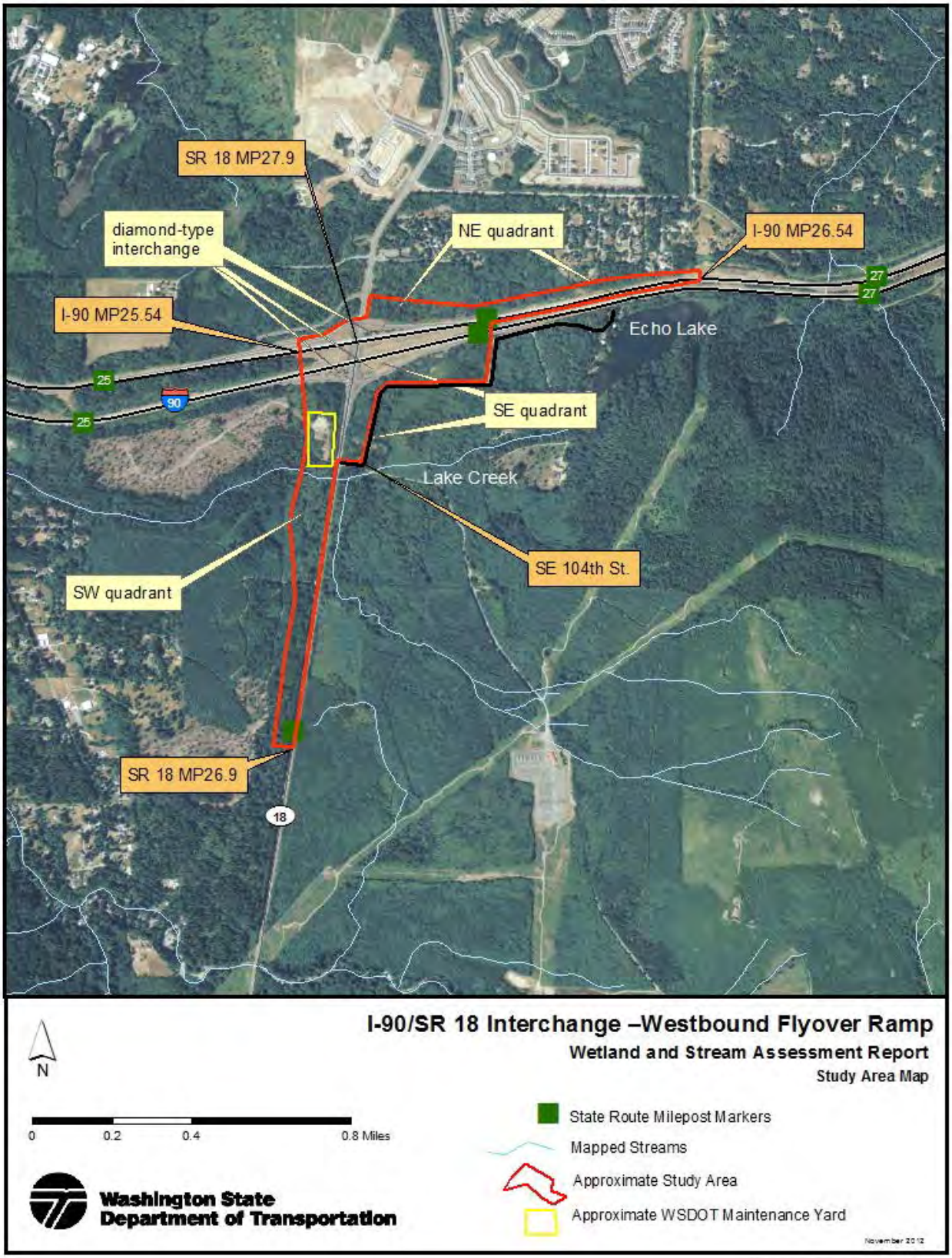


Figure 2. Project study area.

3. Methods

3.1. Wetland Identification, Delineation, Classification, Functions, and Buffers

The following data sources were reviewed for information on regulatory buffer requirements, vegetation patterns, precipitation, topography, drainage, soils, and potential or known wetlands in the project vicinity, and can be found in Appendix A:

- King County parcel, zoning, and land use data (King County 2011) (Appendix A-1) ,
- Natural Resources Conservation Service (NRCS) National Water and Climate Center, WETS station data (NRCS 2002) (Appendix A-2)
- National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center, COOP station data (NOAA 2012) and Weather Underground weather station data (Weather Underground 2012) (Appendix A-2; A-3)
- U.S. Geological Survey (USGS) 7.5 minute topographic maps (USGS 2012) (Appendix A-4)
- NRCS, Washington State Hydric Soil list (NRCS 2012a) and Forest Land Soils (WDNR 2000) (Appendix A-5)
- National Wetland Inventory (NWI) maps (USFWS 1996) (Appendix A-6)

Wetland and stream assessment fieldwork was originally conducted August 2005 through November 2006. The project was then put on hold. In October 2011 and September through November 2012 WSDOT biologists verified original 2005/2006 wetland boundaries within a revised potential impact area (Figure 2) using a Trimble GeoXT GPS unit with 2005/2006 wetland and stream survey data. Wetland boundaries were verified and amended when needed. Wetland and upland sample point data were recollected for each wetland using routine methods described in the:

- Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987)
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010)

Additional wetlands were also identified during 2012 field work.

For the 2005/2006 and 2011/2012 field work, wetlands and other habitats were assessed while walking the extent of the study area. Wetland determinations were made using observable vegetation, hydrology, and soil indicators. Upland areas adjacent to each potential wetland area were also evaluated. Based on the field data, a wetland/non-wetland determination was made for each examined area. The boundaries of jurisdictional wetlands occurring within the study area were marked with sequentially numbered pink flags and then instrument- surveyed. Wetland flags were placed at regular intervals and at any change in direction along the boundary. Constructed drainage features were also assessed to determine if they would be regulated as wetlands.

Wetlands were classified using the US Fish and Wildlife Service (USFWS) classification system (Cowardin, Carter, Golet and others 1979) and the Hydrogeomorphic Classification system (HGM) (Brinson 1993). Wetlands were rated using the Washington State Wetland Rating System for Western Washington - Revised (Hruby

2006), which is the rating system outlined in the King County Code (King County 2012). Wetland functions were assessed using the Wetland Functions Characterization Tool for Linear Projects (Null et al. 2000).

King County wetland buffers for areas outside the UGA were applied to wetlands. Buffer widths range from 25 to 300 feet depending on wetland rating and intensity of impact. High intensity impact buffers were applied to wetlands in the project (King County 2012). The USFS buffer requirements, of either 100 or 150 feet, based on wetland size, (USDA, USFS, USDI, BLM 1994) are provided for wetlands occurring within or partially within USFS property; Wetland (W)4 (Table 1; Table 5) and W8 (Table 1; Table 9). Plan sheets only show King County buffer requirements for each wetland (Appendix B). King County buffer requirements were applied to wetlands on WDNR property (W1, W2, and W3).

Wetland buffers conditions within the study area were assessed using the following criteria: dominant land use (e.g., agriculture, residential, commercial, industrial), dominant buffer vegetation type (tree, shrub, herb, un-vegetated), and estimated percent cover of invasive plants.

3.2. Stream Identification, Delineation, Classification, and Buffers

Ordinary high water marks (OHWM) of streams in the study area were delineated in 2005/2006. The boundaries were verified during 2012 field work and the OHWM for Stream 4 was re-flagged and instrument-surveyed in December 2012. Streams were classified according to local, state, and USFS regulations and buffers assigned according to King County code (King County 2012). King County water types include:

- Type S waters are designated shorelines of the state
- Type F waters contain fish or fish habitat
- Type N non-fish bearing streams, with an surface connection to type S or F streams
- Type O waters do not meet above criteria and lack surface connections to other waters

King County stream buffers for areas outside the UGA range from 25 to 165 feet depending on water type (King County 2012). Streams 1, 2, and Lake Creek/3 have portions that occur or may occur on USFS property, which require stream buffer widths from 100 to 300 feet, depending on fish presence and seasonal or permanent flows (USDA, USFS, USDI, BLM 1994). Buffers on plan sheets only show King County buffer requirements (Appendix B), however, USFS buffers are listed (Table 23 through Table 26). Streams in the project do not occur on WDNR land.

Biologists evaluated in-stream habitat and riparian habitat in order to classify streams. Habitat evaluation included a qualitative analysis of average channel width, substrate, pool/riffle characteristics, stream gradient, fish access, large woody debris (LWD), and condition and vegetation within the stream buffer.

Fish presence or absence was investigated by accessing several data sources with GIS ArcMap 10:

- WDNR water type maps (WDNR 2012)
- Washington State Department of Fish and Wildlife (WDFW) fish distribution maps (WDFW 2012a)

3.3. Wetland and Stream Reconnaissance

The 2005/2006 study area was based on a larger potential impact area than the 2011/2012 (current) proposed design and included areas west and east of current potential impact areas. The current design minimized the project footprint and therefore, potential sensitive area impacts. Wetlands occurring adjacent to or very near the project are identified in this report and on plans as reconnoitered wetlands (Figure 3; Appendix B). Their presence was confirmed from the shoulder of SR 18 and from the WSDOT maintenance yard and by using aerial photographs and background information (Appendix A-4 through A-6). Their boundaries were not verified or redelineated and data was not recollected in 2011/2012.

3.4. Species and Habitats of Interest

Information in this report documenting threatened, endangered, and sensitive (TES) fish, wildlife, plants, and critical habit is based on review of available data at the time the report was prepared. Field investigations of sensitive species were not conducted. A separate Biological Assessment will be prepared to document potential impacts to federally listed species and designated critical habitat.

The following data sources were reviewed for information on TES fish, wildlife, and plant species:

- USFWS Species Report. Listing and Occurrences for Washington (USFWS 2012)
- National Marine Fisheries Service(NMFS) Northwest Regional Office website ESA salmon listings (NMFS 2012)
- WDFW Fish Distribution (WDFW 2012a)
- WDFW Priority Habitats and Species Program (WDFW 2012b)
- WDFW Wildlife Occurrence Points (WDFW 2012c)
- WDFW Washington State Species of Concern (WDFW 2012d)
- Washington State Natural Heritage Program (WHNP) Plant Heritage (WHNP 2012)
- Natural Resource Information System (NRIS) Survey and Manage Species Plants (NRIS 2012)

4. Existing Conditions

4.1. Landscape Setting

The project is situated at the southern extent of the North Cascades Province (Franklin and Dyrness 1988) in foothills on the western slopes of the Cascade Mountains. This region has been shaped by a complex geologic history including inundation by the sea, geologic uplift, glacial activity, development of volcanoes, erosion of soils, and deposition of glacial till in valley bottoms. These geologic processes directly shape the present day landscape which is characterized by coniferous forests dominated by Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and bigleaf maple (*Acer macrophyllum*), with many steep sided mountains and foot hills with river valleys below. Soils in the region are generally comprised of forest soils establishing on top of glaciated material. Soil textures can contain very course material to finer textured silts and clays.

The project is approximately fifteen miles east and inland of Lake Washington and twenty miles west of Snoqualmie Pass. The City of Snoqualmie is less than 300 feet north from the northern extent of the project. Land use around the project is mostly rural and undeveloped, apart from the presence of the two highways and the City of Snoqualmie to the north. Parcels surrounding the project are owned primarily by USFS, King County, and the Washington State Department of Natural Resources, with some private property north of I-90 and west of Echo Lake.

The project is in the Upper Snoqualmie River watershed (watershed 1711001004) (BLM 2012) at the upper extent of Water Resource Inventory Area (WRIA) 7 Snohomish (Ecology 2000). Topography in the area varies from valley bottoms to steep hill slopes. The peaks surrounding the project are between 2000 and 2700 feet above sea level with the project between 850 and 900 feet elevation (Appendix A-4). Rattlesnake Mountain, with a peak of 2250 feet, lies southeast of the project. This landscape feature generally creates runoff and drainage heading west, contributing hydrologic inputs to the southern quadrants of the project, south of I-90. Echo Lake at the northern toe of slope of Rattlesnake Mountain drains to Lake Creek which flows west through the southern quadrants of the project. In general, surface water moves from the north and eastern project areas flowing west, draining to the Raging River via Lake Creek. The Raging River is a tributary of the Snoqualmie River. The confluence of the two rivers is approximately four and a half linear miles downstream of the project.

4.2. Climate, Precipitation, and Growing Season

The study area is situated approximately twenty three miles inland from Puget Sound and about five miles southwest of where the three forks of the Snoqualmie River converge. The project lies in the foothills of the Cascade Mountains. A cool marine climate produced by the Puget Sound results in cool, dry summers and wet, mild winters. The area receives an average total snow fall of about seven inches per year and an overall total of fifty seven inches of precipitation per year with most of the precipitation occurring between September and June (NRCS 2002).

The Regional Delineation Supplement Version 2.0 (USACE 2010) recommends using methods described in Chapter 19 in *Engineering Field Handbook* (NRCS1997) to determine if precipitation occurring in the three full months prior to a site visit was normal, drier than normal, or wetter than normal. Actual rainfall is compared to the normal range of the 30-year average (Appendix A-2; A-3).

- Normal precipitation conditions were present prior to field work occurring in late October 2011, mid September, late October, and mid November 2012
- Drier than normal conditions were present prior to field visits occurring in late September and early October 2012

The majority of the 2011/2012 wetland and stream field work was conducted at the end of the growing season. Most woody and herbaceous vegetation was still identifiable to species. Ideally, hydrology is assessed during the growing season and during periods with normal precipitation conditions. Much of the wetland field work was conducted during drier than normal conditions in late September and early October 2012. When field work must be performed during periods considered drier than normal, biologists use best professional judgment based on background information and on-site observations to make inferences about hydrology. It is assumed that wetland hydrology is present during the growing season in years with normal precipitation when hydrophytic vegetation, hydric soils, and landscape positions typical of wetlands were observed.

4.3. Wetlands

4.3.1. Overview

Twenty wetlands were delineated within the study area (Figure 3; Tables 2 through 21; Appendix B; Appendix C). Several wetlands occurring east of the study area along SR 18 and one west of the study area were reconnoitered (Figure 3; Appendix B).

- All twenty of the identified wetlands were delineated in entirety.
- Several wetlands originally identified during the 2005/2006 field work adjacent to the study area east of SR 18 and one wetland west of the WSDOT maintenance yard (Figure 2) were reconnoitered. The presence of these wetlands was confirmed but no further assessment was completed during 2011/2012 field work because these wetlands and their buffers are not within the current project limits (Figure 2).

Other wetlands, streams, and their buffers are present outside of and near the project limits. Additional areas would need to be delineated should project designs change, expanding the current proposed potential impact area identified in Figure 2.

Wetlands in the project have various HGM classes, Cowardin classes, wetland ratings, and buffer widths (Table 1). Wetlands are typically slope or depressional. Five wetlands had multiple HGM classes present combining slope, depressional, and riverine areas. Wetlands were palustrine emergent (PEM), palustrine scrub-shrub (PSS), or palustrine forested (PFO), or a combination of two of these Cowardin classes. King County uses the Washington Wetland Rating System to assess wetlands and does not require additional county-specific assessments. All four wetland categories are present within the project. High quality Category I and II wetlands are present in the southwest quadrant of the project, including two mature forested Category I wetlands (W1 and W4) and one Category I based on functions (W3). Wetlands in the southwest quadrant are all Category III, with the exception of one Category II (W12). The northeast quadrant has a mix of Category II, Category III, and Category IV wetlands.

Wetlands in the project are headwater wetlands providing important hydrologic and water quality functions in the watershed. Some of the wetlands also provide moderate to high quality wildlife habitat (Table 22; Appendix E).

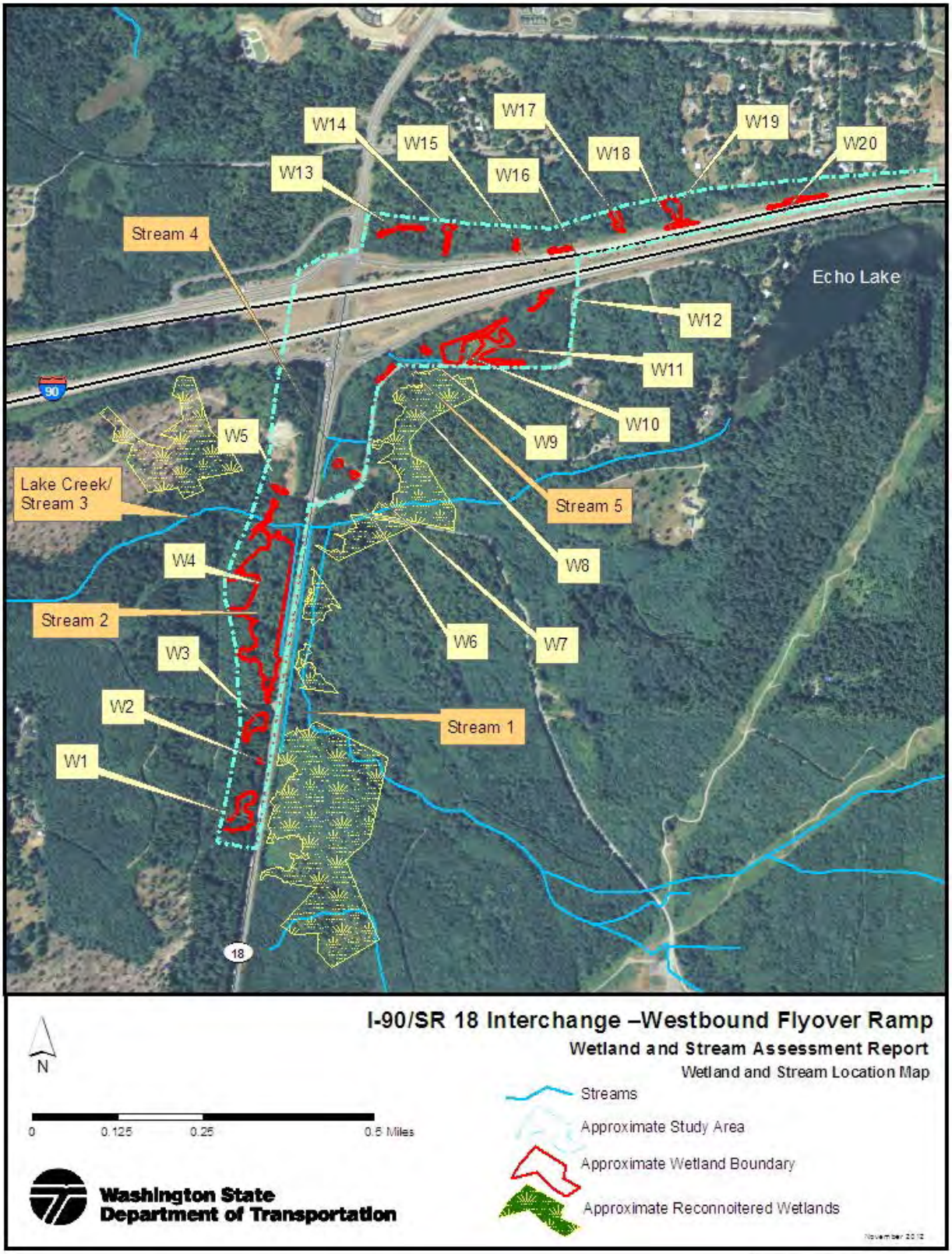


Figure 3. I-90/SR 18 Interchange-Westbound Flyover Ramp approximate wetland boundaries, streams, and study area.

Table 1. Wetlands within the project.

Wetland[a]	Wetland Classification			Wetland Size (sq. ft.)	Wetland Size (acres)	King Co.[e] / USFS[f] Buffer Width (feet)
	Cowardin[b]	HGM	Ecology[c] & Local Jurisdiction[d]			
1	PFO	depressional	I	34,374	0.79	240
2	PEM	depressional	II	660	0.02	210
3	PFO	depressional	I	17,124	0.39	210
4	PFO	riverine/ depressional	I	281,160	6.45	300/150
5	PSS/PEM	slope	III	4,549	0.10	80
6	PSS	slope	III	2,310	0.05	80
7	PEM	depressional	III	507	0.01	80
8	PFO	depressional	III	3,191	0.07	80/100
9	PSS	slope	III	1,111	0.03	80
10	PFO	slope/ depressional	III	38,297	0.90	80
11	PFO	slope/ depressional	III	15,267	0.35	80
12	PFO	slope/ depressional	II	4,697	0.11	100
13	PFO	depressional	II	6,962	0.16	195
14	PFO/PSS	slope/ depressional	II	10,030	0.23	195
15	PSS	slope	III	1,634	0.04	80
16	PSS/PEM	slope	III	2,772	0.07	80
17	PFO/PSS	slope	III	4,748	0.11	80
18	PEM	slope	IV	6,277	0.14	50
19	PSS	slope	IV	2,114	0.05	50
20	PEM	slope	III	9,596	0.22	80

[a] Wetland identifier
[b] NWI Class based on vegetation: PFO = palustrine forested, PSS = palustrine scrub-shrub, PEM = palustrine emergent; (Cowardin, Carter, Golet and others 1979)
[c] Ecology rating (Hruby 2006)
[d] King County wetland rating (King County 2012)
[e] King County wetland buffer widths for areas outside the UGA and based on high intensity impacts (King County 2012). King County buffers are provided for each wetland.
[f] USFS buffers only provided for wetlands occurring on or partially on USFS lands (USDA, USFS, USDI, BLM 1994)

4.3.2. Wetlands

Vegetation

Native and non-native plants are present in the wetlands and their buffers (Appendix A-7). The PFO portions of the wetlands were dominated by mature stands of black cottonwood (*Populus balsamifera*), red alder (*Alnus rubra*), and western red cedar (*Thuja plicata*) with western hemlock (*Tsuga heterophylla*) established on hummocks, small topographic high-spots, or on nurse logs. An occasional Sitka spruce (*Picea sitchensis*) was established in forested wetland areas. The PFO wetlands typically had understories with shrub cover dominated by salmonberry (*Rubus spectabilis*) and a mix of native and non-invasive, non-native herbaceous plants. Wetland 1 and W4 are mature forested wetlands where the largest trees are black cottonwoods with diameter-at-breast-heights (DBH) between 40 and 60 inches.

The PSS portions of the wetlands were mainly dominated by salmonberry or hardhack (*Spiraea douglasii*) with a few and red alder and black cottonwood saplings intermixed. Some PSS areas had herbaceous communities established in the understory.

The PEM communities varied depending on the wetland. Some PEM communities were dominated by a combination of common ladyfern (*Athyrium filix-femina*) and youth on age (*Tolmiea menziesii*) with trailing blackberry (*Rubus ursinus*) creeping in from the edge and western swordfern (*Polystichum munitum*) established on hummocks. Other PEM plant associations were soft rush (*Juncus effusus*), spike bentgrass (*Agrostis exarata*), and colonial bentgrass (*Agrostis capillaris*) with scattered individuals of small-fruited bulrush (*Scirpus microcarpus*) and eggbract sedge (*Carex ovalis*). These species were also the typical herbaceous understory established below PFO and PSS wetland communities.

Invasive weedy species cover in the wetlands was low and generally provided less than five to ten percent cover. Himalayan blackberry (*Rubus armeniacus*) and cutleaf blackberry (*Rubus laciniatus*) were the common invasive species established in the wetlands with an occasional patch of reed canarygrass (*Phalaris arundinacea*). These species were mostly observed in disturbed areas of the wetlands including wetland areas directly adjacent to the roadway prism and roadside ditches.

Figure 4. Photo of a typical undisturbed PFO wetland on left and previously disturbed PSS wetland on right

Soils

Soils in the study area are mapped by WDNR (WDNR 2000) and show Tokul gravelly loam is the only soil series mapped in the project (Appendix A-5). The majority of the project is mapped with six to fifteen percent slopes. Slopes are fifteen to thirty percent in a small section of the project on the southern extent of the project limits along SR 18 (Appendix A-5). The Tokul soil series is not listed as hydric soil in King County, Washington on the National List of Hydric Soils (NRCS 2012a).

Tokul soils formed in glacial till, loess, and volcanic ash in till plains and glacially modified hills and mountains. These soils can be moderately well drained to poorly drained (NRCS 2012b).

- Wetlands in the southwest quadrant of the project, with the exception of W5, have relatively undisturbed soils (W1 through W4), in terms of human disturbances. Mineral soils with moderate to high organic matter content are common in these wetlands. Some areas had small pockets of organic soils. Soils in W5 have been disturbed by WSDOT maintenance yard activities.
- Wetlands in the southeast quadrant (W6 through W12) have soils impacted by past land use activities resulting in compaction, fill, addition of non-native soil material, and mixing of native soil layers. These soils have a high mineral content with little organic matter. The compacted, shallow, mineral soils perch precipitation and run-on long enough during the growing season for hydrophytic vegetation to establish.
- Wetlands in the northeast quadrant and one in the southeast quadrant have two different soil types: relatively undisturbed native soils and soils with some human disturbance. The relatively undisturbed native soils are mineral soils with moderate organic matter content (W12 through W14, W17, and W19). Disturbed soils have been impacted by the construction and maintenance of the I-90 ROW. These mineral soils generally have a low organic matter content and some soil compaction and mixing of native soil layers (W15, W16, W18, and W20)

Typical wetland soil profiles near wetland boundaries have depleted matrices or matrix values of 3 or less and chromas of 2 or less with redoximorphic concentrations. A few wetlands had loamy mucky mineral soils with high organic matter content. Soils on the interior of some wetlands with permanent saturation or inundation meet the definition of a hydric soil due to saturation, ponding, or flooding for long periods during the growing season.

Hydrology

In the Upper Snoqualmie River watershed, precipitation falls mostly as rain and mixed rain and snow in winter. Precipitation and snow melt infiltrate the soil and influences the water table. Three different hydrologic regimens generally influence wetland hydrology in the project. Some wetlands have hydrology mainly driven by a high groundwater table (W1 through W5, W8, W9, W13, W14, W17, and W19). A portion of Wetland 4 receives overbank flooding from Lake Creek. The hyporheic flow of Lake Creek also influences the high ground water table in some areas of W4. Other wetlands are mainly driven by surface and/or subsurface hillside seeps (W12, W16, W18, and W20). Wetlands that have formed on slopes with compacted soils have perched water tables on shallow soils mainly driven by precipitation and run-on (W6, W7, W10, W11, and W15).

Wetlands in the southwest quadrant of the project (W1through W4) occur at toe of slope of the SR 18 westbound lanes. The eastern portions of these wetlands likely receive some stormwater runoff from the roadway structure, providing secondary hydrologic inputs. Small portions of some wetlands along the westbound I-90 lanes (W16, W18, and W20) and SE 104th St. (W8, W10, and W11) also receive stormwater inputs.

Surface water in the project generally runs from north and east, to southwest, ultimately draining to Lake Creek. Snoqualmie/SE 96th St. and the slopes to the south of the road create a hydrologic contributing basin for the northeast quadrant of the project. Surface water in this quadrant of the project generally drains south through the wetlands in this area and then leaves this quadrant through transportation infrastructure, including ditches, culverts, and a stormwater pond. Significant amounts of water leaving both the ditches and the stormwater pond flow into Stream 4, providing the predominant source of hydrology at the headwater of this stream. Stream 4 flows through reconnoitered wetlands east of the project before entering Lake Creek.

Surface water leaving the southeast quadrant drains through roadside ditches along SE 104th St. before entering Stream 4, then moving through the landscape as described above.

Lake Creek drains through a reconnoitered wetland east of the project, crosses SR 18 heading west, and flows through Wetland 4 before entering the Raging River approximately one linear mile west of the southwestern quadrant of the project. All streams in the project drain to Lake Creek.

Table 2. Wetland 1 summary.

WETLAND 1 – INFORMATION SUMMARY	
Location:	SW quadrant of I-90/SR 18 intersection, west of westbound SR 18

Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	I
King Co. Buffer Width	240 feet
Wetland Size	0.79 acre
Cowardin Classification	PFO
HGM Classification	depressional
Wetland Data Sheets	Appendix C; Sampling Point W1-SP1
Upland Data Sheets	Appendix C; Sampling Point W1-SP2

Dominant Vegetation	Trees – western red cedar (*Thuja plicata*), Shrubs – salmonberry (*Rubus spectabilis*), red huckleberry (*Vaccinium parvifolium*), Herbaceous – American skunkcabbage (*Lysichiton americanus*), water parsley (*Oenanthe sarmentosa*), with western swordfern (*Polystichum munitum*) on hummocks, Non-vascular - sphagnum moss (*Sphaguum* sp.)
Soils	Soil matrices of 10YR 2/1 with redoximorphic concentrations, hereinafter referred to as concentrations, to greater than18 inches. Indicator Redox Dark Surface (F6). Some locations had soils with high organic content. Indicator F1: Loamy Mucky Mineral.
Hydrology	Wetland situated in a forested depression below and to the west of SR 18 with a high water table as the dominant hydrology source. Precipitation and stormwater runoff from SR 18 contribute secondary hydrologic inputs.
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Topographic break near toe of slope of the depression and obvious change in vegetation community helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 1 is Category I based on both functions and special characteristics for mature forested wetlands. Organic soils and sphagnum moss present in some areas, however, does not meet special characteristics criteria for bogs in the Washington State Wetland Rating System due to the vegetation community not having the characteristic bog species (Hruby 2006).
Wetland Functions Summary	
Water Quality	High potential to trap sediments due to large size and ability to retain significant amounts of water; moderate opportunity because wetland receives overland flow of surface water during and following storms. High potential to trap nutrients and toxicants due to due to densely vegetated topographic depression with high organic content in soils; moderate opportunity because portions of the wetland receive stormwater runoff from SR 18.
Hydrologic	High potential to alter flood flow due to landscape position high in watershed and depressional topography able to retain high volumes of water; opportunity is high from run-on during precipitation and snow melt events. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.
Habitat	High habitat quality due to connection with large mature forested upland corridor, other wetlands and Raging River. Mature forested wetland with canopy stratification, decadence, various water regimens, and other characteristics able to support various wildlife. Wetland has uniqueness and heritage: Category I Mature Forested and WDFW priority habitats and species (PHS) present.
Buffer Condition	Buffer function is high. Greater than half of the wetland circumference to the west consists of mature coniferous forest dominated by western red cedar and western hemlock (*Tsuga heterophylla*), intermixed with some historically logged areas where trees and shrubs have reestablished. The eastern wetland boundary is buffered by a thin strip of mature coniferous trees separating the wetland from the westbound lanes of SR 18. These forested areas provide wildlife habitat, shade, organic matter inputs, and some water quality and hydrologic buffering form stormwater runoff.

Table 3. Wetland 2 summary.

WETLAND 2 – INFORMATION SUMMARY	
Location:	SW quadrant of I-90/SR 18 intersection, west of westbound SR 18

Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	II
King Co. Buffer Width	210 feet
Wetland Size	0.02 acre
Cowardin Classification	PEM
HGM Classification	depressional
Wetland Data Sheets	Appendix C; Sampling Point W2-SP1
Upland Data Sheets	Appendix C; Sampling Point W2-SP2

Dominant Vegetation	Trees – red alder (*Alnus rubra*) Shrubs – salmonberry Herbaceous – slough sedge (*Carex obnupta*), common ladyfern (*Athyrium filix-femina*)
Soils	Soil matrices were depleted with 2.5Y 6/1 with concentrations to greater than 16 inches. Indicator Depleted Matrix (F3).
Hydrology	Wetland situated in a depression below and to the west of SR 18 with a high water table as the dominant hydrology source. Precipitation and stormwater runoff from SR 18 contribute secondary hydrologic inputs. Water leaves the wetland through a constricted outlet at a culvert flowing east under SR 18, emptying in to the headwaters of Steam 1.
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Topographic break near toe of slope of the depression and obvious change in vegetation community helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 2 is Category II.
Wetland Functions Summary	
Water Quality	Moderate potential to trap sediments due to depressional topography with dense herbaceous vegetation and a constricted outlet (a culvert), allowing for significant ponding and fine sediments to settle out of the water column; moderate opportunity because wetland receives overland flow of surface water during and following storms. Moderate potential to trap nutrients and toxicants due to the same physical characteristics described for sediment trapping function, though overall size of wetland is small reducing its ability to perform this function; moderate opportunity because wetland receives stormwater runoff from SR 18.
Hydrologic	Low potential to alter flood flow due to small size; opportunity is moderate as significant amounts of water drain through the wetland from upslope areas during and following precipitation. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.
Habitat	Moderate habitat quality. Wetland is connected to a large upland forested corridor that connects to other wetlands and Raging River. Function limited by wetland size. Wetland provides habitat for aquatic invertebrates, breeding, juvenile, and adult amphibians, passerine birds, small mammals, and deer.
Buffer Condition	Buffer function is high. Approximately half of the wetland circumference to the west consists of mature forest dominated by western red cedar and red alder, intermixed with some historically logged areas where trees and shrubs have reestablished. The eastern half of the wetland boundary is buffered by a thin strip of mature coniferous trees separating the wetland from the westbound lanes of SR 18. These forested areas provide wildlife habitat, shade, organic matter inputs, and some water quality and hydrologic buffering form stormwater runoff.

Table 4. Wetland 3 summary.

WETLAND 3 – INFORMATION SUMMARY			
Location:	SW quadrant of I-90/SR 18 intersection, west of westbound SR 18		
		**Local Jurisdiction**	King County
		WRIA	7 Snohomish
		Ecology & Local Rating	I
		King Co. Buffer Width	210 feet
		Wetland Size	0.39 acre
		Cowardin Classification	PFO
		HGM Classification	depressional
		Wetland Data Sheets	Appendix C; Sampling Point W3-SP1
		Upland Data Sheets	Appendix C; Sampling Point W3-SP2
Dominant Vegetation	Trees – western red cedar, Shrubs – Devil's club (*Oplopanax horridus*), salmonberry, western red cedar saplings, Herbaceous – common ladyfern, western swordfern on hummocks, Pacific trillium (*Trillium ovatum*), Non-vascular - sphagnum moss present		
Soils	Soil matrices were 10YR 3/1 with concentrations to greater than16 inches. Indicator Redox Dark Surface (F6). High organic matter present in some areas.		
Hydrology	Wetland situated in a forested closed depression below and west of SR 18 with a high water table as the dominant hydrology source. Precipitation and stormwater runoff from SR 18 contribute secondary hydrologic inputs. The wetland has no outlet indicating water leaves through infiltration and evapotranspiration.		
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Topographic break near toe of slope of the depression and obvious change in vegetation community helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 3 is Category I. Soils with high organic content and sphagnum moss present in some areas of the wetland, however, does not meet the bog criteria for special characteristics in the Washington State Wetland Rating System due to the vegetation community not having the characteristic bog species (Hruby 2006)		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to closed depressional topography, dense vegetation, and seasonal ponding which allow fine sediments to settle out of the water column; moderate opportunity because wetland receives overland flow of surface water during and following storms. High potential to trap nutrients and toxicants due to due to densely vegetated topographic closed depression with high organic content in soils; moderate opportunity because portions of the wetland receive stormwater runoff from SR 18.		
Hydrologic	High potential to alter flood flow due to landscape position high in watershed and depressional topography able to retain high volumes of water; opportunity is high from run-on during precipitation events. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	High habitat quality due to connection with large mature forested upland corridor, other wetlands and Raging River. Forested wetland with canopy stratification, decadence, various water regimens, and other characteristics able to support various wildlife. Wetland has uniqueness and heritage: Category I forested and PHS present.		
Buffer Condition	Buffer function is high. Greater than half of the western wetland circumference consists of mature coniferous forest dominated by western red cedar and western hemlock, intermixed with some historically logged areas where trees and shrubs have reestablished. The eastern wetland boundary is buffered by a thin strip of mature coniferous trees separating the wetland from the westbound lanes of SR 18. These forested areas provide wildlife habitat, shade, organic matter inputs, and some water quality and hydrologic buffering form stormwater runoff.		

Table 5. Wetland 4 summary.

WETLAND 4 – INFORMATION SUMMARY	
Location:	SW quadrant of I-90/SR 18 intersection, west of westbound SR 18
	**Local Jurisdiction**: King County **WRIA**: 7 Snohomish **Ecology & Local Rating**: I **King Co./USFS Buffer Width**: 300 feet/150 feet **Wetland Size**: 6.45 acres **Cowardin Classification**: PFO **HGM Classification**: depressional/riverine **Wetland Data Sheets**: Appendix C; Sampling Point W4-SP1, W4-SP3 **Upland Data Sheets**: Appendix C; Sampling Point W4-SP2, W4-SP4
Dominant Vegetation	Trees – red alder, black cottonwood (*Populus balsamifera*), Cascara buckthorn (*Frangula purshiana*), vine maple (*Acer circinatum*), Shrubs – salmonberry, Pacific ninebark (*Physocarpus capitatus*), Herbaceous – youth on age (*Tolmiea menziesii*), sedges (*Carex* spp.), common ladyfern.
Soils	Soil matrices were 10YR 2/1 and 10YR 3/2 to five inches. A second layer from five to 16 inches with a depleted matrix of 10YR 5/2 with concentrations and depletions is present. Indicators Depleted Below Dark Surface (A11) and Depleted Matrix (F3).
Hydrology	Wetland situated in a forested depression with Lake Creek running through it. It is below and to the west of SR 18. A high water table is the dominant hydrology source. Precipitation, hyporheic flow and occasional overbank flooding form Lake Creek, and stormwater runoff from SR 18 contribute secondary hydrologic inputs to portions of the wetland. Parts of the wetland have no outlet, while other areas outlet to Lake Creek.
Rationale for Delineation	Depressional and riverine wetland with hydric soils, supporting hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and hydric soils helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 4 is Category I. It is Category I based on special characteristics for mature forested wetland and Category II based on functions.
Wetland Functions Summary	
Water Quality	High potential to trap sediments due to large size and ability to retain significant amounts of water; moderate opportunity because wetland receives runoff from multiple sources including Lake Creek during and following storms. High potential to trap nutrients and toxicants due to densely vegetated topographic depression with some organic content in soils; moderate opportunity because portions of the wetland receive stormwater runoff from SR 18.
Hydrologic	High potential to alter flood flow due to landscape position high in watershed and depressional and undulating topography able to retain water; opportunity is high due to flood overflow from Lake Creek and stormwater inputs. Moderate erosion control and shoreline stabilization functions provided because Lake Creek flows through the wetland.
Habitat	High habitat quality due to connection with large mature forested upland corridor, other wetlands and Raging River. Mature forested wetland with canopy stratification, decadence, various water regimens, and other characteristics able to support various wildlife including fish, wetland mammals, amphibians, large and small land mammals, and passerine birds. Wetland has uniqueness and heritage: Category I Mature Forested and WDFW priority habitats and species (PHS) present.
Buffer Condition	Buffer function is high. Greater than half of the western wetland circumference has mature coniferous forest dominated by western red cedar, western hemlock, Douglas-fir (*Pseudotsuga menziesii*), and vine maple intermixed with some historically logged areas where trees and shrubs have reestablished. The eastern wetland boundary is buffered by a thin strip of mature coniferous trees separating the wetland from the westbound lanes of SR 18 and the southern portion of the WSDOT maintenance yard. These forested areas provide wildlife habitat, shade, organic matter inputs, and some water quality and hydrologic buffering form stormwater runoff.

Table 6. Wetland 5 summary.

WETLAND 5 – INFORMATION SUMMARY	
Location:	SW quadrant of I-90/SR 18 intersection, south end of WSDOT maintenance yard

Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	III
King Co. Buffer Width	80 feet
Wetland Size	0.10 acre
Cowardin Classification	PSS/PEM
HGM Classification	slope
Wetland Data Sheets	Appendix C; Sampling Point W5-SP1, W5-SP3
Upland Data Sheets	Appendix C; Sampling Point W5-SP2

Dominant Vegetation	Trees – none. Shrubs – hardhack (*Spiraea douglasii*), black cottonwood, willows (*Salix spp.*), cutleaf blackberry (*Rubus laciniatus*). Herbaceous – poverty rush (*Juncus tenuis*), tapertip rush (*Juncus acuminatus*), sedges, woolgrass (*Scirpus cyperinus*), spike bentgrass (*Agrostis exarata*), common velvetgrass (*Holcus lanatus*).
Soils	Soil matrices were 10YR 2/2 to seven inches. A second layer from seven to 13 inches had a matrix of 10YR 3/3 with concentrations. Hydric soils are present because soils meet the definition of a hydric soil because: saturated or ponded for long periods during the growing season. In addition, presence of a hydrophytic plant community and wetland hydrology indicate that the soils are hydric.
Hydrology	Wetland situated in disturbed sloping area on WSDOT maintenance yard. Surface run-on from precipitation from upslope maintenance yard is the primary source of hydrology. Water saturates the upper portion of the soil and small depressions impound water. Water leaves the wetland sheet flowing across the access road to the maintenance yard, and enters a ditch, before draining to Lake Creek.
Rationale for Delineation	Slope wetland supporting hydrophytic vegetation and wetland hydrology. This is a newly forming wetland area due to activities associated with the WSDOT maintenance yard. Soil excavation in this area allows water to pond and subsequently a hydrophytic plant community has established. Because this wetland is located in an active maintenance yard, future activities could again alter hydrology and vegetation and wetland indicators could disappear.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 5 rates is Category IV.
Wetland Functions Summary	
Water Quality	High potential to trap sediments due to gentle sloping topography with depressions and dense herbaceous vegetation, allowing water to move through system relatively slowly and fine sediments to settle out of the water column; high opportunity because WSDOT maintenance yard is directly up slope, with the majority of sheet flow off the maintenance yard flowing through wetland before entering Lake Creek. High potential to trap nutrients and toxicants due to sloping topography with depressions and dense herbaceous vegetation; high opportunity because maintenance yard up slope contributes inputs.
Hydrologic	Moderate potential to alter flood flow due to small densely vegetated depressions able to retain runoff; opportunity is moderate as wetland receives surface runoff from upslope maintenance but water leaves wetland as sheetflow across access road flowing to ditch draining to Lake Creek. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.
Habitat	Low habitat quality due to lacking or low functioning buffer, surrounding WSDOT maintenance yard, and small wetland size.
Buffer Condition	Buffer function is limited for the entire circumference of the wetland. Half of the wetland lacks a buffer and is bordered by a gravel road accessing the WSDOT maintenance yard. The other half of has a sloping buffer on the southern end of the maintenance yard with disturbed/compacted soils dominated by upland pasture grasses and some invasive species. Upland grasses to the north may provide some hydrologic and water quality functions.

Table 7. Wetland 6 summary.

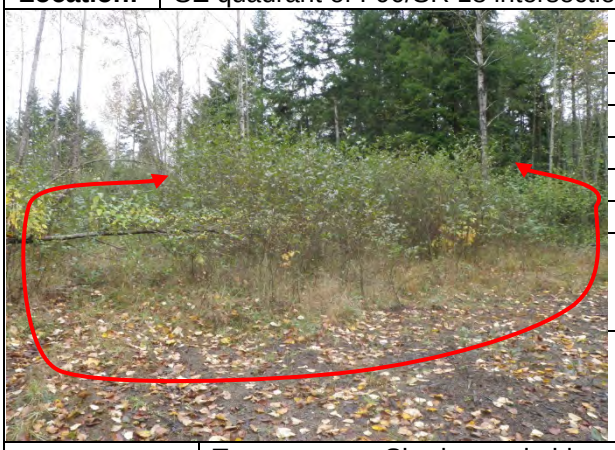
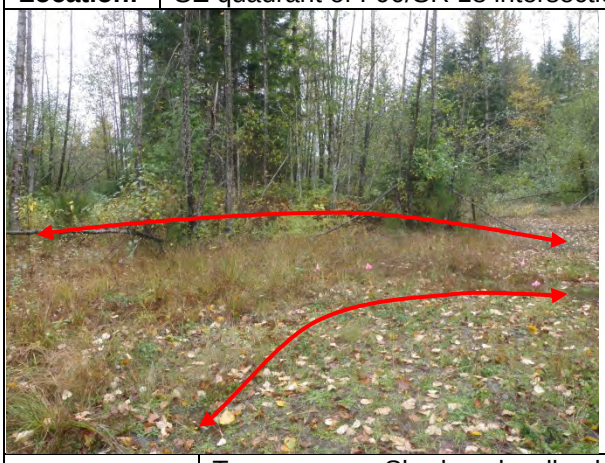
WETLAND 6 – INFORMATION SUMMARY			
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on ramp		
		**Local Jurisdiction**	King County
		WRIA	7 Snohomish
		Ecology & Local Rating	III
		King Co. Buffer Width	80 feet
		Wetland Size	0.05 acre
		Cowardin Classification	PSS
		HGM Classification	slope
		Wetland Data Sheets	Appendix C; Sampling Point W6-SP1
		Upland Data Sheets	Appendix C; Sampling Point W6-SP2
Dominant Vegetation	Trees – none. Shrubs –red alder, salmonberry, Himalayan blackberry (*Rubus armeniacus*) Herbaceous – soft rush (*Juncus effusus*), sedges		
Soils	Soil to 16 inches had a depleted matrix of 10YR 4/2 with concentrations. Indicator Depleted Matrix (F3).		
Hydrology	Wetland situated on a slope surrounded by an old temporary access road. Water perches on a disturbed/compacted soils. Hydrology is mainly precipitation driven with surface run-on from upslope areas. Water leaves the wetland as sheet flow flowing down old road and into W7.		
Rationale for Delineation	Slope wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and wetland hydrology indicators helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 6 is Category III.		
Wetland Functions Summary			
Water Quality	Moderate potential to trap sediments due to sloping topography with dense herbaceous vegetation; moderate opportunity because wetland receives surface water runoff. Moderate potential to trap nutrients and toxicants due to sloping topography with small depressions and herbaceous vegetation; moderate opportunity because wetland receives surface water runoff.		
Hydrologic	Moderate potential to alter flood flow due to gentle sloping topography with dense woody and herbaceous vegetation; moderate opportunity due to surface water run-on. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Moderate habitat quality due to wetland area with herbaceous vegetation and shrubs and seasonal shallow surface ponding. Buffer connects forested uplands, other wetlands, and a stream. Wetland provides habitat for passerine birds and small mammals.		
Buffer Condition	Buffer function is high for the entire circumference of the wetland. The buffer is a combination of black cottonwood forest with shrubby understory and previously disturbed areas that have red alder and black cottonwood saplings establishing. These areas also include an old abandoned temporary access road. The up-slope buffer areas provide hydrologic functions. The buffer provides wildlife habitat functions.		

Table 8. Wetland 7 summary.

WETLAND 7 – INFORMATION SUMMARY	
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on ramp



Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	III
King Co. Buffer Width	80 feet
Wetland Size	0.01 acre
Cowardin Classification	PEM
HGM Classification	depressional
Wetland Data Sheets	Appendix C; Sampling Point W7-SP1
Upland Data Sheets	Appendix C; Sampling Point W7-SP2

Dominant Vegetation	Trees – none. Shrubs – hardhack, red alder, willows Herbaceous – soft rush, eggbract sedge (*Carex ovalis*), common tansy (*Tanacetum vulgare*), spike bentgrass
Soils	Soil to four inches was a depleted matrix of 10YR 4/2 with concentrations. A restrictive layer of gravels present at four inches. Indicator Depleted Matrix (F3).
Hydrology	Wetland situated on a slope with small depressions able to impound surface water. Water perches on a compacted/disturbed soil layer on top of an old temporary access road. Hydrology is mainly precipitation driven with surface run-on from upslope areas and W6.
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and wetland hydrology indicators helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 7 is Category IV.
Wetland Functions Summary	
Water Quality	Moderate potential to trap sediments due to depressional topography with dense herbaceous vegetation; moderate opportunity because wetland receives surface water runoff. Moderate potential to trap nutrients and toxicants due to sloping topography with small depressions and herbaceous vegetation; moderate opportunity because wetland receives surface water runoff.
Hydrologic	Moderate potential to alter flood flow due to gentle depressional topography with dense woody and herbaceous vegetation; moderate opportunity due to surface water run-on. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.
Habitat	Moderate habitat quality due to wetland area with herbaceous vegetation and seasonal shallow surface ponding. Buffer connects forested uplands, other wetlands, and a stream. Wetland provides habitat for passerine birds and small mammals.
Buffer Condition	Buffer function is limited for half of the circumference of the wetland. This section of buffer is bordered by SE 104th St. The other half of the buffer is a combination of black cottonwood forest with shrubby understory and previously disturbed areas that have red alder and black cottonwood saplings establishing. These areas also include an old abandoned temporary access road. The up-slope buffer areas provide hydrologic and habitat functions.

Table 9. Wetland 8 summary.

WETLAND 8 – INFORMATION SUMMARY	
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on ramp

Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	III
King Co./USFS Buffer Width	80 feet/100 feet
Wetland Size	0.07 acre
Cowardin Classification	PFO
HGM Classification	depressional
Wetland Data Sheets	Appendix C; Sampling Point W8-SP1
Upland Data Sheets	Appendix C; Sampling Point W8-SP2

Dominant Vegetation	Trees – Black cottonwood, red alder Shrubs – redosier dogwood (*Cornus alba*), Pacific ninebark Herbaceous – reed canarygrass, trailing blackberry
Soils	Hydric soils are present in this wetland. Soils were too wet to observe during the 2012 field visit due to heavy rains. Matrix colors of 10YR 4/2 with redox observed. Soils meet the definition of a hydric soil: soils that are saturated or ponded for long periods during the growing season.
Hydrology	A high water table is the dominant hydrology source. Precipitation and runoff from SE 104th St contribute secondary inputs. Surface water leaves the wetland through a culvert draining to a ditch conveying surface water to Stream 4.
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and hydrology and topography helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 8 is Category III.
Wetland Functions Summary	
Water Quality	Moderate potential to trap sediments due to depressional topography with long periods of ponding and a constricted outlet (a culvert), allowing water to move through system relatively slowly and fine sediments to settle out of the water column; moderate opportunity from upland areas and roadside runoff. High potential to trap nutrients and toxicants due to depressional topography with a constricted outlet that ponds greater than two feet of water for long periods; high opportunity because stormwater runoff form SE 104th St. drains directly to wetland.
Hydrologic	High potential to alter flood flow due to depression with constricted outlet and ability to impound significant amounts of surface water for long periods; opportunity is high due to run-on from upslope forested areas and stormwater from adjacent street. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.
Habitat	Moderate habitat quality due to connectivity with forested uplands, other wetlands, and streams. Wetland provides minimal habitat for passerine birds and small mammals.
Buffer Condition	Buffer function is moderate for half of the circumference of the wetland. Wildlife habitat is limited due to a large ROW fence which bisects the buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Western red cedar and Douglas fir dominate the over story with salal and vine maple dominating the shrub layer. The wetland receives stormwater from SE 104th St. The south side does not have a functioning or regulated buffer. It is a mowed and maintained strip of road ROW along SE 104th St.

Table 10. Wetland 9 summary.

WETLAND 9 – INFORMATION SUMMARY	
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on ramp

Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	III
King Co. Buffer Width	80 feet
Wetland Size	0.03 acre
Cowardin Classification	PSS
HGM Classification	slope
Wetland Data Sheets	Appendix C; Sampling Point W9-SP1
Upland Data Sheets	Appendix C; Sampling Point W9-SP2

Dominant Vegetation	Trees – none Shrubs – salmonberry, hardhack, twinberry honeysuckle (*Lonicera involucrata*), western red cedar Herbaceous – creeping buttercup (*Ranunculus repens*), trailing blackberry
Soils	Hydric soils are present in this wetland. Soils were too wet to observe during the 2012 field visit due to heavy rains. Soils meet the definition of a hydric soil: soils that are saturated or ponded for long periods during the growing season.
Hydrology	A high water table is the primary source of hydrology in this wetland. Surface and subsurface run-on during and following precipitation events provide secondary hydrologic inputs. A ditch conveying runoff from upslope wetlands (W10 - W12) and run-on from precipitation events parallels the I-90 on ramp at toe of slope and flows through this wetland. This ditch runs through W9 and ultimately drains to Stream 5.
Rationale for Delineation	Slope wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Vegetation, hydrology and topography helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 9 is a Category III.
Wetland Functions Summary	
Water Quality	Moderate potential to trap sediments due to densely vegetated slope with depressions; moderate opportunity because wetland is down slope from I-90 and other wetlands that also contribute surface flows through this wetland. Moderate potential to trap nutrients and toxicants due to vegetated slope with depressions; moderate opportunity because wetland is down slope from I-90 and other wetlands in similar landscape position below I-90, that contribute surface flows through this wetland.
Hydrologic	Moderate potential to alter flood flow due to sloping topography with vegetated depressions; opportunity is moderate because wetland receives hydrology from up slope wetlands, uplands, and stormwater and drains to Stream 5. Erosion control and shoreline stabilization functions provided at a low level. Wetland is not directly connected to streambank, however it drains to a ditch draining to Stream 5.
Habitat	Low habitat quality due to tall ROW fence directly adjacent to wetland, cutting off connection with upland buffer areas. Fence limits wildlife connectivity. Small size of wetland also limits habitat functions. Minimal habitat for passerine birds, small mammals, and aquatic invertebrates.
Buffer Condition	Buffer function is moderate. Wildlife habitat is limited due to a large ROW fence which bisects the buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Western red cedar and Douglas fir dominate the over story with salal dominating in the shrub layer. The wetland is down-slope form I-90 and likely receives stormwater or other sources of poor water quality inputs.

Table 11. Wetland 10 summary.

WETLAND 10 – INFORMATION SUMMARY	
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on ramp

Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	III
King Co. Buffer Width	80 feet
Wetland Size	0.90 acre
Cowardin Classification	PFO
HGM Classification	slope/depressional
Wetland Data Sheets	Appendix C; Sampling Point W10-SP1
Upland Data Sheets	Appendix C; Sampling Point W10-SP2 & W11-SP2

Dominant Vegetation	Trees – black cottonwood, Shrubs – hardhack, western red cedar Herbaceous – soft rush, spike bentgrass, sedges
Soils	Soil to six inches was a depleted matrix of 10YR 3/1 with concentrations. A restrictive layer of gravels present at six inches. Indicator Depleted Matrix (F3).
Hydrology	Wetland situated on a slope with some depressional areas able to impound surface water. Previous land use activities appear to have compacted soils and cleared/disturbed vegetation. Precipitation and surface run-on from upslope areas perches on compacted soils in sloping areas and runs down slope to al ditch along SE 104th St. This ditch drains surface water leaving the wetland to Stream 5.
Rationale for Delineation	Slope and depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and hydric soils helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 10 is Category III.
Wetland Functions Summary	
Water Quality	High potential to trap sediments due to sloping topography with depressions and densely established herbaceous and woody vegetation; high opportunity because significant sources of stormwater sheet flow and channel flow through the wetland. High potential to trap nutrients and toxicants due to depressions with dense herbaceous vegetation; high opportunity because wetland receives stormwater runoff from I-90 and up-slope wetlands that also receive runoff from I-90.
Hydrologic	Moderate potential to alter flood flow due to ability to slow small amounts of water as it drains through vegetated areas with variable topography; opportunity is high as significant amounts of water flow through the wetland and then into Stream 5 during and following precipitation events. Low potential to reduce erosion and stabilize banks. Wetland drains to Stream 5 through a ditch which has some ability to reduce erosion and stabilize banks.
Habitat	Moderate habitat quality due to forested plant community with other vegetation strata below and seasonal inundation. Habitat for passerine birds, small mammals, and amphibians.
Buffer Condition	Buffer function is high for the circumference of the wetland. The buffer is in a previously disturbed area that has a mixed stand of red alder and black cottonwood with Douglas-fir, western red cedar, and hardhack in the understory. An old abandoned temporary access road boarders the east side of the wetland. The up-slope buffer areas provide hydrologic functions. Poor water quality in-puts enter wetland. Wildlife habitat is limited due to a large ROW fence which bisects the wetland and buffer, fragmenting the forested habitat along the current WSDOT ROW from other forested areas.

Table 12. Wetland 11 summary.

WETLAND 11 – INFORMATION SUMMARY	
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on ramp

Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	III
King Co. Buffer Width	80 feet
Wetland Size	0.35 acre
Cowardin Classification	PFO
HGM Classification	slope/depressional
Wetland Data Sheets	Appendix C; Sampling Point W11-SP1
Upland Data Sheets	Appendix C; Sampling Point W10-SP2 & W11-SP2

Dominant Vegetation	Trees – black cottonwood, Shrubs – black cottonwood, hardhack, western red cedar, Herbaceous – soft rush, spike bentgrass, tapertip rush (*Juncus acuminatus*), common selfheal (*Prunella vulgaris*)
Soils	Soil to four inches was a depleted matrix of 10YR 4/1 with concentrations. A restrictive layer of gravels present at four inches. Indicator Depleted Matrix (F3).
Hydrology	Wetland situated on a slope with some depressional areas able to impound surface water. Previous land use activities appear to have compacted soils and cleared/disturbed vegetation. Precipitation and surface run-on from upslope areas perches on compacted soils in sloping areas and runs down slope to a ditched area with depressions along SE 104th St where water ponds for long periods. This ditch drains through the ditched area in W10 and ultimately to Stream 5.
Rationale for Delineation	Slope and depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and hydric soils helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 11 is Category III.
Wetland Functions Summary	
Water Quality	High potential to trap sediments due to sloping topography with depressions and densely established herbaceous and woody vegetation; high opportunity because significant sources of stormwater sheet flow and channel flow through the wetland. High potential to trap nutrients and toxicants due to depressions with dense herbaceous vegetation; high opportunity because wetland receives stormwater runoff from I-90 and an up-slope wetland that also receives runoff from I-90.
Hydrologic	Moderate potential to alter flood flow due to ability to slow small amounts of water as it drains through vegetated areas with variable topography; opportunity is high as significant amounts of water flow through the wetland, then through W10, and on to Stream 5 during and following precipitation events. Low potential to reduce erosion and stabilize banks. Wetland drains to Stream 5 through a ditch which has some ability to reduce erosion and stabilize banks.
Habitat	Moderate habitat quality due to forested plant community with other vegetation strata below and seasonal inundation. Habitat for passerine birds, small mammals, and amphibians.
Buffer Condition	Buffer function is high for the majority of the circumference of the wetland. The buffer is a previously disturbed area that has a mixed stand of red alder and black cottonwood with Douglas-fir, western red cedar, and hardhack in the understory. An old abandoned temporary access road boarders the west side of the wetland and SE 104th St boarders the southern boundary. The up-slope buffer areas provide hydrologic functions. Poor water quality in-puts enter wetland. The buffer provides wildlife habitat functions.

Table 13. Wetland 12 summary.

WETLAND 12 – INFORMATION SUMMARY			
Location:	SE quadrant of I-90/SR 18 intersection, between SE 104th St and eastbound I-90 on ramp		
		**Local Jurisdiction**	King County
		WRIA	7 Snohomish
		Ecology & Local Rating	II
		King Co. Buffer Width	100 feet
		Wetland Size	0.11 acre
		Cowardin Classification	PFO
		HGM Classification	slope/depressional
		Wetland Data Sheets	Appendix C; Sampling Point W12-SP1
		Upland Data Sheets	Appendix C; Sampling Point W12-SP2
Dominant Vegetation	Trees – western red cedar, red alder, vine maple Shrubs – salmonberry, twinberry honeysuckle Herbaceous – American skunkcabbage, western swordfern on hummocks		
Soils	Soil matrices of 10YR 4/2 with concentrations and depletions to greater than16 inches. Indicator Depleted Matrix (F3).		
Hydrology	Wetland situated on a forested slope below and south of I-90 with a water table intercepting a slope; creating a seep. Inundation present in the flatter areas or in small depressions on the slope. Precipitation and stormwater runoff from I-90 contribute secondary hydrologic inputs. Surface water leaves the wetland and flows into the upper portion of W11 near the ROW fence.		
Rationale for Delineation	Slope and depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Obvious change in vegetation community and wetland hydrology indicators helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 12 is Category II.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to vegetated surface depressions; high opportunity because significant sources of stormwater enter and flow through the wetland. High potential to trap nutrients and toxicants due to sloping vegetated depressions and soils with high organic matter content; high opportunity because stormwater from I-90 flows through the wetland.		
Hydrologic	Moderate potential to alter flood flow due to densely vegetated areas with depressions; opportunity is moderate as stormwater runoff from I-90 drains through the wetland and wetland occurs high in watershed. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Low habitat quality due to extremely limited habitat connectivity, as wetland is confined on one side by I-90 and the ROW fence on the other. Function also limited by high stormwater inputs. Provides limited habitat for passerine birds, small mammals, and amphibians.		
Buffer Condition	Buffer function is moderate. Wildlife habitat is limited due to a large ROW fence which bisects the buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Western red cedar, Sitka spruce, and red alder dominate the over story with salmonberry and vine maple in the shrub layer. The wetland is down-slope form I-90 and may receive stormwater or have other sources of poor water quality inputs.		

Table 14. Wetland 13 summary.

WETLAND 13 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90 off ramp at Exit 25		
		**Local Jurisdiction**	King County
		WRIA	7 Snohomish
		Ecology & Local Rating	II
		King Co. Buffer Width	195 feet
		Wetland Size	0.16 acre
		Cowardin Classification	PFO
		HGM Classification	depressional
		Wetland Data Sheets	Appendix C; Sampling Point W13-SP1
		Upland Data Sheets	Appendix C; Sampling Point W13-SP2
Dominant Vegetation	Trees – black cottonwood (*Populus balsamifera*), vine maple (*Acer circinatum*), Cascara buckthorn (*Frangula purshiana*) Shrubs – salmonberry, vine maple, Devil's club Herbaceous - western swordfern (*Polystichum munitum*), common ladyfern (*Athyrium filix-femina*), trailing blackberry (*Rubus ursinus*)		
Soils	Soil matrices were 10YR 3/1 to greater than16 inches with concentrations. Indicator Redox Dark Surface (F6).		
Hydrology	Depressional wetland with a constricted outlet situated on a forested terrace above and to the east of SR 18 with a high water table as the dominant hydrology source. Precipitation contributes secondary hydrologic inputs. Outlet flow to a ditch draining to W14.		
Rationale for Delineation	Depressional wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Topographic break near toe of slope of the depression and vegetation helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 13 is Category II.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments due to densely vegetated depression with a constricted outlet, allowing water to move through system relatively slowly and fine sediments to settle out of the water column; low opportunity because significant sources of sediments are not present in surrounding intact upland forest areas. High potential to trap nutrients and toxicants due to densely vegetated depressional topography and mineral soils with high organic content; low opportunity because stormwater runoff from roadways or other sources does not enter the wetland.		
Hydrologic	High potential to alter flood flow due to vegetated depressional topography with a constricted outlet; opportunity is as wetland captures and slows runoff from upland forest areas during and following precipitation events. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	High habitat quality due to habitat connectivity with other forested uplands and wetlands. Good canopy stratification and variable water regimen throughout the growing season provide habitat for passerine birds, small mammals, amphibians, and deer.		
Buffer Condition	Buffer function is high for the entire circumference of the wetland with mature forest providing wildlife habitat, shade, and organic matter inputs. Red alder, western hemlock, and bigleaf maple (*Acer macrophyllum*) dominate the overstory with salmonberry, vine maple, and red huckleberry (*Vaccinium parvifolium*) in the shrub layer. The wetland is up slope form I-90 and does not receive stormwater or have other sources of poor water quality inputs.		

Table 15. Wetland 14 summary.

WETLAND 14 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90 off ramp at Exit 25		
		**Local Jurisdiction**	King County
		WRIA	7 Snohomish
		Ecology & Local Rating	II
		King Co. Buffer Width	195 feet
		Wetland Size	0.23 acre
		Cowardin Classification	PFO/PSS
		HGM Classification	depressional/slope
		Wetland Data Sheets	Appendix C; Sampling Point W14-SP1, W14-SP3
		Upland Data Sheets	Appendix C; Sampling Point W14-SP2, W14-SP4
Dominant Vegetation	Trees – red alder, black cottonwood, Shrubs – salmonberry, vine maple, Cascara buckthorn, Herbaceous - youth on age, common ladyfern, trailing blackberry, sedges, scouring rush horsetail (*Equisetum hyemale*), reed canarygrass		
Soils	Soils from in the upper two layers were 10YR 2/1 or 10YR 3/2. Concentrations present in some layers. Two different soil types were observed in different areas of the wetland. Some had high organic content in loamy mucky mineral soils meeting Indicator Loamy Mucky Mineral (F1), while others had higher mineral content meeting Indicator Redox Dark Surface (F6).		
Hydrology	Depressional and slope wetland situated in a forested drainage above and to the north of I-90 with a high water table and surface and subsurface run-on as the dominant hydrology sources. A water table intersects the slope and seeps down the slope in some areas. Two ditches draining to the depressional portion of the wetland contribute secondary hydrologic inputs to the lowest portion of the wetland. Wetland lack a surface outlet.		
Rationale for Delineation	Depressional and slope wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. Hydrology and soils helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 14 is Category II.		
Wetland Functions Summary			
Water Quality	High potential to trap sediments in vegetated closed depressional topographic area impounding water and allowing fine sediments to settle out of the water column; low opportunity because stormwater from upland forested areas enters the wetland and is not carrying significant amounts of sediment. High potential to trap nutrients and toxicants in closed depression with some organic matter in the soil; low opportunity because stormwater inputs are from forested upland areas not likely carrying nutrients and toxicants.		
Hydrologic	High potential to alter flood flow due to closed depression at bottom of slope able to retain surface water during and following precipitation events; opportunity is high as water sheet flows off upland forested areas during and after storms. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	High habitat quality due to habitat connectivity with other forested uplands and wetlands. Good canopy stratification and variable water regimen throughout the growing season provide habitat for passerine birds, small mammals, amphibians, and deer.		
Buffer Condition	Buffer function is moderate for the majority of the circumference of the wetland with mature forest providing shade and organic matter inputs. Wildlife habitat is limited due to a large ROW fence which bisects the wetland and buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Western hemlock, red alder, and black cottonwood dominate the overstory with salmonberry, vine maple, and twinberry honeysuckle (*Lonicera involucrata*) in the shrub layer. The wetland is up slope form I-90 and does not receive polluted stormwater or have other sources of poor water quality inputs.		

Table 16. Wetland 15 summary.

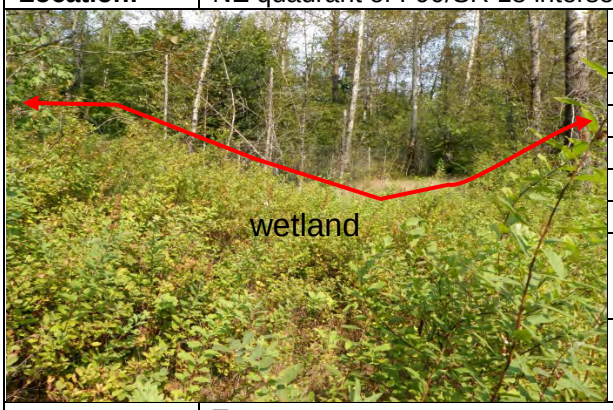
WETLAND 15 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90 off ramp at Exit 25		
		**Local Jurisdiction**	King County
		WRIA	7 Snohomish
		Ecology & Local Rating	III
		King Co. Buffer Width	80 feet
		Wetland Size	0.04 acre
		Cowardin Classification	PSS
		HGM Classification	slope
		Wetland Data Sheets	Appendix C; Sampling Point W15-SP1
		Upland Data Sheets	Appendix C; Sampling Point W15-SP2
Dominant Vegetation	Trees – none Shrubs – hardhack, Scouler's willow (*Salix scouleriana*), Cascara buckthorn Herbaceous – soft rush, spike bentgrass, red fescue (*Festuca rubra*), sedges		
Soils	A deplete matrix of 2.5Y 5/1 with concentrations is present from zero to six inches. A gravel hardpan restrictive layer present at six inches below the surface. Indicator Depleted Matrix (F3).		
Hydrology	Wetland has shallow soils above a restrictive layer which perch water during the rainy season. Precipitation and run-on are the primary hydrologic inputs. Water leaves the wetland through infiltration and as sheetflow following precipitation events.		
Rationale for Delineation	Slope wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Soils helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 15 is Category III.		
Wetland Functions Summary			
Water Quality	Low potential to trap sediments due to vegetated slope with only a few small depressions; low opportunity because significant sources of sediments are not present. Moderate potential to trap nutrients and toxicants due to sloping topography with only a few vegetated depressions; low opportunity because inputs are low; I-90 is down-slope of the wetland and surrounding upland areas are forested.		
Hydrologic	Low potential to alter flood flow due to small size of wetland and sloping topography with an unconstricted outlet and few depressions; opportunity is low due to forested upland areas not contributing significant amounts runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Moderate habitat quality due to forested buffers and connection to other wetlands. Habitat connectivity limited because wetland is in ROW between I-90 and ROW fence. Wetland provides habitat for passerine birds and small mammals.		
Buffer Condition	Buffer function is moderate for the majority of the circumference of the wetland with mature forest providing shade and organic matter inputs. Wildlife habitat is limited due to a large ROW fence which fragments the habitat along the current WSDOT ROW from other forested areas. Black cottonwood and Douglas-fir dominate the overstory with hardhack in the shrub layer. The wetland is up slope from I-90 and does not receive stormwater or have other sources of poor water quality inputs.		

Table 17. Wetland 16 summary.

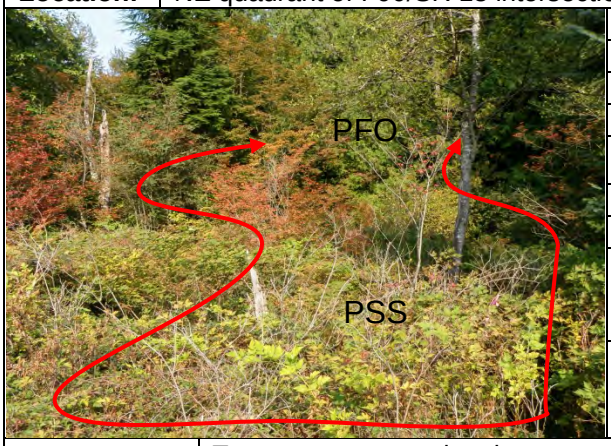
WETLAND 16 – INFORMATION SUMMARY	
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90, east of Exit 25 off ramp

Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	III
King Co. Buffer Width	80 feet
Wetland Size	0.07 acre
Cowardin Classification	PSS/PEM
HGM Classification	slope
Wetland Data Sheets	Appendix C; Sampling Point W16-SP1, W16-SP3
Upland Data Sheets	Appendix C; Sampling Point W16-SP2

Dominant Vegetation	Trees – none, Shrubs – hardhack and salmonberry Herbaceous – soft rush, small-fruited bulrush (*Scirpus microcarpus*), colonial bentgrass, giant horsetail (*Equisetum telmateia*), common ladyfern
Soils	Dark 10YR 2/2 soils from zero to three inches. Depleted matrices of 10YR 4/2 with concentrations present from three to ten inches underlain by a restrictive layer of cobbles and gravel. Indicators Depleted Below Dark Surface (A11) and Depleted Matrix (F3).
Hydrology	A high water table is the primary source of hydrology in small depressional areas of the wetland. A water table intersecting the slope and then saturating the slope below is the primary source of hydrology in the slope wetland area. Surface and subsurface run-on during and following precipitation events provide secondary hydrologic inputs. Water leaves the wetland as sheetflow into the roadside ditch at the toe of slope.
Rationale for Delineation	Slope wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Soils and vegetation helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 16 is Category III.
Wetland Functions Summary	
Water Quality	Moderate potential to trap sediments due to sloping topography with dense herbaceous vegetation and depressional areas in the western portion of the wetland; low opportunity because significant sources of sediments are not present. Moderate potential to trap nutrients and toxicants due to sloping topography with dense herbaceous vegetation and depressional areas in the western portion of the wetland; low opportunity because inputs are low; stormwater from I-90 only enters the lowest portion of the wetland that is ditched at the toe of slope of the I-90 roadway structure.
Hydrologic	Low potential to alter flood flow due to small size of wetland and sloping topography with an unconstricted outlet and few depressions; opportunity is low due to forested upland areas not contributing significant amounts runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.
Habitat	Moderate habitat quality due to forested buffers and connection to other wetlands. Habitat connectivity limited because wetland is in ROW between I-90 and ROW fence. Wetland provides habitat for passerine birds, small mammals, and possibly amphibians.
Buffer Condition	Buffer function is limited for the majority of the circumference of the wetland. The wetland is bordered by the I-90 road prism to the south and by a tall ROW fence to the north. Stormwater from I-90 flows directly into a small portion of the wetland that is ditched along I-90, and the fence creates habitat fragmentation. Some deciduous trees and shrubs are directly adjacent to the wetland and may provide limited buffering functions.

Table 18. Wetland 17 summary.

WETLAND 17 – INFORMATION SUMMARY	
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90, east of Exit 25 off ramp



Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	III
King Co. Buffer Width	80 feet
Wetland Size	0.11 acre
Cowardin Classification	PFO/PSS
HGM Classification	slope
Wetland Data Sheets	Appendix C; Sampling Point W17-SP1, W17-SP3
Upland Data Sheets	Appendix C; Sampling Point W17-SP2, W17-SP4

Dominant Vegetation	Trees – western red cedar Shrubs – hardhack and salmonberry Herbaceous – common ladyfern, giant horsetail
Soils	Soils were dark 10YR 2/1 from zero to 8 inches. The matrix from 8 to 12 inches was 10YR3/2 with concentrations. Indicator Redox Dark Surface (F6). In other areas soils meet Indicator Loamy Mucky Mineral (F1)
Hydrology	Slope wetland situated in a forested drainage above and to the north of I-90 which receives surface and subsurface run-on as the dominant hydrology source. A water table intersects the slope and seeps down the slope in some areas. A water conveyance structure is located at the lowest point in the wetland at toe of slope of the I-90 roadway structure, allowing surface water to leave the wetland through this constricted outlet.
Rationale for Delineation	Slope wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Soils and vegetation helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 17 is Category III.
Wetland Functions Summary	
Water Quality	Moderate potential to trap sediments due to sloping topography with dense herbaceous vegetation and small depressional areas; low opportunity because significant sources of sediments are not present. Moderate potential to trap nutrients and toxicants due to sloping topography with dense herbaceous vegetation and small depressional areas; low opportunity because inputs are low; I-90 is down-slope of the wetland and surrounding upland areas are forested.
Hydrologic	Low potential to alter flood flow due to small size of wetland and sloping topography with few depressions and a constricted outlet through a culvert; opportunity is low due to forested upland areas not contributing significant amounts runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.
Habitat	Moderate habitat quality due to forested buffers and connection to other wetlands. Habitat connectivity limited because wetland is in ROW between I-90 and ROW fence. Wetland provides habitat for passerine birds, small mammals, and possibly amphibians.
Buffer Condition	Buffer function is moderate for the majority of the circumference of the wetland with mature forest providing shade and organic matter inputs. Wildlife habitat is limited due to the tall ROW fence which bisects the wetland and buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Sitka spruce, black cottonwood, Douglas-fir, and red alder dominate the over story with salmonberry, vine maple, and Devil's club in the shrub layer. The wetland is up slope form I-90 and does not receive stormwater or have other sources of poor water quality inputs.

Table 19. Wetland 18 summary.

WETLAND 18 – INFORMATION SUMMARY	
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90, east of Exit 25 off ramp

Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	IV
King Co. Buffer Width	50 feet
Wetland Size	0.14 acre
Cowardin Classification	PEM
HGM Classification	slope
Wetland Data Sheets	Appendix C; Sampling Point W18-SP1
Upland Data Sheets	Appendix C; Sampling Point W18-SP2

Dominant Vegetation	Trees and Shrubs – none Herbaceous – giant horsetail, common velvetgrass, red fescue
Soils	Soils from zero to > 12 inches were 10YR 3/2 with concentrations and depletions. Indicator Redox Dark Surface (F6) and Depleted Dark Surface (F7).
Hydrology	A water table intersecting the slope and then saturating the slope below is the primary source of hydrology. Surface and subsurface run-on during and following precipitation events provide secondary hydrologic inputs. Water leaves the wetland as sheetflow into the roadside ditch at the toe of slope.
Rationale for Delineation	Slope wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Soils and vegetation helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 18 is Category IV.
Wetland Functions Summary	
Water Quality	Low potential to trap sediments due to steep vegetated slope lacking depressions; low opportunity because significant sources of sediments are not present. Low potential to trap nutrients and toxicants due to due to steep vegetated slope lacking depressions; low opportunity because inputs are low; I-90 is down-slope of the wetland and surrounding upland areas are forested.
Hydrologic	Flood flow alteration functions not provided due to steep slopes without woody vegetation; opportunity is low due to forested upland areas not contributing significant amounts runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.
Habitat	Low habitat quality due to cutslope wetland in ROW between I-90 and ROW fence. Wetland provides minimal habitat for passerine birds and small mammals.
Buffer Condition	Buffer function is limited for the majority of the circumference of the wetland. The wetland is bordered by the I-90 road prism to the south and by a tall ROW fence to the north. Stormwater from I-90 flows directly into a small portion of the wetland, and the fence creates habitat fragmentation. Some deciduous trees and shrubs are directly adjacent to the wetland and may provide limited buffering functions.

Table 20. Wetland 19 summary.

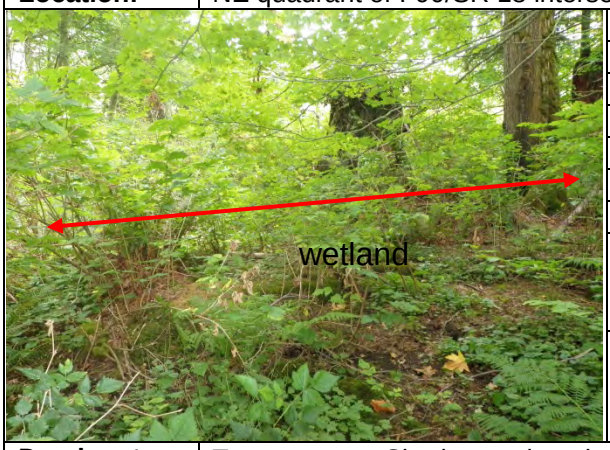
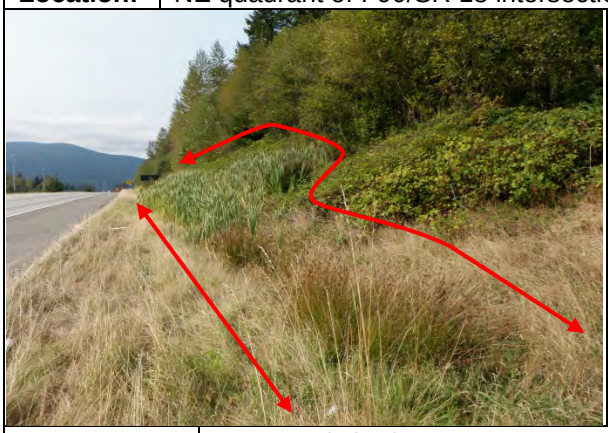
WETLAND 19 – INFORMATION SUMMARY			
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90, east of Exit 25 off ramp		
		**Local Jurisdiction**	King County
		WRIA	7 Snohomish
		Ecology & Local Rating	IV
		King Co. Buffer Width	50 feet
		Wetland Size	0.05 acre
		Cowardin Classification	PSS
		HGM Classification	slope
		Wetland Data Sheets	Appendix C; Sampling Point W19-SP1
		Upland Data Sheets	Appendix C; Sampling Point W19-SP2
Dominant Vegetation	Trees – none. Shrubs – salmonberry Herbaceous - youth on age, common ladyfern, sedges		
Soils	Soils from zero to ten inches were 10YR 2/1 with concentrations. A layer from 10 to 23 inches was 10YR 4/1 with concentrations and depletions. High organic content in this loamy mucky mineral soil. Indicators Depleted Below Dark Surface (A11), Loamy Mucky Mineral (F1), Depleted Matrix (F3), and Redox Dark Surface (F6).		
Hydrology	Slope wetland in a forested drainage above and north of I-90 with a high water table and surface and subsurface run-on as the dominant hydrology sources. A water table intersects the slope and seeps down the slope in some areas. A catch basin is present on the lowest end of the wetland draining surface water from the lowest part of the wetland as well as other adjacent areas.		
Rationale for Delineation	Slope wetland with hydric soils, supports hydrophytic vegetation, and wetland hydrology. All three factors helped determine wetland boundary.		
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 19 is Category IV.		
Wetland Functions Summary			
Water Quality	Low potential to trap sediments due to steep vegetated slope lacking depressions; low opportunity because significant sources of sediments are not present. Low potential to trap nutrients and toxicants due to due to steep vegetated slope lacking depressions; low opportunity because inputs are low; I-90 is down-slope of the wetland and surrounding upland areas are forested.		
Hydrologic	Low potential to alter flood flow due to sloping topography lacking depressions and a constricted outlet through a culvert/French drain; opportunity is low due to forested upland areas not contributing significant amounts runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.		
Habitat	Moderate habitat quality due to forested buffers and connection to other wetlands. Habitat connectivity limited due to ROW fence bisecting the wetland and buffer. Wetland provides habitat for passerine birds, small mammals, and deer.		
Buffer Condition	Buffer function is moderate for the majority of the circumference of the wetland with mature forest providing shade and organic matter inputs. Wildlife habitat is limited due to a large ROW fence which bisects the wetland and buffer, fragmenting the habitat along the current WSDOT ROW from other forested areas. Bigleaf maple, vine maple, red alder, and western red cedar dominate the over story with salmonberry in the shrub layer. The wetland is up slope form I-90 and does not receive stormwater or have other sources of poor water quality inputs.		

Table 21. Wetland 20 summary.

WETLAND 20 – INFORMATION SUMMARY	
Location:	NE quadrant of I-90/SR 18 intersection, north of eastbound I-90, east of Exit 25 off ramp



Local Jurisdiction	King County
WRIA	7 Snohomish
Ecology & Local Rating	III
King Co. Buffer Width	80 feet
Wetland Size	0.22 acre
Cowardin Classification	PEM
HGM Classification	slope
Wetland Data Sheets	Appendix C; Sampling Point W20-SP1
Upland Data Sheets	Appendix C; Sampling Point W20-SP2

Dominant Vegetation	Trees and shrubs – none Herbaceous – broadleaf cattail (*Typha latifolia*), sawbeak sedge (*Carex stipata*), common velvetgrass, soft rush, red fescue, quackgrass (*Elymus repens*)
Soils	Soils from zero to >12 inches were 10YR 2/1 with concentrations. Indicator Redox Dark Surface (F6).
Hydrology	A water table intersecting the slope and then saturating the slope below is the primary source of hydrology. Surface and subsurface run-on during and following precipitation events provide secondary hydrologic inputs. Water leaves the wetland as sheetflow into the roadside ditch at the toe of slope.
Rationale for Delineation	Slope wetland with wetland hydrology, hydrophytic vegetation, and hydric soils. Soils and vegetation helped determine wetland boundary.
Rationale for Local Rating	King County classifies wetlands based on the Washington State Wetland Rating System (King County 2012). Wetland 20 is Category III.
Wetland Functions Summary	
Water Quality	Moderate potential to trap sediments due to sloping topography with dense herbaceous vegetation with small depressions; low opportunity because significant sources of sediments are not present. Moderate potential to trap nutrients and toxicants due to sloping topography with dense herbaceous vegetation and small depressional areas; low opportunity because inputs are low; stormwater from I-90 only enters the lowest portion of the wetland that is ditched at the toe of slope of the I-90 roadway structure.
Hydrologic	Low potential to alter flood flow due to sloping topography with an unconstricted outlet and few depressions; opportunity is low due to forested upland areas not contributing significant amounts runoff. Erosion control and shoreline stabilization functions not provided because wetland lacks hydrologic surface connection with a stream.
Habitat	Moderate habitat quality due to forested buffers and connection to other wetlands. Habitat connectivity limited due to ROW fence. Wetland provides habitat for passerine birds and small mammals.
Buffer Condition	Buffer function is limited for the majority of the circumference of the wetland. The wetland is bordered by the I-90 road prism to the south and by a tall ROW fence to the north. Stormwater from I-90 flows directly into a small portion of the wetland, and the fence creates habitat fragmentation. Upland grasses and Himalayan blackberry (*Rubus armeniacus*) are present on the northern wetland boundary and may provide limited buffering functions.

4.3.3. Wetland Functions

Physical characteristics of wetlands and their surroundings including HGM class, Cowardin class, buffer condition, and habitat connectivity influence the functions they perform. Wetlands in the project provide a range of water quality, hydrologic, and habitat functions (Table 22). Detailed functional summaries addressing these attributes are provided for each wetland (Tables 2- 21; Appendix E).

Wetlands in the project are headwater wetlands in the Upper Snoqualmie River watershed (BLM 2012). In general, these headwater wetlands filter toxicants from stormwater runoff from the transportation system and provide flood attenuation functions during and following precipitation events. Both of these functions help improve wildlife habitat lower in the watershed. Wetlands in the project are not likely to provide educational functions due to inaccessibility for a large groups and lack of adequate parking. Sensitive wildlife species are known to occur within the project (Section 4.5). Sensitive plants and habitats are not known within the project. Wetland 1 and W4 are Category I wetlands based on special characteristics for mature forested wetlands.

Table 22. Functions and values of the existing wetlands.

Function/Value[a]	Wetland																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Water Quality Functions																				
Sediment Removal	H	L	H	H	H	M	M	M	M	H	H	H	L	M	L	L	L	L	L	L
Nutrient and Toxicant Removal	H	M	H	H	H	M	M	H	M	H	H	H	L	L	L	L	L	L	L	L
Hydrologic Functions																				
Flood Flow Alteration	H	L	H	H	M	M	M	H	M	M	M	M	H	H	L	L	L	-	L	L
Erosion Control & Shoreline Stabilization	-	-	-	M	-	-	-	-	L	L	L	-	-	-	-	-	-	-	-	-
Habitat Functions																				
Production & Export of Organic Matter	H	M	-	H	L	L	L	M	L	L	L	M	L	-	L	L	L	-	-	L
General Habitat Suitability	H	M	H	H	L	M	M	M	L	M	M	L	H	H	M	M	M	L	M	M
Habitat for Aquatic Invertebrates	H	M	M	H	M	L	M	M	L	M	M	M	H	H	L	L	M	L	L	M
Habitat for Amphibians	M	M	M	M	L	-	L	L	-	L	L	L	M	L	-	L	L	-	-	-
Habitat for Wetland-Associated Mammals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Habitat for Wetland-Associated Birds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Fish Habitat	-	-	-	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Native Plant Richness	H	M	M	H	M	-	-	L	L	L	L	L	M	M	-	L	M	-	-	-
Special Characteristics																				
Educational or Scientific Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uniqueness and Heritage	H	-	M	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[a] - indicates that the function is not present
L = Low, indicating that the function is present and is of lower quality
M = Moderate, indicating that the function is present and is of moderate quality
H = High, indicating that the function is present and is of higher quality

4.3.4. Wetland Buffers

State Route 18, I-90, SE 104th St, and a tall ROW fence bisecting some wetlands and/or buffers (W9 through W20) create breaks in the habitat corridor. Despite these setbacks to buffer functions, buffers in the project connect streams, riparian areas, other wetlands and provide various levels of screening, habitat, hydrologic, and water quality functions.

In general each wetland has a relatively high functioning portion of buffer with forests dominated by Doulas fir, western hemlock, western red cedar, and bigleaf maple. These buffer areas provide relatively high screening, habitat, and hydrologic functions, and moderate water quality functions. The ROW fence reduces wildlife functions in some buffers. Most wetlands in the project also have a portion of buffer directly adjacent to or near I-90 or SR 18 with the exception of the wetlands in the southeast quadrant (W6 through W12). Buffers near or adjacent to highways provide limited to moderate buffering function. Some buffers near or adjacent to highways have mature forested trees with understories of shrubs and herbaceous species (W1 through W4, W13, W14, W17, and W19). These buffer areas are able to provide relatively high buffering function including screening from the highway for wildlife, shading, organic matter inputs, and some water quality functions. Other buffers near or adjacent to highways (W12, W15, W16, W18, and W20) provide little water quality, hydrologic, and wildlife functions due to vegetation generally maintained by WSDOT maintenance activities in the I-90 ROW, or lack of buffers where wetlands abut toe of slope of the roadway structure.

Forested buffers west of wetlands in the southwest quadrant are on USFS or WDNR land. The southeast quadrant is bordered by mixed deciduous and coniferous forested areas owned by USFS and King County, with low density rural residential areas west of Echo Lake. Buffer areas north of I-90 are in private ownership and are predominantly forested with native coniferous species. In general, these buffers provide high buffering functions.

Invasive species are present but cover is low in wetland buffers, generally providing less than five percent cover. Invasive species cover is higher in buffer areas adjacent to the road prism and ROW. Himalayan blackberry and cut-leaf blackberry were the common invasive species established in the buffers.

Figure 5. Photo of typical existing mature forested and roadside wetland buffers.

4.4. Streams

Lake Creek and three unnamed and unmapped streams were identified within the study area and one unnamed and unmapped stream was identified directly adjacent to the eastern boundary of the project (Tables 23 through 28). It is assumed that all of these streams may provide fish habitat for resident or anadromous fish. Lake Creek connects to the Raging River approximately one linear mile west of the study area downstream. Lake Creek has documented fish including Chinook and coho salmon and steelhead trout (WDFW 2010).

Streams 1 and 2 flow through straight, ditched channels below the SR 18 roadway structure and generally do not provide fish habitat but may provide refugia for juvenile fish during high flow events in Lake Creek. Streams 1, 2, and Lake Creek/3 have or may have portions flowing though USFS property (Appendix A-1). Streams 4 and 5 likely converge in a reconnoitered wetland east of SE 104th St, before draining to Lake Creek east of the project. These two streams are on WSDOT ROW or King County property (Appendix A-1). Streams 4 and 5 are assumed to provide fish habitat due to their connection to Lake Creek. It is unknown if culverts under SE 104th St. are fish passable. These culverts connect the portions of Streams 4 and 5 within the project to the section of the converged streams in the reconnoitered wetland. The portion of Streams 4 and 5 within the study area may be cut off from potential fish bearing portions of the stream by these culverts.

Table 23. Streams within the project

Stream[a]	Stream Type[b]	King Co. [c] / USFS[d] Buffer Width (feet)
1	assumed F	fish presence assumed = 165/300
2	assumed F	fish presence assumed =165/300
Lake Creek/3	F	165/300
4	assumed F	fish presence assumed = 165
5	assumed F	fish presence assumed = 165

[a] Stream identifier
[b] WDNR stream types. Type F = waters provide fish habitat (WDNR 2012)
[c] King County buffers applied for streams outside the UGA (King County 2012)
[d] USFS buffers applied for fish-bearing streams for streams. USFS buffers only provided for streams that have or may have portions occurring on USFS property (USDA, USFS, USDI, BLM 1994)

Table 24. Stream 1 summary

STREAM 1 - INFORMATION SUMMARY			
Stream Name	unnamed stream – Stream 1		
		**WRIA ID #**	07-0393(a)
		Jurisdiction for portion of stream in study area	King County/USFS
		DNR Stream Type	assumed type F, seasonal
		King County/USFS Buffer Width	165 feet/300 feet
Location of Stream Relative to Project	Stream 1 is outside of the study area. The stream is included in this report despite falling outside of the potential impact areas of the project because it is directly adjacent to SR 18 eastbound lanes at toe of slope.		
Connectivity (where stream flows from/to)	The creek has seasonal flows originating from two sources. Surface water flows out of a large reconnoitered wetland east of SR 18 and contributes flows to this creek. A second hydrologic input is from a culvert flowing east under SR 18, draining surface water from W2, contributing flows to this creeks headwaters. The creek parallels eastbound SR 18, flowing north, and empties into Lake Creek just upstream of the Lake Creek culvert under SR 18 (Figure 3; Appendix B).		
Fish Presence	Due to the highly channelized character of this stream, necessary habitat elements required to support fish are not present, despite its connection to Lake Creek. It is possible the creek may provide refugia for juvenile fish during high flows in Lake Creek. Fish presence is not documented in this creek.		
Habitat	The creek is generally channelized at the toe of slope of eastbound SR 18. It lacks riffle/pool complexes and channel migration or meanders. Substrates are silty mud with some gravels. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, small amounts of woody debris, and shade.		
Riparian/Buffer Condition	Riparian vegetation is generally intact on the east side of Stream 1 and consists of mature forested vegetation in reconnoitered wetlands east of SR 18 dominated by red alder and western red cedar. A skinny strip of buffer, averaging approximately 20 feet wide is present in some locations between the western OHWM of Stream 1 and toe of slope of eastbound SR 18. In other areas the western OHWM is at or within approximately five feet of toe of slope of the SR 18 road prism. Portions of this western creek buffer are dominated by salmonberry which provides some limited screening function from SR 18. Other western buffer areas are dominated by grasses and are maintained by routine highway maintenance activities.		

Table 25. Stream 2 summary

STREAM 2 - INFORMATION SUMMARY			
Stream Name	unnamed stream - Stream 2		
		**WRIA ID #**	07-0393(b)
		Jurisdiction for portion of stream in study area	King County/USFS
		DNR Stream Type	assumed type F, seasonal
		King County/USFS Buffer Width	165 feet/300 feet
Location of Stream Relative to Project	Stream 2 is entirely within the study area. It parallels the westbound lanes of SR 18 near toe of slope of roadway structure, and runs along the eastern boundary of W4, and then converges with Lake Creek.		
Connectivity (where stream flows from/to)	The creek has seasonal flows originating near the southeastern boundary of W4. A culvert under SR 18 allows flows from Stream 1 to pass under the highway and enter the headwaters of this creek. The creek parallels westbound SR 18, flowing north, and empties into Lake Creek on the northeastern boundary of W4 (Figure 3; Appendix B).		
Fish Presence	Due to the highly channelized character of this stream and uniform silty substrate, necessary habitat elements required to support fish are not present, despite its connection to Lake Creek. It is possible the creek may provide refugia for juvenile fish during high flows in Lake Creek. Fish presence is not documented in this creek.		
Habitat	The creek is generally channelized at the toe of slope of westbound SR 18. It lacks riffle/pool complexes and channel migration or meanders. Substrates are silty mud. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, small amounts of woody debris, and shade.		
Riparian/Buffer Condition	Riparian vegetation is generally intact on the west side of Stream 2 and consists of mature forested vegetation in W4 dominated by red alder and black cottonwood. A strip of mature trees with a shrubby understory, generally fifty feet wide, buffers the eastern OHWM of Stream 2 from SR 18.		

Table 26. Lake Creek/Stream 3 summary

LAKE CREEK - INFORMATION SUMMARY			
Stream Name	Lake Creek/Stream 3		
		**WRIA ID #**	07-0393
		Jurisdiction for portion of stream in study area	King County/USFS
		DNR Stream Type	F, perennial
		King County/USFS Buffer Width	165 feet/300 feet
Location of Stream Relative to Project	Lake Creek runs east to west crossing SR 18 through a culvert just south of the I-90/SR 18 interchange. It is a tributary to the Raging River.		
Connectivity (where stream flows from/to)	The perennial flows in Lake Creek drain Echo Lake which lies just south of the eastern project limits. The headwaters of this creek flow through riparian corridors and wetlands including reconnoitered wetlands east of the study area and through W4 (Figure 3; Appendix B). The Creek drains to the Raging River approximately one linear mile west of the western project limits. The Raging River is a tributary to the Snoqualmie River. The confluence of the two rivers is approximately four and a half linear miles downstream and northwest of the project.		
Fish Presence	Lake Creek connects to the Raging River. Lake Creek has documented Coho, Chinook and, steelhead (WDFW 2010). Other resident fish species may also have access to the fish habitat provided by Lake Creek.		
Habitat	Lake Creek generally has a defined channel throughout the study area. Substrate in this area is mainly sand and gravel. Riffle/pool complexes with gravels and cobbles are not present in the portion of the stream in the Project. A scour pool created by the culvert under SR 18 is present within the project area but it is not representative of a riffle/pool complex. Overhanging vegetation contributes organic matter, shade, and woody debris to the creek.		
Riparian/Buffer Condition	Riparian vegetation is generally intact for the entire length of the Lake Creek and consists of mature mixed coniferous and deciduous forest with an understory dominated by native shrubs and herbaceous plants.		

Table 27. Stream 4 summary

STREAM 4 - INFORMATION SUMMARY			
Stream Name	unnamed stream - Stream 4		
		**WRIA ID #**	07-0393(c)
		Jurisdiction for portion of stream in study area	King County
		DNR Stream Type	assumed type F, seasonal
		Local Jurisdiction Buffer Width	165 feet
Location of Stream Relative to Project	Stream 4 originates in the study area. The southern fork of the creek parallels SR 18 just north of the SE 104th St and SR 18 intersection. The northern fork begins at a culvert at toe of slope along eastbound SR 18 lanes just before the eastbound I-90 on ramp.		
Connectivity (where stream flows from/to)	The southern fork appears to originate from a high groundwater table. The northern fork receives stormwater from ditches associated with the transportation infrastructure. A culvert delivers stormwater from the west side of SR 18 and the eastbound I-90 off ramp. A ditch along the westbound SR 18 lanes also conveys stormwater to the headwaters of the north fork of the stream. Both forks of the stream converge just east of SR 18 and flow east from that point. They leave the study area through a culvert running east under SE 104th St and enter a reconnoitered wetland east of SE 104th St. (Figure 3; Appendix B). It is assumed that this is a seasonal stream with water flowing to Lake Creek through the reconnoitered wetland east of SE 104th St.		
Fish Presence	It is unknown if the culvert under SE 104th St is fish passable. It is small and appeared to be partially blocked and clogged, however the stream does provide habitat suitable for fish when seasonal flows are present and had seasonal surface connection with Lake Creek.		
Habitat	The creek is generally channelized and lacks riffle/pool complexes and channel migration or meanders. Substrates are silty mud with some small gravels. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, small amounts of woody debris, and shade.		
Riparian/Buffer Condition	Riparian vegetation is generally intact surrounding Stream 4 with the intersection of SR 18 and SE 104th St. Buffer vegetation consists of mature forested vegetation dominated by red alder and black cottonwood, Douglas fir, and western red cedar with an understory of salmonberry and sword fern.		

Table 28. Stream 5 summary

Stream 5 - INFORMATION SUMMARY	
Stream Name	unnamed stream - Stream 5

WRIA ID #	07-0393(d)
Jurisdiction for portion of stream in study area	King County
DNR Stream Type	assumed type F, seasonal
Local Jurisdiction Buffer Width	165 feet

Location of Stream Relative to Project	Stream 5 originates from a few sources within the study area. Stormwater running off westbound I-90 lanes and on and off ramps, flows through ditches, culverts and a stormwater pond, then outfalls at the headwaters of this creek. This outfall is just south of the eastbound I-90 on ramp from eastbound SR 18. A second hydrologic input at the headwaters of Stream 5 is the ditch flowing through and between the northern portions of Wetlands 9 through W12 along the ROW fence. Stream 5 then parallels SE 104th St before flowing through a culvert and into a reconnoitered wetland east of the project.
Connectivity (where stream flows from/to)	Stream 5 originates at an outfall conveying stormwater south of eastbound I-90 on ramp. Water then flows though a short section of forest and then through a roadside ditch along SE 104th St. Flows from the lowest/ditched portions of Wetlands 10 and W11 flow west through a ditch along SE 104th St., emptying into Stream 5 just before it passes through a culvert under SE 104th St. The creek then flows into a reconnoitered wetland south of the project eventually converging with Lake Creek (Figure 3; Appendix B).
Fish Presence	The culvert under SE 104th St appears to be impassable by fish. It is small and appears to have a relatively steep gradient. The creek is flashy and is often dry and then quickly swells to occasional high flows during and following precipitation events. The ditched nature of the channel does not likely provide fish habitat. However, due to its connection to Lake Creek, fish presence is assumed.
Habitat	The creek is generally a channelized ditch at the toe of slope of SE 104th St. It lacks riffle/pool complexes and channel migration or meanders. Substrates are silty mud. Overhanging coniferous and deciduous trees and shrubs contribute organic matter, small amounts of woody debris, and shade on the north side of the creek.
Riparian/Buffer Condition	Riparian vegetation is generally intact on the north side of Stream 5 and through the short forested upstream section of the creek and consists of mature forested vegetation by mixed coniferous and deciduous forest with and understory of salal and salmonberry. Overhanging riparian vegetation on the north side contributes organic matter. The south side does not have a functioning or regulated buffer. It is a mowed and maintained strip of road ROW along SE 104th St.

4.5. Species and Habitats of Interest

Three federally listed fish species could occur in the study area (Table 26). Puget Sound Chinook evolutionarily significant unit (ESU) and Puget Sound steelhead distinct population segment (DPS) have been documented in the study area in Lake Creek (WDFW 2012a). Coastal-Puget Sound DPS bull trout have not been documented in the study area, but are known to occur in the Snoqualmie River watershed. Designated critical habitat is not known to occur in the study area.

Table 29. Federally listed species within the project.

Common name	Scientific Name	Federal Endangered Species Act Status[a]
Puget Sound Chinook salmon ESU	*Oncorhynchus tshawytscha*	Threatened
Puget Sound steelhead DPS	*Oncorhynchus mykiss*	Threatened
Coastal-Puget Sound bull trout DPS	*Salvelinus confluentus*	Threatened

[a](USFWS 2012 and NMFS 2012)

Western toad (*Anaxyrus boreas*), a federal species of concern and Washington State candidate species are documented beyond the study area in Echo Lake (WDFW 2012c and WDFW 2012d).

The WDFW Priority Habitats and Species (PHS) show Green/Cedar River winter elk range is documented within the southeast quadrant of the Project and that wetlands are present adjacent to and near the study area (WDFW 2012b).

Threatened or endangered plants are not known to occur within the study area (WNHP 2012).

A separate Biological Assessment will be prepared to document potential impacts to federally listed species and designated and proposed critical habitat.

None of the wetlands in the project occur in a section, township, and range identified by WDNR Natural Heritage Program to contain Natural Heritage Features associated with wetlands (WNHP 2012), however Wetland 1 and W4 are mature forested wetlands according to the Washington State Wetland Rating System for Western Washington - Revised (Hruby 2006) (Appendix D).

5. Limitations

The wetland and stream delineations were performed in compliance with accepted standards for professional wetland biologists and applicable federal, state, and local ordinances. This wetland and stream assessment report documents the investigation, best professional judgment, and conclusions of WSDOT based on the circumstances and site conditions encountered at the time of this study.

The information contained in this report is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters until it has been reviewed and approved in writing by the appropriate jurisdictional authorities. The final determination of the wetland and stream boundary, classification, and required setback and buffer will be made by local, state, and federal jurisdictions.

6. References

[BLM] Bureau of Land Management. 2012. Watershed Boundaries Washington HU 5th Level. Portland (OR). [Accessed from WSDOT Environmental Workbench 2012 Nov 7].

Brinson MM. 1993. A hydrogeomorphic classification for wetlands. Vicksburg (MS): US Army Engineer Waterways Experiment Station. Technical Report WRP-DE-4.

Cowardin LM, Carter V, Golet FC, LaRoe ET. 1979. Classification of wetlands and deepwater habitats of the United States. Washington (DC): US Fish and Wildlife Service. FWS/OBS-79/31.

[Ecology] Washington State Department of Ecology. 2000. Water Resource Inventory Areas. Olympia (WA). [Accessed from WSDOT Environmental Workbench 2012 Nov 7].

Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Vicksburg (MS): US Army Engineer Waterways Experiment Station. Technical Report Y-87-1. Available from: http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf

Franklin JT, Dyrness CT. 1988. Natural Vegetation of Oregon and Washington. Corvallis (OR): Oregon State University Press.

Hruby T. 2006. Washington State wetland rating system for Western Washington – Revised. Washington State Department of Ecology Publication # 04-06-025. Available from: http://www.ecy.wa.gov/biblio/0406025.html

King County. 2011. King County GIS data. Parcels, Zoning, and Land Use. [Accessed from WSDOT Environmental Workbench 2013 May, 27].

King County [Internet]. 2012. King County Code: Chapter 21A Zoning, Sections 21A.24.318 Wetlands — categories, 21A.24.325 Wetlands — buffers, 21A.24.355 Aquatic areas — water types, and 21A.24.358 Aquatic areas — buffers. Available from: http://www.kingcounty.gov/council/legislation/kc_code.aspx

Lichvar RW, Kartesz JT. 2012. North American Digital Flora: National Wetland Plant List, version 3.0. U.S. Hanover, NH and BONAP, Chapel Hill, NC: Army Corps of Engineers Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. [cited 2012 Nov 7]. Available from: http://wetland_plants.usace.army.mil

[NMFS] National Marine Fisheries Service. 2012. Northwest Regional Office website. ESA salmon listings: http://www.nwr.noaa.gov/ESA-Salmon-Listings/Index.cfm

[NOAA] National Oceanic and Atmospheric Administration [Internet]. 2012. NOAA Satellite and Information Center. National Climatic Data Center. COOP Select From. Station: Landsburg 454486. [cited 2012 Nov 13]. Available from: http://www7.ncdc.noaa.gov/IPS/coop/coop.html?_page=2&state=WA&foreign=false&stationID=454486&_target3=Next+%3E

[NRCS] Natural Resource Conservation Service. 1997. Hydrology Tools for wetland determination. Chapter 19 in Engineering Field Handbook. Fort Worth (TX): US. Department of Agriculture, NRCS. Available from:http://policy.nrcs.usda.gov/OpenNonWebContent.aspx?content=17556.wba

[NRCS] Natural Resources Conservation Service [Internet]. 2002. National Water and Climate Center [updated 2002 Sep 10]. WETS Station: Landsburg, WA4486. [cited 2012 Nov 13]. Available from:http://www.wcc.nrcs.usda.gov/ftpref/support/climate/wetlands/wa/53033.txt

[NRCS] Natural Resources Conservation Service [Internet]. 2012a. National List of Hydric Soils: King County (WA). [cited 2012 Nov 7]. Available from: http://soils.usda.gov/use/hydric/

[NRCS] Natural Resources Conservation Service [Internet]. 2012b. Official Soil Series Descriptions. [cited 2012 Nov 7]. Available from: https://soilseries.sc.egov.usda.gov/osdname.asp.

[NRIS] Natural Resource Information System. 2012. Survey and Manage Species Plants. [Accessed from WSDOT Environmental Workbench 2012 Nov 13].

Null WS, Skinner G, Leonard W. 2000. Wetland functions characterization tool for linear projects. Olympia (WA): Washington State Department of Transportation, Environmental Affairs Office. Available from: http://www.wsdot.wa.gov/NR/rdonlyres/B92BE0D4-9078-4EFC-99DA-3C0EA4805E2F/0/bpjtool.pdf

[USACE] US Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. Wakeley JS, Lichvar RW, Noble CV. Vicksburg (MS): US Army Engineer Research and Development Center. ERDC/EL TR-10-3. Available from: http://el.erdc.usace.army.mil/elpubs/pdf/trel10-3.pdf

[USDA, USFS, USDI, BLM] US Department of Agriculture, US Forest Service, US Department of the Interior, Bureau of Land Management. 1994. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl. Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Attachment A, Section C, Standards and Guidelines, Riparian Reserves. p. C-30 – C-31. Available from: http://www.reo.gov/library/reports/newsandga.pdf

[USFWS] US Fish and Wildlife Service. 1996. National Wetland Inventory. US Department of the Interior. [Accessed from WSDOT Environmental Workbench 2012 Nov 7]. Available from: http://www.fws.gov/wetlands/data/index.html

[USFWS] US Fish and Wildlife Service. 2012. Species Report. Listing and Occurrences for Washington. [cited 2012 Nov 13] Available from: http://ecos.fws.gov/tess_public/pub/stateListingAndOccurrenceIndividual.jsp?state=WA&s8fid=112761032792&s8fid=112762573902

[USGS] US Geological Survey. 2012. 7.5 Minute Quadrangle Map. [Accessed from WSDOT Environmental Workbench 2012 Nov 7].

[WDFW] Washington State Department of Fish and Wildlife. 2010. Fish Species of Interest. [Accessed from WSDOT Environmental Workbench 2012 Nov 13].

[WDFW] Washington State Department of Fish and Wildlife. 2012a. Fish Distribution. [Accessed from WSDOT Environmental Workbench 2012 Nov 13].

[WDFW] Washington State Department of Fish and Wildlife. 2012b. Priority Habitats and Species Program. [Accessed from WSDOT Environmental Workbench 2012 Nov 13].

[WDFW] Washington State Department of Fish and Wildlife. 2012c. Wildlife Occurrence Points. [Accessed from WSDOT Environmental Workbench 2012 Nov 13].

[WDFW] Washington State Department of Fish and Wildlife. 2012d. Washington State Species of Concern List. [cited 2012 Nov 13] Available from: http://wdfw.wa.gov/conservation/endangered/All/

[WDNR] Washington Department of Natural Resources. 2000. Forest Land Soils. [Accessed from WSDOT Environmental Workbench 2012 Nov 7]. [WDNR] Washington Department of Natural Resources. 2012. Forest Practices Water Type Code. [Accessed from WSDOT Environmental Workbench 2012 Nov 11].

[WNHP] Washington State Natural Heritage Program. 2012. Plant Heritage. [Accessed from WSDOT Environmental Workbench 2012 Nov 13].

Weather Underground. 2012. Weather data from Lake Wilderness, Maple Valley WA Station KWAMAPLE28 [cited 2012 Nov 21] Available from: http://www.wunderground.com/weatherstation/WXDailyHistory.asp?ID=KWAMAPLE28&day=21&year=2012&month=10&graphspan=month

Appendix A. Background Information

This Appendix includes the following sub-appendices:

A-1 Property Ownership Within and Adjacent to the Project

A-2 Monthly Precipitation Data for Landsburg and Maple Valley, Washington

A-3 Daily Precipitation for 10 Days Preceding Fieldwork, Landsburg and Maple Valley, Washington

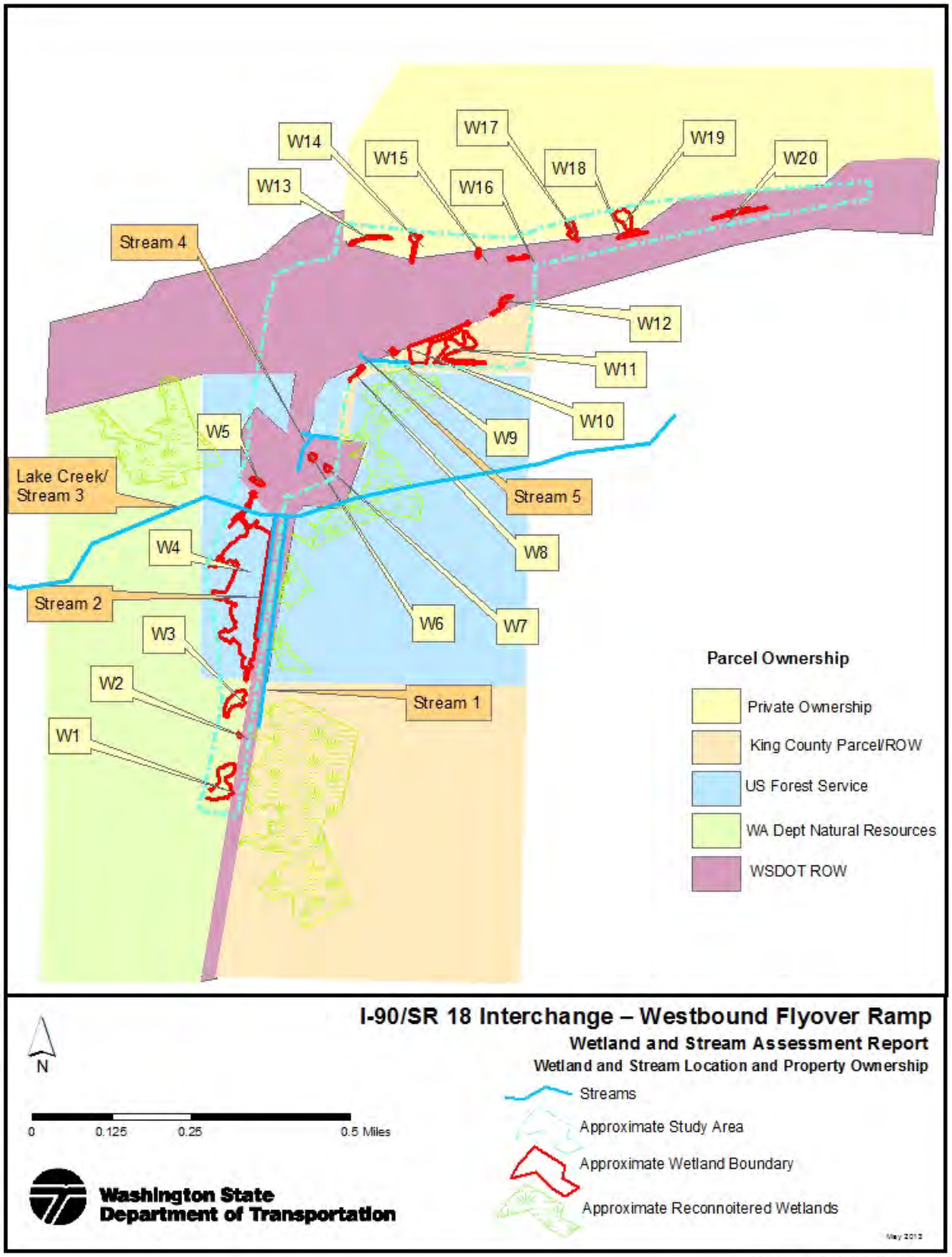
A-4 USGS Topographic Map

A-5 NRCS Soil Map

A-6 National Wetland Inventory Map

A-7 Plant Species Observed On or Near the Project Site

Appendix A-1. Property Ownership Within and Adjacent to the Project



Appendix A-2. Comparison of Observed and Normal Precipitation

The Landsburg, Washington WA4486 WETS station location was selected to determine if normal precipitation conditions were present prior to field work because it is the WETS station with the most similar geomorphic characteristics to the Project and with the necessary available data. The Landsburg, Washington WETS station is at 540 foot elevation and roughly 17 miles inland from Puget Sound. The project just south of the City of Snoqualmie lies at approximately 850 foot elevation and 22 miles inland. The WETS Station is approximately 8 ½ miles south of the project.

For October 31, 2011 field work - Monthly precipitation data for Landsburg, Washington**.**

		Long-term rainfall records[a]							
	Month	**3 yrs. in 10 less than**	**Average**	**3 yrs. in 10 more than**	**Rain fall[b]**	**Condition dry, wet, normal[c]**	**Condition Value**	**Month weight value**	**Product of previous two columns**
1st prior month	Oct	2.95	4.79	5.73	6.81	W	3	3	6
2nd prior month	Sept	1.08	2.70	3.28	2.00	N	2	2	4
3rd prior month	Aug	0.89	1.63	1.98	0.64	D	1	1	1
								Sum	**11**

[a] NRCS 2002
[b] NOAA 2012
[c] Conditions are considered normal if they fall within the low and high range around the average.

Note: If sum is

6 - 9	then prior period has been drier than normal
10 - 14	then period has been normal
15 - 18	then period has been wetter than normal

Condition value:

Dry (D)	=1
Normal (N)	=2
Wet (W)	=3

Conclusion: Normal precipitation conditions were present prior to the October 31, 2011 field work.

Information presented here based on methods described in Chapter 19 in *Engineering Field Handbook* (NRCS1997).

For September 18, 2012 field work - Monthly precipitation data for Landsburg, Washington**.**

		Long-term rainfall records[a]							
	Month	**3 yrs. in 10 less than**	**Average**	**3 yrs. in 10 more than**	**Rain fall[b]**	**Condition dry, wet, normal[c]**	**Condition Value**	**Month weight value**	**Product of previous two columns**
1st prior month	Aug	0.89	1.63	1.98	0.06	D	1	3	3
2nd prior month	Jul	0.81	1.62	1.99	1.22	N	2	2	4
3rd prior month	Jun	1.99	3.11	3.75	5.85	W	3	1	3
								Sum	**10**

[a] NRCS 2002
[b] NOAA 2012
[c] Conditions are considered normal if they fall within the low and high range around the average.

Note: If sum is

6 - 9	then prior period has been drier than normal
10 - 14	then period has been normal
15 - 18	then period has been wetter than normal

Condition value:

Dry (D)	=1
Normal (N)	=2
Wet (W)	=3

Conclusion: Normal precipitation conditions were present prior to the September 18, 2012 field work.

Information presented here based on methods described in Chapter 19 in *Engineering Field Handbook* (NRCS1997).

For September 24, October 1, and October 3, 2012 field work - Monthly precipitation data for Landsburg, Washington **.**

		Long-term rainfall records[a]							
	Month	**3 yrs. in 10 less than**	**Average**	**3 yrs. in 10 more than**	**Rain fall[b]**	**Condition dry, wet, normal[c]**	**Condition Value**	**Month weight value**	**Product of previous two columns**
1st prior month	Sept	1.08	2.70	3.28	0.35	D	1	3	3
2nd prior month	Aug	0.89	1.63	1.98	0.06	D	1	2	2
3rd prior month	Jul	0.81	1.62	1.99	1.22	N	2	1	2
								Sum	**7**

[a] NRCS 2002
[b] NOAA 2012
[c] Conditions are considered normal if they fall within the low and high range around the average.

Note: If sum is

- 6 - 9 then prior period has been drier than normal
- 10 - 14 then period has been normal
- 15 - 18 then period has been wetter than normal

Condition value:

- Dry (D) =1
- Normal (N) =2
- Wet (W) =3

Conclusion: Drier than normal precipitation conditions were present prior to the September 24, October 1, and October 3, 2012 field work.

Information presented here based on methods described in Chapter 19 in *Engineering Field Handbook* (NRCS1997).

Data from the last two field visits on October 22, 2012 and November 19, 2012 was not yet available for the Landsburg, Washington WA4486 WETS station location at the time this report was written. Weather data for these two site visits was taken from the Lake Wilderness, Maple Valley, Washington Weather Underground Station KWAMAPLE28. This weather station is the nearest station to the Landsburg, Washington WA4486 WETS station with available data for these site visits.

For October 22, 2012 and November 19, 2012 field work - Monthly precipitation data for Maple Valley, Washington**.**

		Long-term rainfall records[a]							
	Month	**3 yrs. in 10 less than**	**Average**	**3 yrs. in 10 more than**	**Rain fall[b]**	**Condition dry, wet, normal[c]**	**Condition Value**	**Month weight value**	**Product of previous two columns**
1st prior month	Oct	2.95	4.79	5.73	6.72	W	3	3	9
2nd prior month	Sept	1.08	2.70	3.28	0.16	D	1	2	2
3rd prior month	Aug	0.89	1.63	1.98	0.02	D	1	1	1
								Sum	**12**

[a] NRCS 2002
[b] Weather Underground 2012
[c] Conditions are considered normal if they fall within the low and high range around the average.

Note: If sum is

6 - 9	then prior period has been drier than normal
10 - 14	then period has been normal
15 - 18	then period has been wetter than normal

Condition value:

Dry (D)	=1
Normal (N)	=2
Wet (W)	=3

Conclusion: Normal precipitation conditions were present prior to the October 22 and November 19, 2012 field work.

Information presented here based on methods described in Chapter 19 in *Engineering Field Handbook* (NRCS1997).

Appendix A-3. Daily Precipitation 10 days preceding field work, Landsburg and Maple Valley, Washington

October 31, 2011 field work

Date (2011)	Daily Precipitation (inches) [a]
Oct 30	0.53
Oct 29	0.00
Oct 28	0.62
Oct 27	0.00
Oct 26	0.04
Oct 25	0.00
Oct 24	0.29
Oct 23	0.00
Oct 22	0.87
Oct 21	0.23

[a] NOAA 2012

September 18, 2012 field work

Date (2012)	Daily Precipitation (inches) [a]
Sept 17	0.00
Sept 16	0.00
Sept 15	0.00
Sept 14	0.00
Sept 13	0.00
Sept 12	0.00
Sept 11	0.00
Sept 10	0.17
Sept 9	0.06
Sept 8	0.00

[a] NOAA 2012

September 24, 2012 field work

Date (2012)	Daily Precipitation (inches) [a]
Sept 23	0.00
Sept 22	0.03
Sept 21	0.04
Sept 20	0.00
Sept 19	0.00
Sept 18	0.00
Sept 17	0.00
Sept 16	0.00
Sept 15	0.00
Sept 14	0.00

[a] NOAA 2012

October 1, 2012 field work

Date (2012)	Daily Precipitation (inches) [a]
Sept 30	0.00
Sept 29	0.05
Sept 28	0.00
Sept 27	0.00
Sept 26	0.00
Sept 25	0.00
Sept 24	0.00
Sept 23	0.00
Sept 22	0.03
Sept 21	0.04

[a] NOAA 2012

October 3, 2012 field work

Date (2012)	Daily Precipitation (inches) [a]
Oct 2	0.00
Oct 1	0.00
Sept 30	0.00
Sept 29	0.00
Sept 28	0.00
Sept 27	0.00
Sept 26	0.00
Sept 25	0.00
Sept 24	0.00
Sept 23	0.00

[a] Weather Underground 2012

October 22, 2012 field work

Date (2012)	Daily Precipitation (inches) [a]
Oct 21	0.04
Oct 20	0.05
Oct 19	0.42
Oct 18	0.63
Oct 17	0.00
Oct 16	0.00
Oct 15	0.39
Oct 14	0.51
Oct 13	0.24
Oct 12	0.14

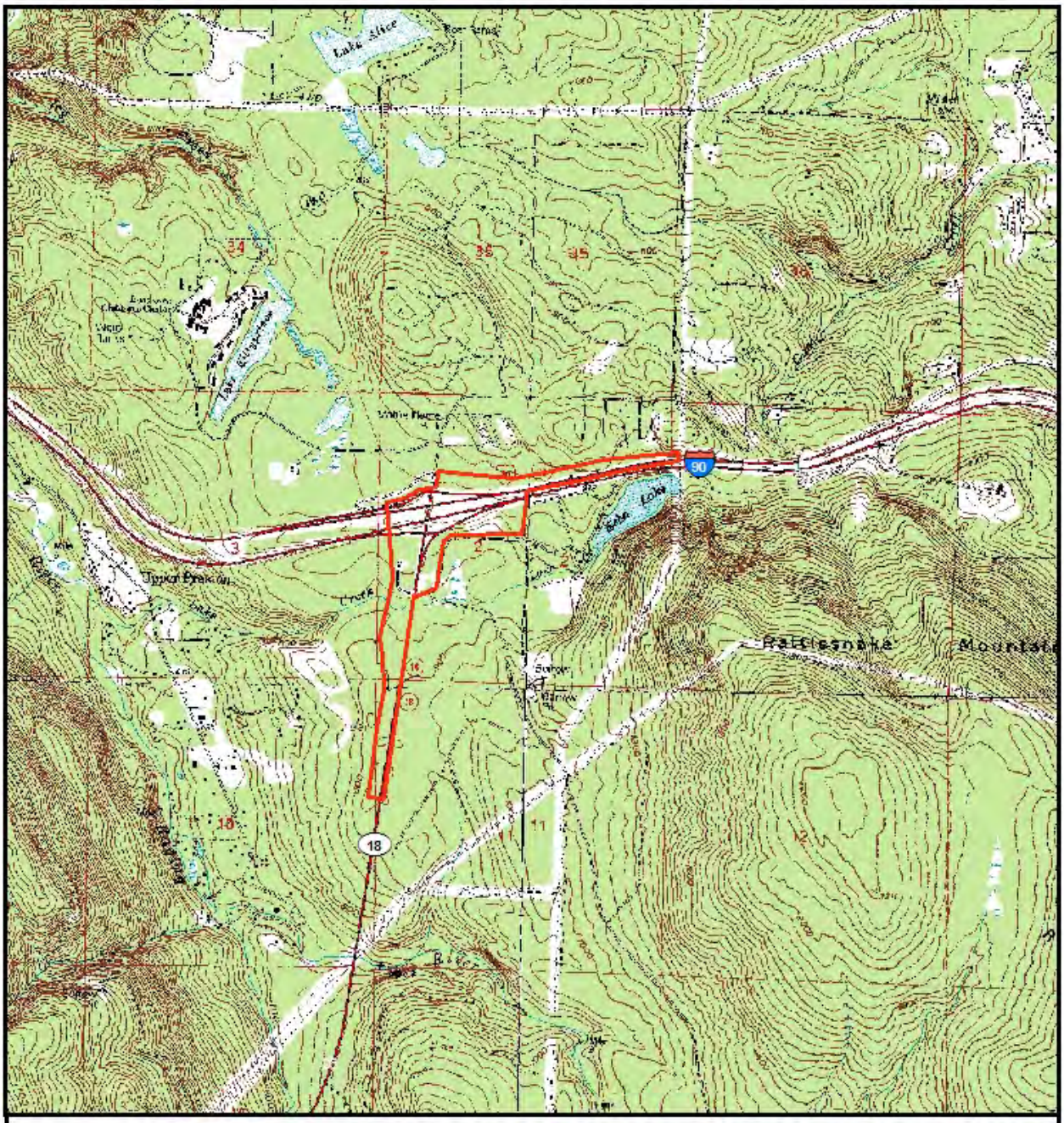
[a] Weather Underground 2012

November 19, 2012 field work

Date (2012)	Daily Precipitation (inches) [a]
Nov 18	0.20
Nov 17	0.37
Nov 16	0.06
Nov 15	0.01
Nov 14	0.10
Nov 13	0.21
Nov 12	0.22
Nov 11	0.62
Nov 10	0.00
Nov 9	0.00

[a] Weather Underground 2012

Appendix A-4. USGS Topographic Map



I-90/SR 18 Interchange –Westbound Flyover Ramp

Wetland and Stream Assessment Report

Topo Map

N

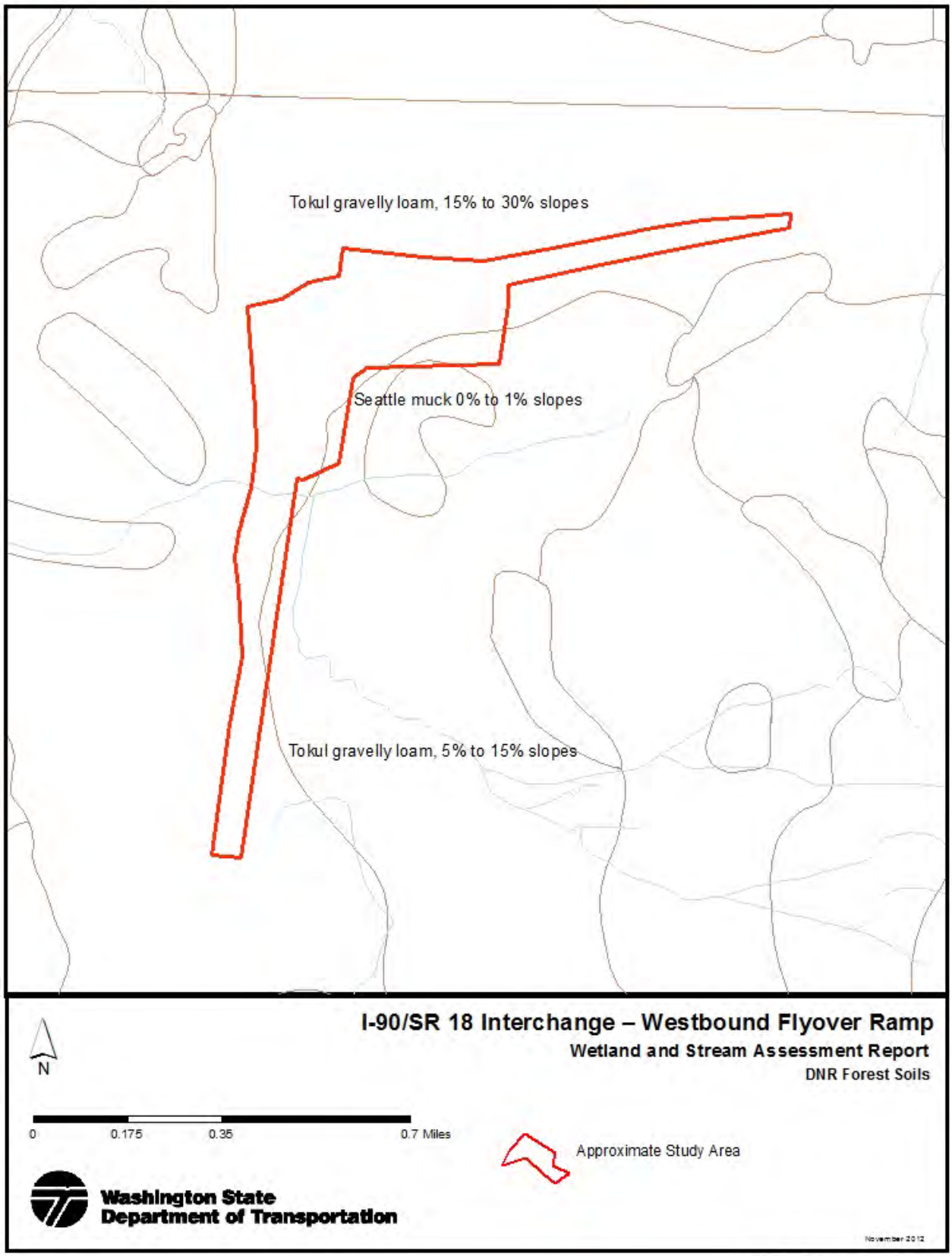
0 0.25 0.5 1 Miles

Approximate Study Area

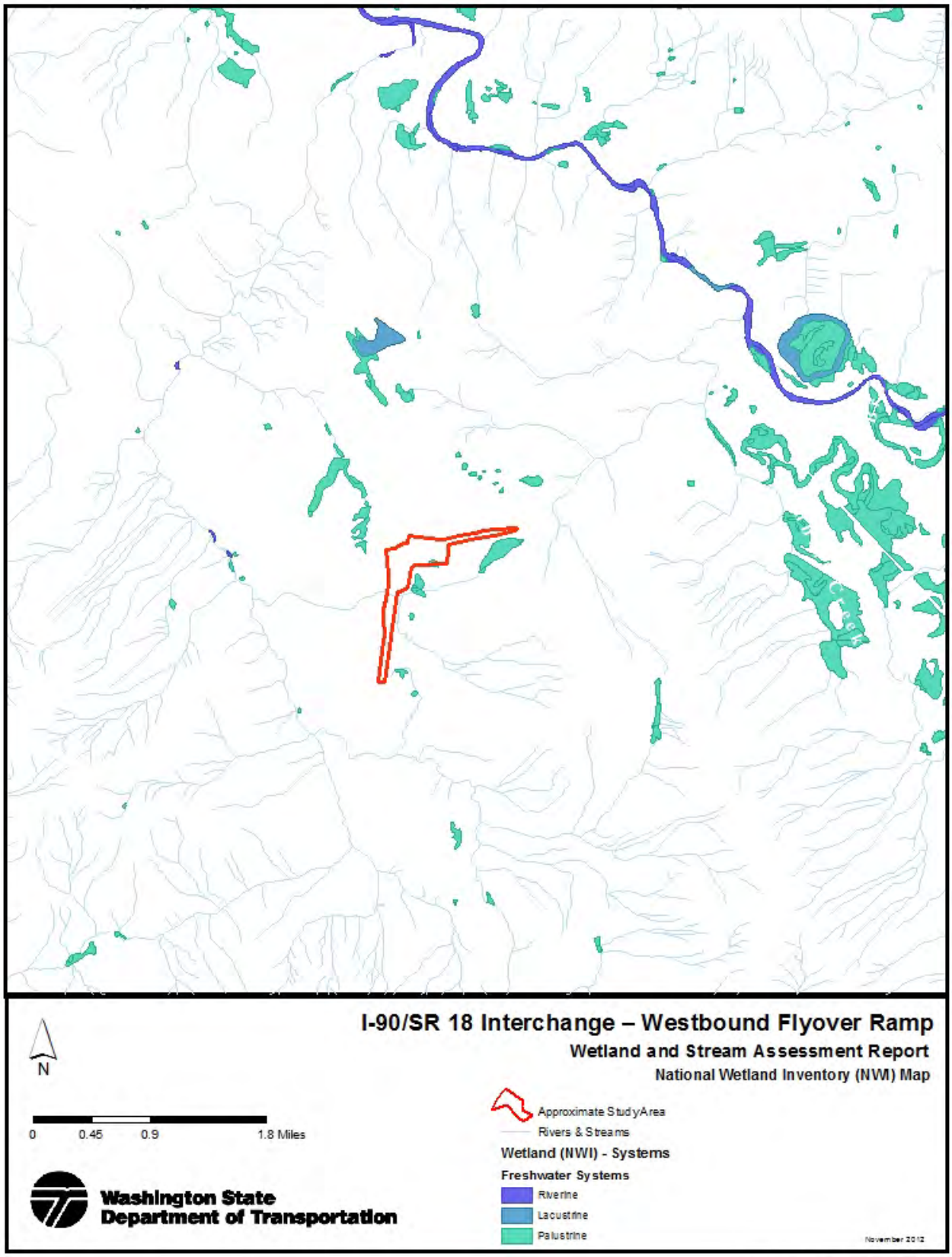
Washington State Department of Transportation

November 2012

Appendix A-5. DNR Forest Land Soils Map



Appendix A-6. USFWS National Wetland Inventory Map



Appendix A-7. Plant Species Observed In The Study Area

The below table is not a complete list of plants occurring in the study area but rather a list of observed plants from September 2012 through early November 2012 when the most recent wetland and stream field work was completed. Since the majority of the field work was done towards the end of the growing season, there are likely many more plants occurring in the study area that were not present during field work.

Scientific Name	Common Name	Wetland Indicator Status[a]
Acer circinatum	vine maple	FAC
Acer macrophyllum	bigleaf maple	FACU
Agrostis capillaris	colonial bentgrass	FAC
Agrostis exarata	spike bentgrass	FACW
Alnus rubra	red alder	FAC
Alopecurus pratensis	meadow foxtail	FAC
Athyrium filix-femina	common ladyfern	FAC
Blechnum spicant	deer fern	FAC
Cardamine oligosperma	little western bittercress	FAC
Carex obnupta	slough sedge	OBL
Carex ovalis	eggbract sedge	FACW
Carex spp.	sedges	-
Carex stipata	sawbeak sedge	OBL
Scirpus microcarpus	small-fruited bulrush	OBL
Cirsium arvense	Canada thistle	FAC
Cornus alba	redosier dogwood	FACW
Cytisus scoparius	Scotch broom	UPL
Dactylis glomerata	orchard grass	FACU
Dryopteris expansa	spreading wood fern	FACW
Elymus repens	quackgrass	FAC
Epilobium ciliatum	fringed willowherb	FACW
Equisetum arvense	field horsetail	FAC
Equisetum hyemale	scouringrush horsetail	FACW
Equisetum telmateia	giant horsetail	FACW
Fallopia japonica	Japanese knotweed	FACU
Festuca rubra	red fescue	FAC
Frangula purshiana	Cascara buckthorn	FAC
Gaultheria shallon	salal	FACU
Geranium molle	dovefoot geranium	UPL

Geranium robertianum	Robert geranium	UPL
Geum macrophyllum	*largeleaf avens*	FACW
Ilex aquifolium	*English holly*	NL
Juncus acuminatus	tapertip rush	OBL
Juncus articulatus	Joint-Leaf Rush	OBL
Juncus effusus	soft rush	FACW
Holcus lanatus	common velvetgrass	FAC
Hypericum perforatum	common St. Johnswort	FACU
Hypochaeris radicata	hairy cat's ear	FACU
Juncus effusus	soft rush	FACW
Lonicera involucrata	twinberry honeysuckle	FAC
Lysichiton americanus	American skunkcabbage	OBL
Mahonia aquifolium	tall oregongrape	FACU
Maianthemum dilatatum	false lily-of-the-valley	FAC
Malus fusca	Pacific crabapple	FACW
Oenanthe sarmentosa	water parsley	OBL
oplopanax horridus	devil's club	FAC
Phalaris arundinacea	reed canarygrass	FACW
Physocarpus capitatus	Pacific ninebark	FACW
Picea sitchensis	Sitka spruce	FAC
Plantago lanceolata	narrowleaf plantain	FACU
Poa annua	annual bluegrass	FAC
Polypodium glycyrrhiza	licorice fern	UPL
Polystichum munitum	western swordfern	FACU
Populus balsamifera	black cottonwood	FAC
Prunella vulgaris	common selfheal	FACU
Pseudotsuga menziesii	Douglas-fir	FACU
Pteridium aquilinum	brackenfern	FACU
Ranunculus repens	creeping buttercup	FACW
Rubus armeniacus	Himalayan blackberry	FACU
Rubus spectabilis	salmonberry	FAC
Rubus ursinus	trailing blackberry	FACU
Rumex crispus	curly dock	FAC
Salix scouleriana	Scouler's willow	FAC
Salix spp.	willows	-

Scirpus cyperinus	woolgrass	OBL
Scirpus microcarpus	small-fruited bulrush	OBL
Solidago Canadensis	Canadian Goldenrod	FACU
Spiraea douglasii	hardhack	FACW
Tanacetum vulgare	common tansy	FACU
Thuja plicata	western red cedar	FAC
Tolmiea menziesii	youth on age	FAC
Trillium ovatum	Pacific trillium	UPL
Tsuga heterophylla	western hemlock	FACU
Typha latifolia	broadleaf cattail	OBL
Vaccinium parvifolium	red huckleberry	FACU
Verbascum thapsus	common mullein	FACU
Veronica americana	American speedwell	OBL
Vicia americana	American vetch	FAC

[a](Lichvar and Kartesz 2012):
OBL = Almost always occur in wetlands
FACW = Usually occur in wetlands, but may occur in non-wetlands
FAC = Occur in wetlands or non-wetlands
FACU = Usually occur in non-wetlands, but may occur in wetlands
UPL = Almost never occur in wetlands.
If the plant is not listed on the National Wetland Plant List (Lichvar 2012) and it does not occur on the list in and adjacent region the plant is assumed to be UPL.

Appendix B. Plan Sheets

Plan sheets showing

- wetland name
- wetland boundaries
- sampling point locations
- wetland area
- wetland category
- King County wetland buffers (W4 and W9 occur on USFS land. Refer to Table 1 for USFS buffers)
- reconnoitered wetland boundaries
- stream name
- stream OHWM
- stream water type
- King County stream buffers (Streams 1, 2, and Lake Creek/3 have portions on USFS land. Refer to Table 23 for USFS buffers)
- culverts

In some locations, wetlands and/or their buffers overlap with stream buffers. When this occurs the buffer is shown as:

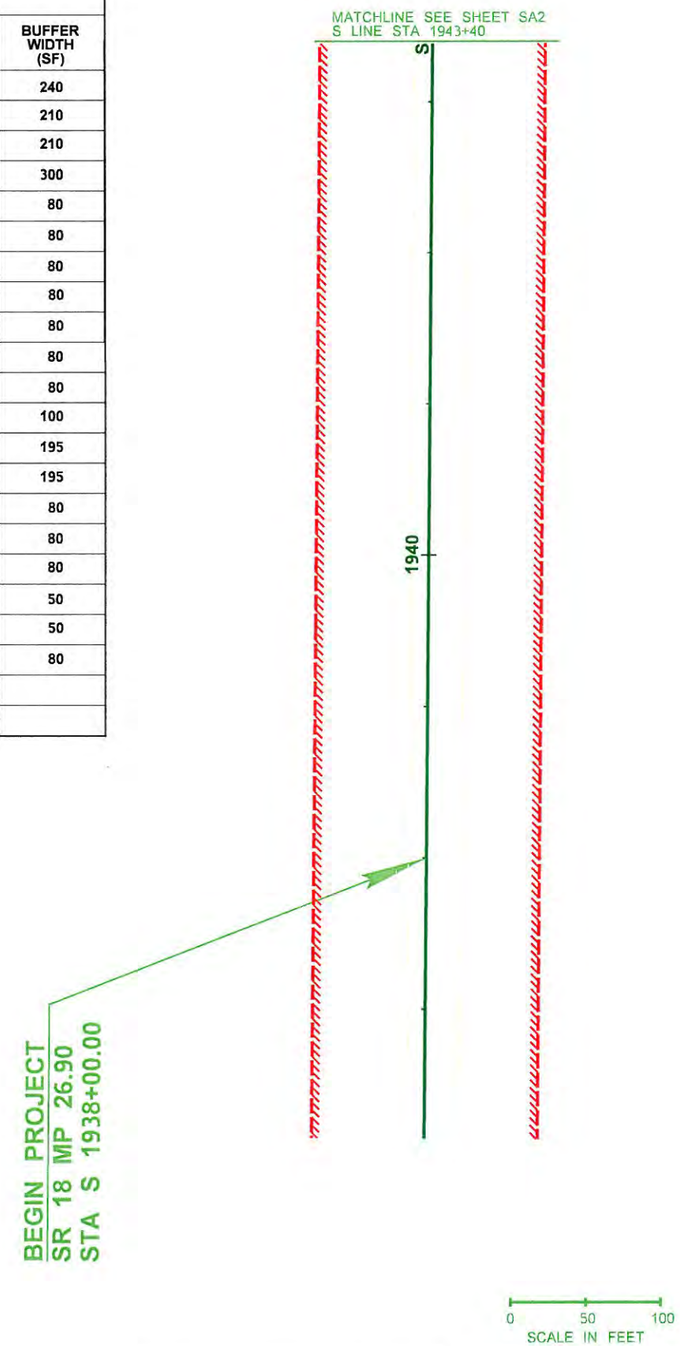
- wetland buffer, when wetland and stream buffers overlap, or
- where stream buffers overlap wetlands, the area is identified as wetland (not as stream buffer overlapping the wetland)

WETLAND QUANTITIES

WETLAND	WETLAND CLASSIFICATION			WETLAND AREA (SF)	WETLAND AREA (ACRES)	BUFFER WIDTH (SF)
	COWARDIN	HGM	ECOLOGY CATAGORY			
1	PFO	DEPRESSIONAL	I	34374	0.79	240
2	PEM	DEPRESSIONAL	II	660	0.02	210
3	PFO	DEPRESSIONAL	I	17124	0.39	210
4	PFO	RAVINE/ DEPRESSIONAL	I	281160	6.45	300
5	PSS/PEM	SLOPE	III	4549	0.10	80
6	PSS	SLOPE	III	2310	0.05	80
7	PEM	DEPRESSIONAL	III	507	0.01	80
8	PFO	DEPRESSIONAL	III	3191	0.07	80
9	PSS	SLOPE	III	1111	0.03	80
10	PFO	SLOPE/ DEPRESSIONAL	III	38297	0.90	80
11	PFO	SLOPE/ DEPRESSIONAL	III	15267	0.35	80
12	PFO	SLOPE/ DEPRESSIONAL	II	4697	0.11	100
13	PFO	DEPRESSIONAL	II	6962	0.16	195
14	PFO/PSS	SLOPE/ DEPRESSIONAL	II	10030	0.23	195
15	PSS	SLOPE	III	1634	0.04	80
16	PSS/PEM	SLOPE	III	2772	0.07	80
17	PFO/PSS	SLOPE	III	4748	0.11	80
18	PEM	SLOPE	IV	6277	0.14	50
19	PSS	SLOPE	IV	2114	0.05	50
20	PEM	SLOPE	III	9596	0.22	80

STREAM QUANTITIES

STREAM NUMBER	STREAM WATER TYPE	KING CO. BUFFER WIDTH (FT)
1	F	165
2	F	165
3	F	165
4	F	165
5	F	165



LEGEND

- RIGHT-OF- WAY/ LIMITED ACCESS
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- EXISTING EDGE OF TRAVELED WAY
- EXISTING DITCH BOTTOM
- CULVERT
- GUARD RAIL
- EXISTING FENCE
- WETLAND BOUNDARY — WB —
- RECONNOITERED WETLAND BOUNDARY
- WETLAND BUFFER
- WETLAND
- ORDINARY HIGH WATER LINE — OHW — OHW —
- STREAM BUFFER

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DESIGNED BY	M. TAYLOR
ENTERED BY	M. AL-AZADI
CHECKED BY	V. NESS
PROJ. ENGR.	H. HUYNH
REGIONAL ADM.	L. ENG

REVISION | DATE | BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO.

JOB NUMBER

CONTRACT NO. | LOCATION NO.

P.E. STAMP BOX DATE

P.E. STAMP BOX DATE

Washington State Department of Transportation

I-90
SR 18 INTERCHANGE IMPROVEMENTS

SENSITIVE AREA PLAN

Plot 1
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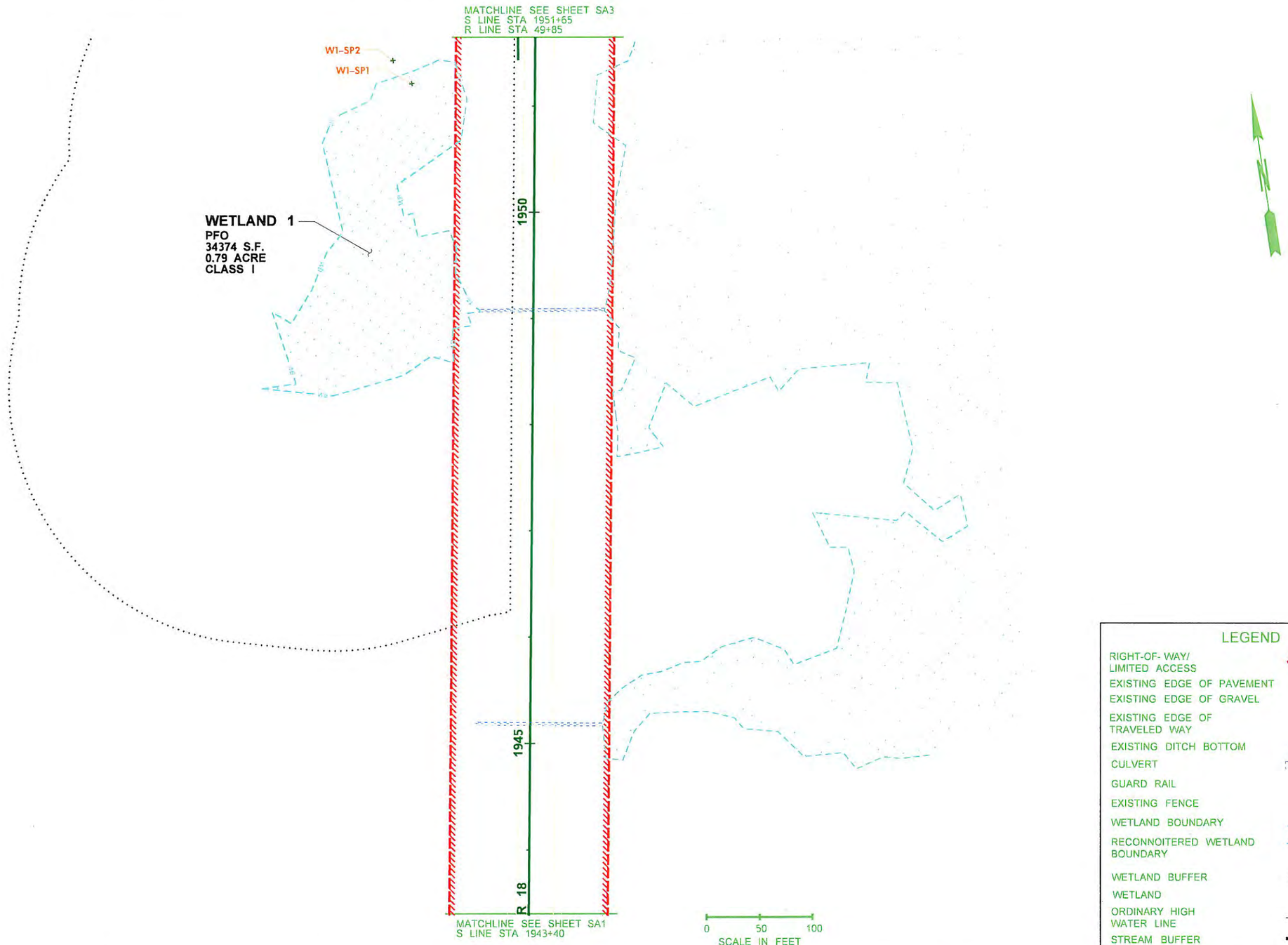

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REGIONAL ADM.	L. ENG	REVISION	DATE	BY		

REGION NO.	STATE	FED.AID PROJ.NO.
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JOB NUMBER		
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SENSITIVE AREA PLAN

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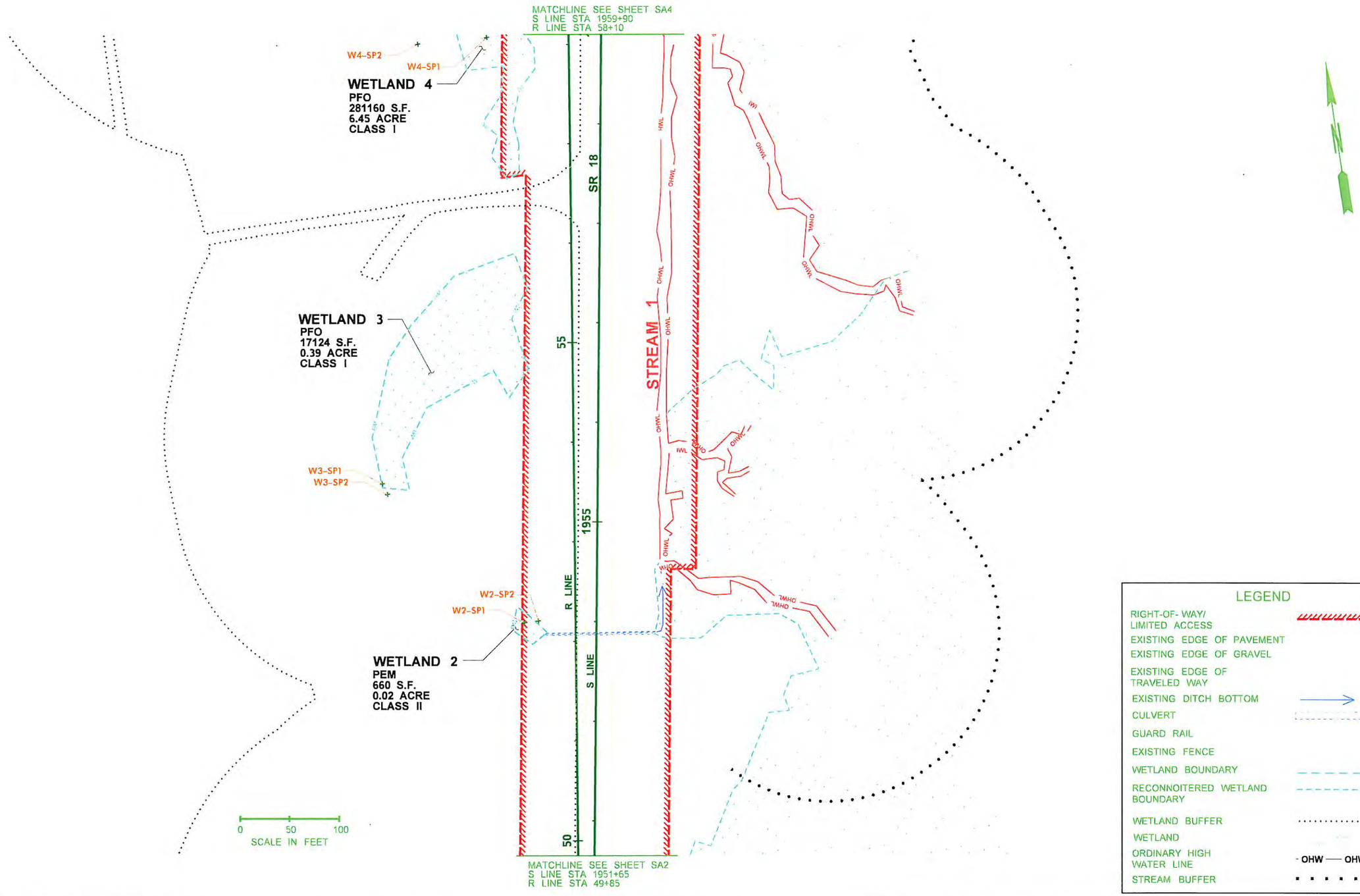
OF
SHEETS



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SENSITIVE AREA PLAN

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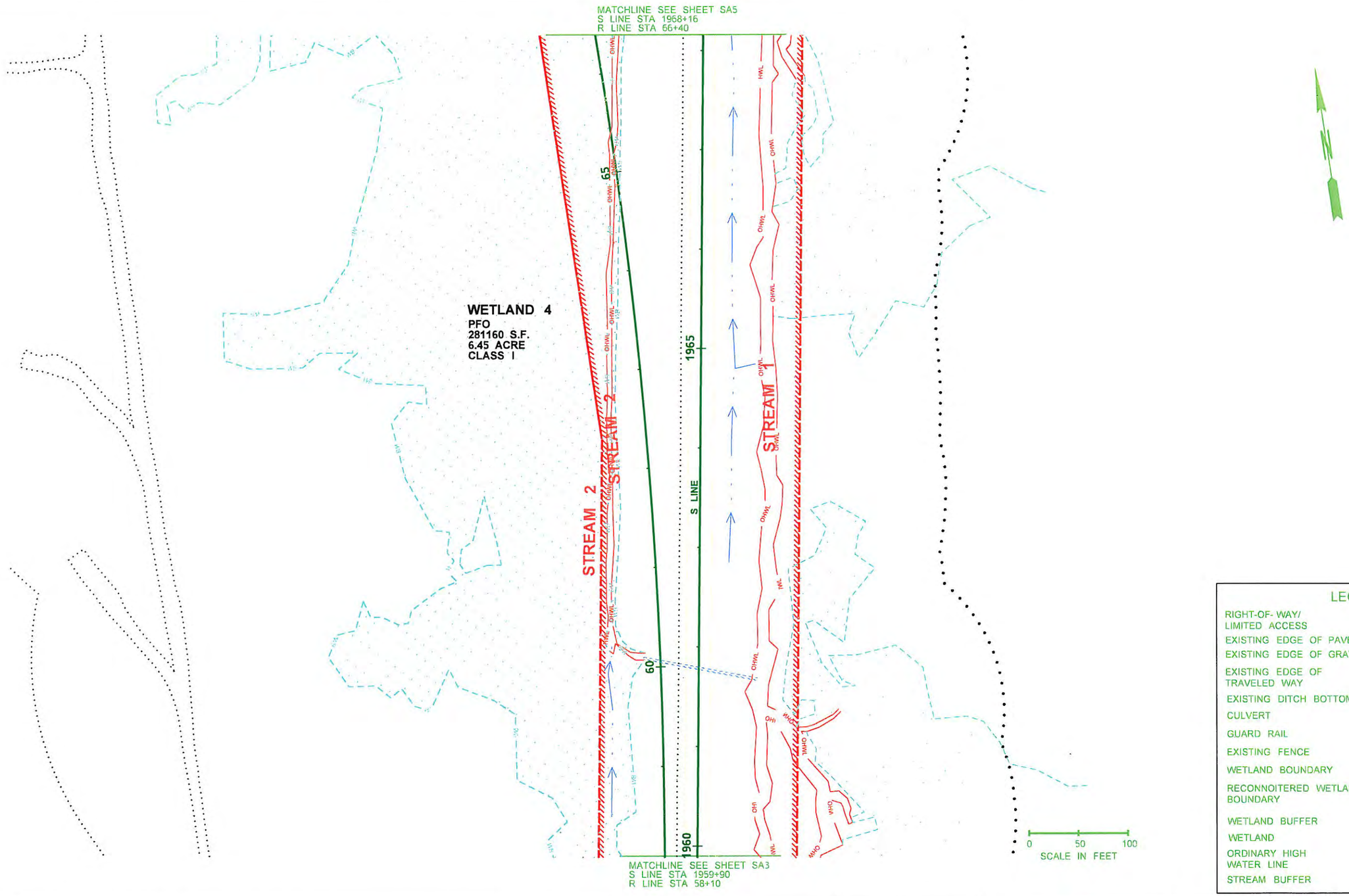
OF
SHEETS



LEGEND

- RIGHT-OF- WAY/ LIMITED ACCESS
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- EXISTING EDGE OF TRAVELED WAY
- EXISTING DITCH BOTTOM
- CULVERT
- GUARD RAIL
- EXISTING FENCE
- WETLAND BOUNDARY — WB —
- RECONNOITERED WETLAND BOUNDARY
- WETLAND BUFFER
- WETLAND
- ORDINARY HIGH WATER LINE — OHW — OHW —
- STREAM BUFFER

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SENSITIVE AREA PLAN

Plot 4

PLAN REF NO SA4

SHEET OF SHEETS

MATCHLINE SEE SHEE SA6
R LINE STA 74+74

MATCHLINE SEE SHEE SA6
S LINE STA 1976+38

WETLAND 5
PSS/PEM
4549 S.F.
0.10 ACRE
CLASS III

W5-SP2
W5-SP1
W5-SP3

1975

70

STREAM 3 - LAKE CREEK

STREAM 2

STREAM 1

1970

SR 18

W4-SP4
W4-SP3

WETLAND 4
PFO
281160 S.F.
6.45 ACRE
CLASS I

0 50 100
SCALE IN FEET

MATCHLINE SEE SHEET SA4
S LINE STA 1968+16
R LINE STA 66+40

LEGEND

- RIGHT-OF-WAY/ LIMITED ACCESS
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- EXISTING EDGE OF TRAVELED WAY
- EXISTING DITCH BOTTOM
- CULVERT
- GUARD RAIL
- EXISTING FENCE
- WETLAND BOUNDARY
- RECONNOITERED WETLAND BOUNDARY
- WETLAND BUFFER
- WETLAND
- ORDINARY HIGH WATER LINE — OHW — OHW —
- STREAM BUFFER

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CHECKED BY	V. NESS						
PROJ. ENGR.	H. HUYNH						
REGIONAL ADM.	L. ENG	REVISION	DATE	BY			

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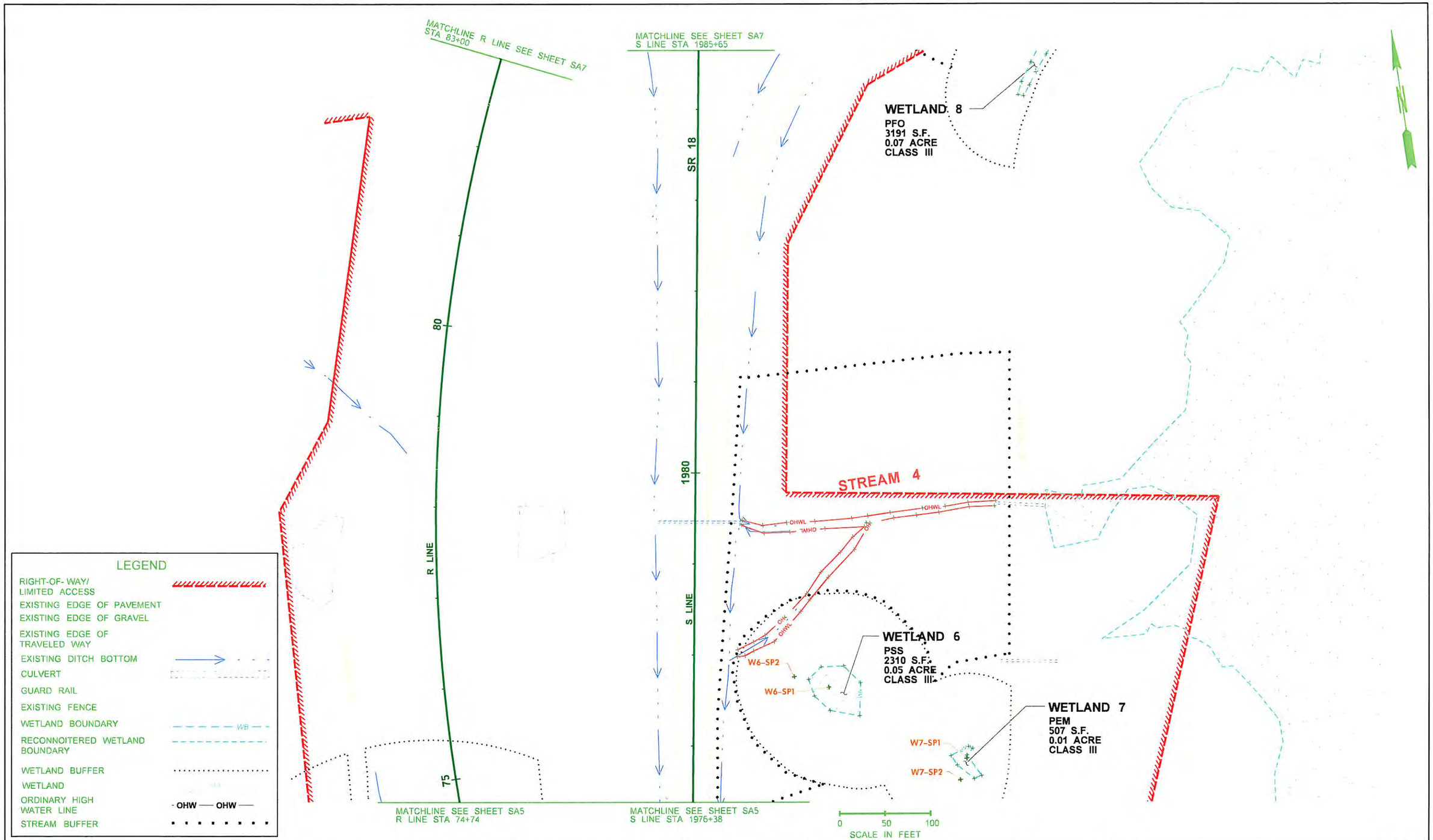
SENSITIVE AREA PLAN

Plot 5

PLAN REF NO
SA5

SHEET
OF
SHEETS



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CHECKED BY	V. NESS						
PROJ. ENGR.	H. HUYNH						
REGIONAL ADM.	L. ENG	REVISION	DATE	BY			

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SENSITIVE AREA PLAN

Plot 6
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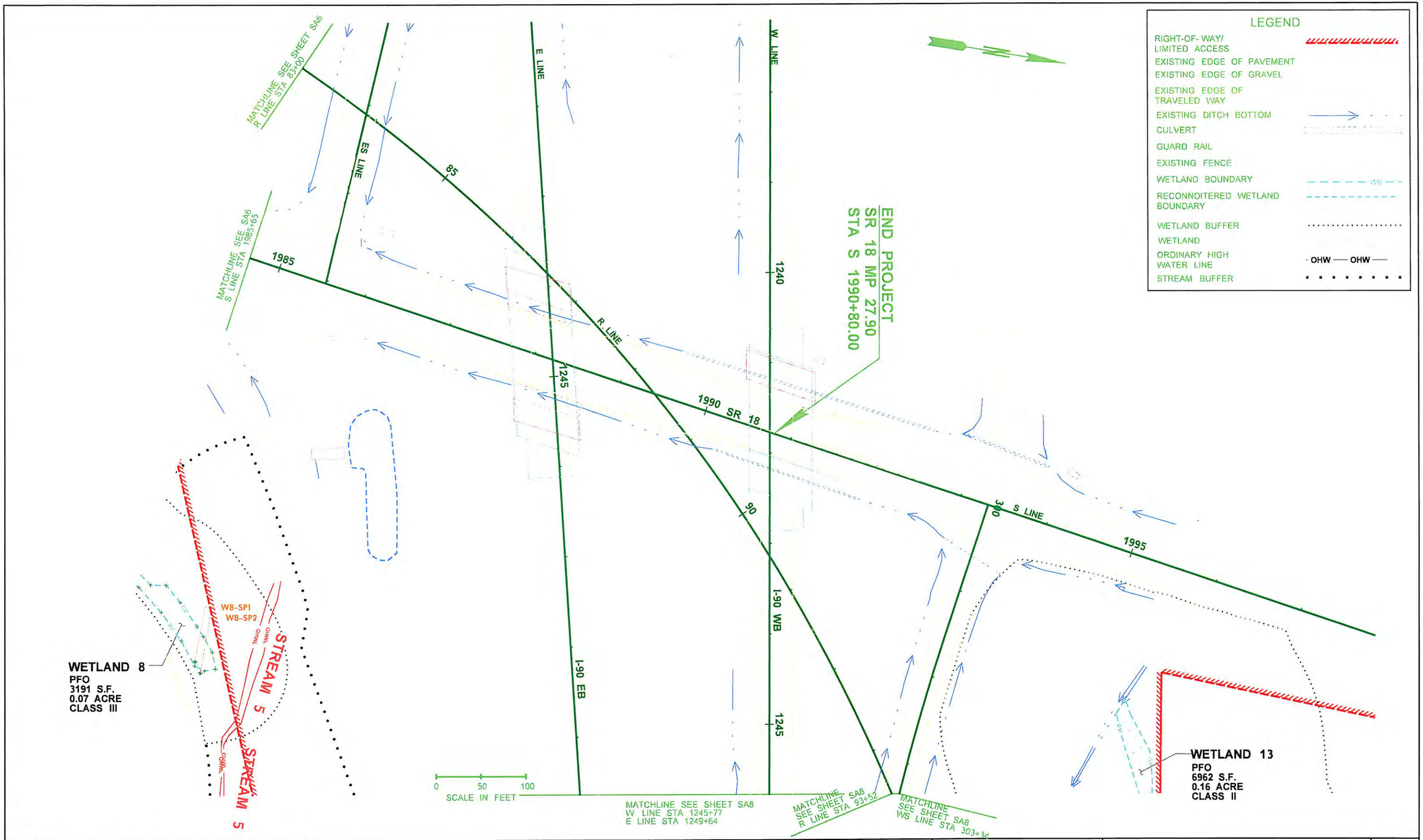

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PROJ. ENGR.	H. HUYNH						
REGIONAL ADM.	L. ENG	REVISION	DATE	BY			

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SENSITIVE AREA PLAN

Plot 7
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SA7
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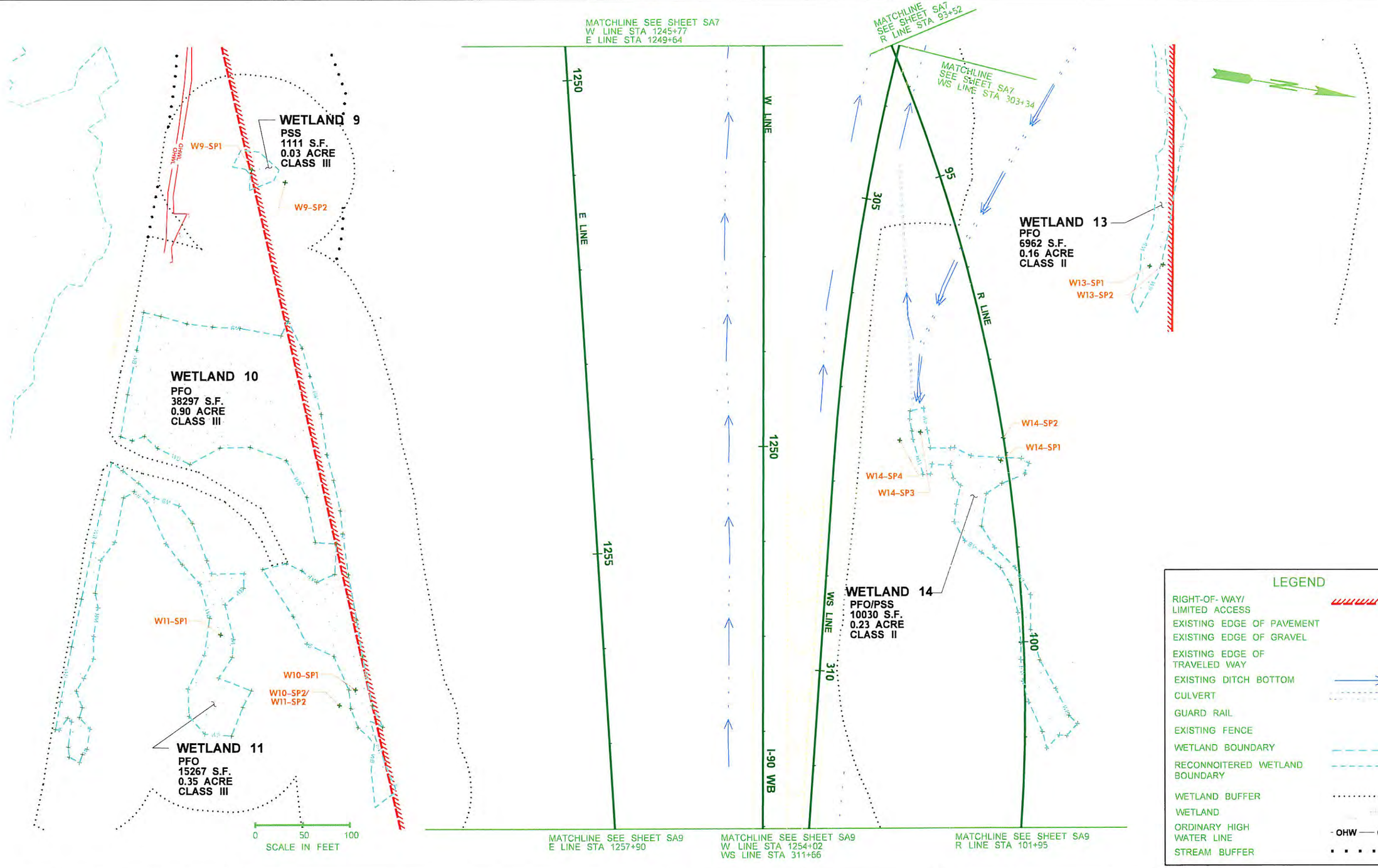
SHEETS



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PROJ. ENGR.	H. HUYNH						
REGIONAL ADM.	L. ENG	REVISION	DATE	BY			

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Department of Transportation

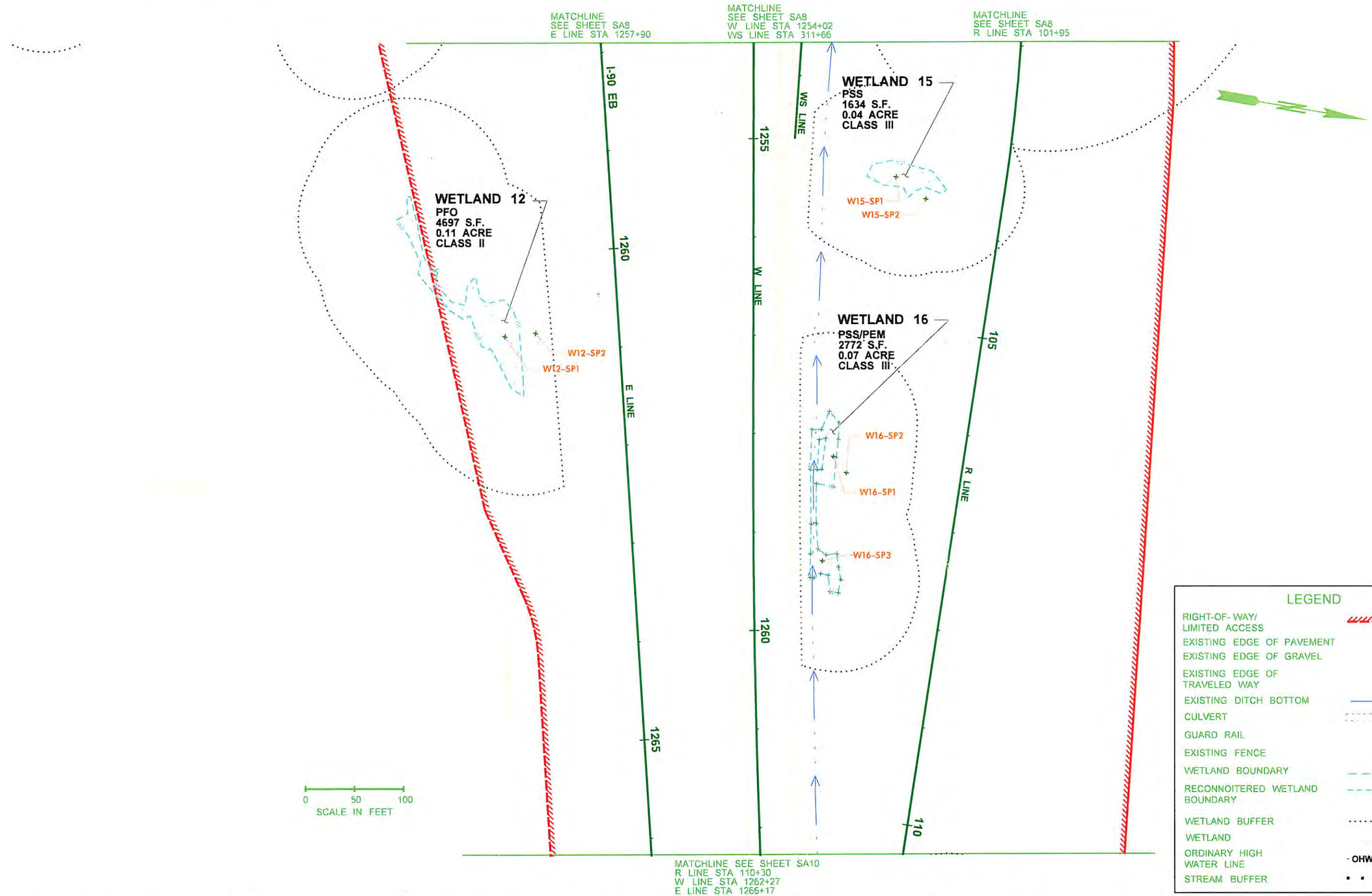
I-90
SR 18 INTERCHANGE IMPROVEMENTS

SENSITIVE AREA PLAN

Plot 8

PLAN REF NO
SA8

SHEET
OF
SHEETS



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TIME	11:26:27 AM						
DATE	4/2/2013						
PLOTTED BY	mcleank				JOB NUMBER		
DESIGNED BY	M. TAYLOR						
ENTERED BY	M. AL-AZADI						
CHECKED BY	V. NESS				CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	H. HUYNH						
REGIONAL ADM.	L. ENG	REVISION	DATE	BY			

P.E. STAMP BOX DATE

P.E. STAMP BOX DATE

Washington State
Department of Transportation

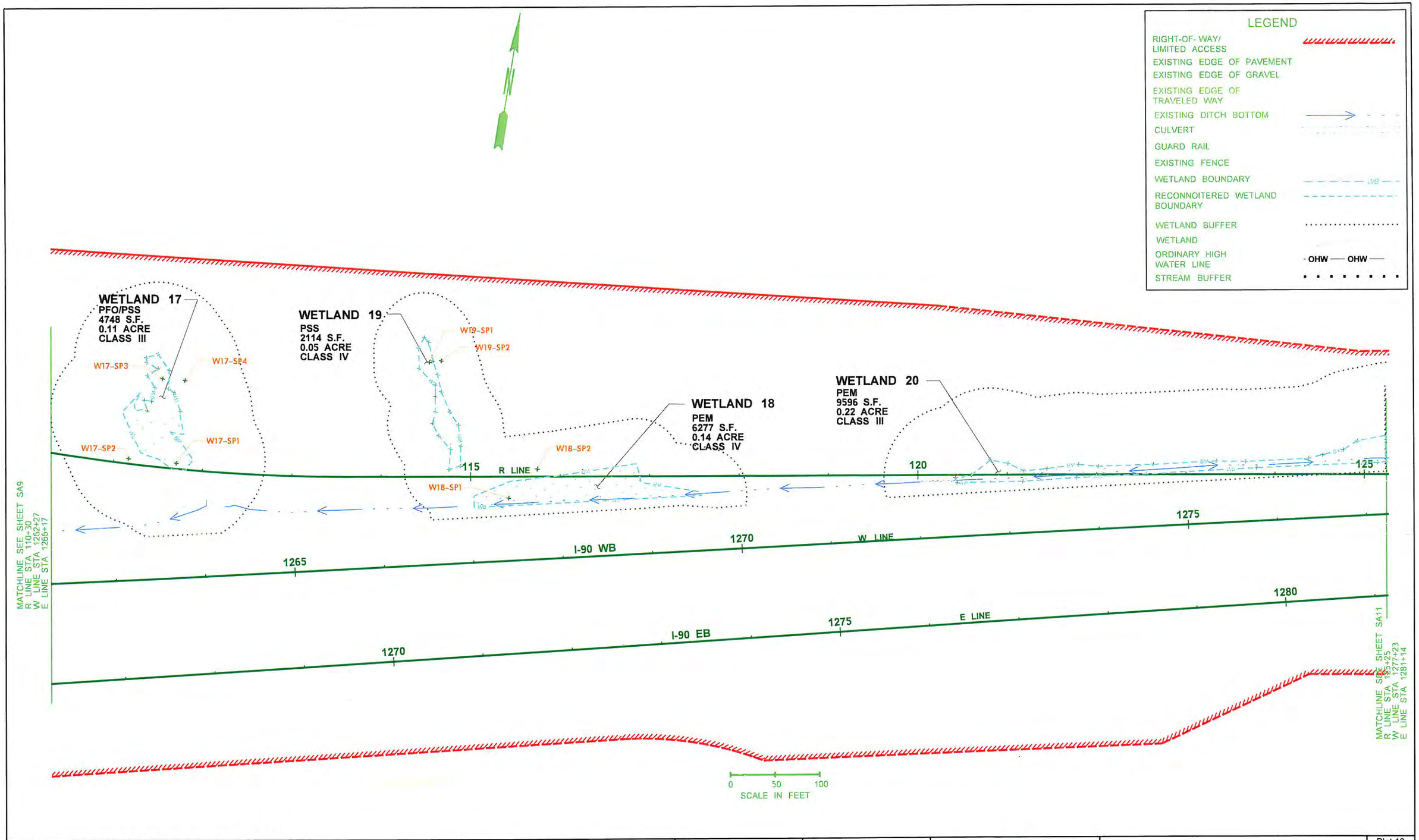
I-90
SR 18 INTERCHANGE IMPROVEMENTS

SENSITIVE AREA PLAN

Plot 9

PLAN REF NO
SA9

SHEET
OF
SHEETS



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DESIGNED BY	M. TAYLOR				CONTRACT NO.		LOCATION NO.
ENTERED BY	M. AL-AZADI						
CHECKED BY	V. NESS						
PROJ. ENGR.	H. HUYNH						
REGIONAL ADM.	L. ENG	REVISION	DATE	BY			

P.E. STAMP BOX DATE

P.E. STAMP BOX DATE

Washington State Department of Transportation

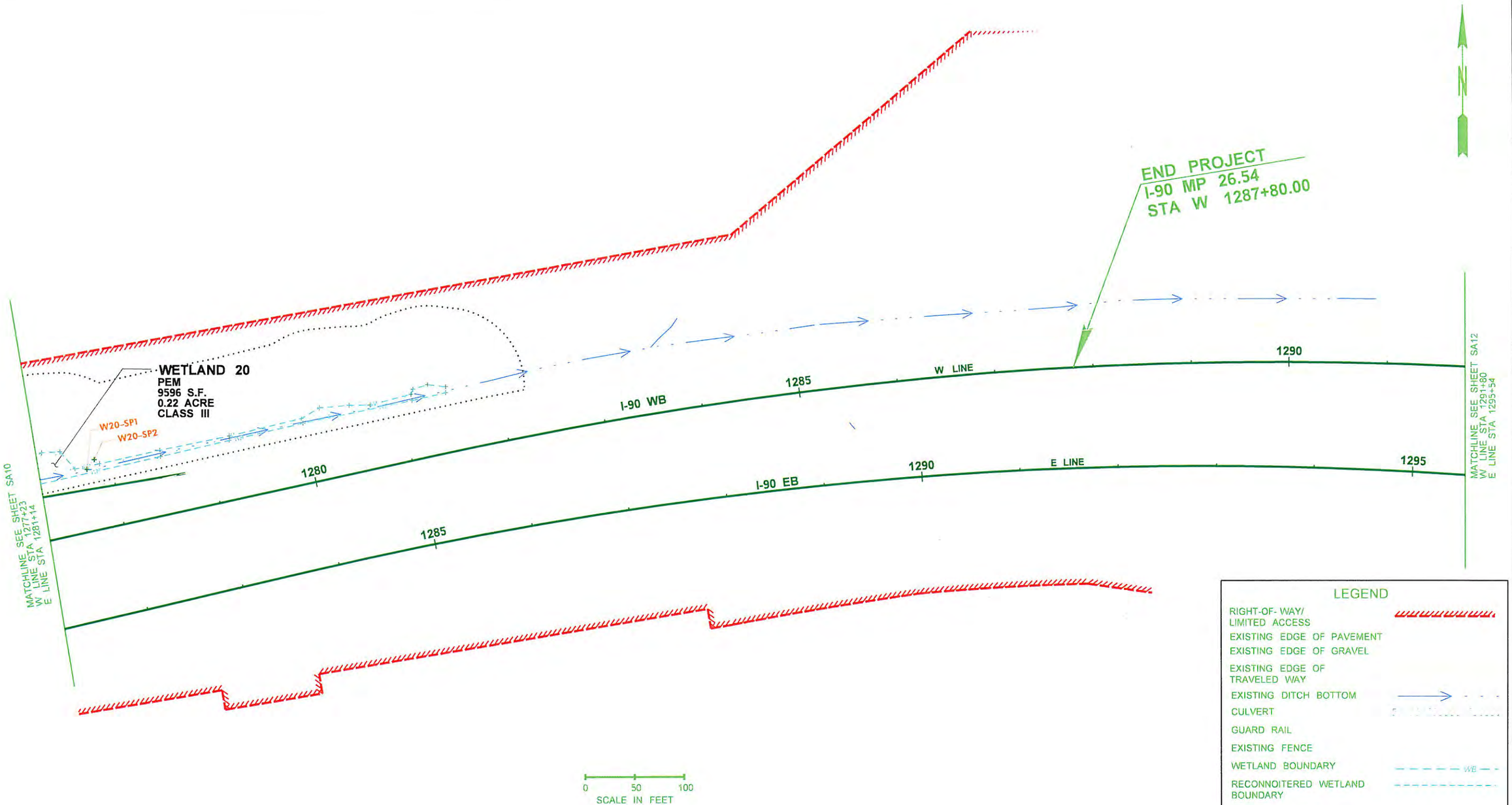
I-90
SR 18 INTERCHANGE IMPROVEMENTS

SENSITIVE AREA PLAN

Plot 10

PLAN REF NO SA10

SHEET OF SHEETS



LEGEND

RIGHT-OF- WAY/ LIMITED ACCESS	
EXISTING EDGE OF PAVEMENT	
EXISTING EDGE OF GRAVEL	
EXISTING EDGE OF TRAVELED WAY	
EXISTING DITCH BOTTOM	
CULVERT	
GUARD RAIL	
EXISTING FENCE	
WETLAND BOUNDARY	WB
RECONNOITERED WETLAND BOUNDARY	
WETLAND BUFFER	
WETLAND	
ORDINARY HIGH WATER LINE	OHW OHW
STREAM BUFFER	

FILE NAME	T:\412348\XL2041\CAD\ContractPlans\XL2041_PS_SA.dgn				REGION NO.	STATE	FED.AID PROJ.NO.
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DATE	4/2/2013				JOB NUMBER		
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DESIGNED BY	M. TAYLOR				CONTRACT NO.		LOCATION NO.
ENTERED BY	M. AL-AZADI						
CHECKED BY	V. NESS						
PROJ. ENGR.	H. HUYNH						
REGIONAL ADM.	L. ENG	REVISION	DATE	BY			

P.E. STAMP BOX DATE

P.E. STAMP BOX DATE

Washington State Department of Transportation

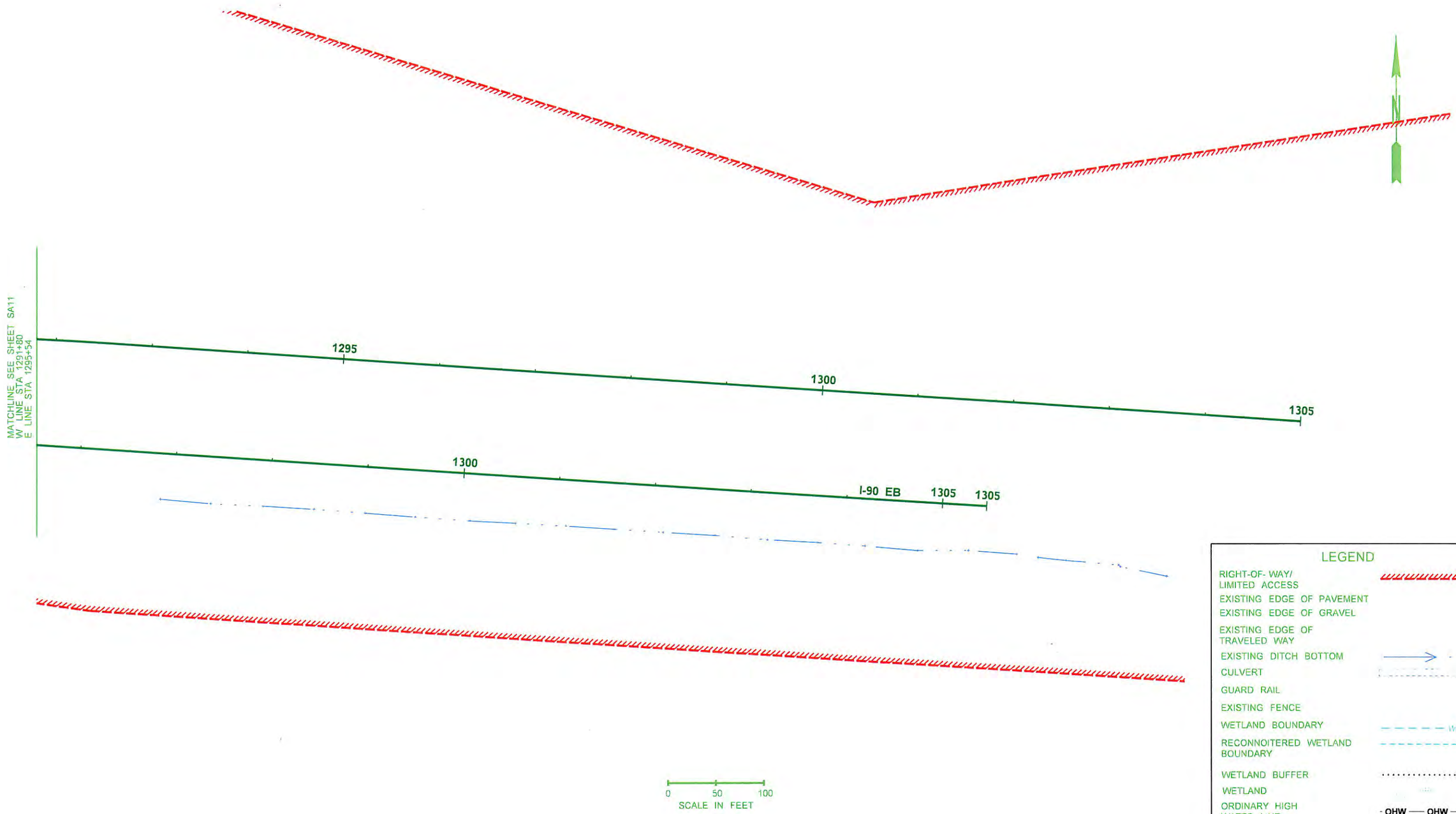
I-90
SR 18 INTERCHANGE IMPROVEMENTS

SENSITIVE AREA PLAN

Plot 11

PLAN REF NO SA11

SHEET OF SHEETS



LEGEND

RIGHT-OF- WAY/ LIMITED ACCESS	
EXISTING EDGE OF PAVEMENT	
EXISTING EDGE OF GRAVEL	
EXISTING EDGE OF TRAVELED WAY	
EXISTING DITCH BOTTOM	
CULVERT	
GUARD RAIL	
EXISTING FENCE	
WETLAND BOUNDARY	WB
RECONNOITERED WETLAND BOUNDARY	
WETLAND BUFFER	
WETLAND	
ORDINARY HIGH WATER LINE	OHW — OHW —
STREAM BUFFER	

FILE NAME	T:\412348\XL2041\CAD\ContractPlans\XL2041_PS_SA.dgn				REGION NO. 10	STATE WASH	FED.AID PROJ.NO.
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DATE	4/2/2013						
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DESIGNED BY	M. TAYLOR				CONTRACT NO.		LOCATION NO.
ENTERED BY	M. AL-AZADI						
CHECKED BY	V. NESS						
PROJ. ENGR.	H. HUYNH						
REGIONAL ADM.	L. ENG	REVISION	DATE	BY			

P.E. STAMP BOX DATE

P.E. STAMP BOX DATE

Washington State Department of Transportation

I-90
SR 18 INTERCHANGE IMPROVEMENTS

SENSITIVE AREA PLAN

Plot 12

PLAN REF NO SA12

SHEET OF SHEETS

Appendix C. Wetland Delineation Data Sheets

Wetland polygons shown in Figure 3 and Appendix B. Instrument-surveyed wetland boundaries and sampling point locations shown in Appendix B.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W1-SP1
Investigator(s): D.littauer, A. Gross Section, Township, Range: S11, T23N, R7E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): A Lat: 47.498 Long: -121.886 Datum: NAD 83 Harn
Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes**	☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐				
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	30	yes	FAC
2.			
3.			
4.			
50% = _____, 20% = _____	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	10	yes	FAC
2. *Vaccinium parvifolium*	15	yes	FACU
3.			
4.			
5.			
50% = 12.5, 20% = 5	25	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Lysichiton americanus*	10	yes	OBL
2. *Polystichum munitum*	4	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 7, 20% = 2.8	14	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 86

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Sphagnum moss present in some areas of the wetland.

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W1-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	90	5Y 6/8	10	C	M	Loam	concentration is prominent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Some other areas in the wetland has soils with high organic content and would meet indicator F1 Loamy Mucky Mineral. Some of the soil is likely muck.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches): 12
Water Table Present?	Yes	☒	No	☐	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W1-SP2

Investigator(s): D.Iittauer, A. Gross Section, Township, Range: S11, T23N, R7E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): A Lat: 47.498 Long: -121.886 Datum: NAD 83 Harn

Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	15	no	FAC
2. *Tsuga heterophylla*	80	yes	FACU
3.			
4.			
50% = 47.5, 20% = 19	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Vaccinium parvifolium*	10	yes	FACU
2. *Gaultheria shallon*	20	yes	FACU
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Pteridium aquilinum*	5	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 95

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W1-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-19	5Y 2.5/1	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W2-SP1
Investigator(s): D.Littauer, A. Gross Section, Township, Range: S11, T23N, R7E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): A Lat: 47.499 Long: -121.886 Datum: NAD 83 Harn
Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Hydric Soil Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	25	yes	FAC
2.			
3.			
4.			
50% = 12.5, 20% = 5	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	20	yes	FAC
2.			
3.			
4.			
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Carex obnupta*	85	yes	OBL
2. *Athyrium filix-femina*	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W2-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5Y 6/1	60	10YR 5/8	40	C	M	clay loam	concentration is prominent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	6
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	2

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W2-SP2

Investigator(s): D.Littauer, A. Gross Section, Township, Range: S11, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 15

Subregion (LRR): A Lat: 47.499 Long: -121.886 Datum: NAD 83 Harn

Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks: This upland data point was taken very near the wetland boundary to document the difference between upland and wetland conditions and show how the wetland determination was made. See remarks in the vegetation and soils sections for further explanation of why those factors are present but that this point is in an upland area.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	35	yes	FAC
2. *Thuja plicata*	20	yes	FAC
3.			
4.			
50% = 27.5, 20% = 11	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	25	yes	FAC
2. *Frangula purshiana*	5	no	FAC
3. *Thuja plicata*	20	yes	FAC
4. *Spiraea douglasii*	3	no	FACW
5.			
50% = 26.5, 20% = 10.6	53	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Polystichum munitum*	40	yes	FACU
2. *Equisetum telmateia*	5	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 22.5, 20% = 9	45	= Total Cover	
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 55

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: This data point was taken very near the wetland boundary. Though the plant community meets a hydrophytic vegetation indicator, all of the dominant plants are either FAC or FACU, indicating a transitional area near the wetland boundary.

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W2-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100					Loam	organic matter present
1-16	2.5Y 5/2	98	10YR 6/4	2	C	M	Loam	concentration is distinct

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: There are just barely enough concentrations to meet the F3 indicator for hydric soil. This data point is very near the wetland boundary and describes a transitional area near the wetland boundary.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W3-SP1

Investigator(s): D.littauer, A. Gross Section, Township, Range: S11, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): A Lat: 47.5 Long: -121.886 Datum: NAD 83 Harn

Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☒, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes** ☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐			
Wetland Hydrology Present?	Yes	☒	No	☐			

Remarks: The naturally problematic box for hydrology is checked because wetland hydrology indicators were not present during time of fieldwork, but are likely present during the early part of the growing season. Due to the presence of the other two factors, the landscape position, topography, and the field work occurring at the end of the growing season, wetland hydrology is assumed present.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	60	yes	FAC
2.			
3.			
4.			
50% = 30, 20% = 12	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Oplopanax horridus*	5	no	FAC
2. *Rubus spectabilis*	25	yes	FAC
3. *Thuja plicata*	5	no	FAC
4.			
5.			
50% = 17.5, 20% = 7	35	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Athyrium filix-femina*	60	yes	FAC
2. *Trillium ovatum*	2	no	FACU
3. *Polystichum munitum*	25	yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 43.5, 20% = 17.4	87	= Total Cover	
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 13

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W3 -SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	95	7.5YR 4/4	5	C	M	Loam	concentration is prominent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Late growing seanon conditions present. Wetland hydrology indicators are not present at this time but are assumed to be present during the early growing season. Due to the presence of the other two factors, the landscape position, topography, and the field work occurring at the end of the growing season, wetland hydrology is assumed present. So the yes box is checked for wetland hydrology even though indicators were not oservable at this late date in the growing season.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W3-SP2

Investigator(s): D.littauer, A. Gross Section, Township, Range: S11, T23N, R7E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): A Lat: 47.5 Long: -121.886 Datum: NAD 83 Harn

Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes	☐	No	☒	
Wetland Hydrology Present?	Yes	☐	No	☒	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	30	yes	FACU
2. *Thuja plicata*	60	yes	FAC
3. *Acer circinatum*	5	no	FAC
4.			
50% = 47.5, 20% = 19	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Acer circinatum*	5	yes	FAC
2. *Rubus spectabilis*	10	yes	FAC
3. *Frangula purshiana*	5	yes	FAC
4.			
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Polystichum munitum*	75	yes	FACU
2. *Athyrium filix-femina*	5	no	FAC
3. *Vaccinium parvifolium*	3	no	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 41.5, 20% = 16.6	83	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 13

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W3-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 2.5/1	100					Loam	
8-16	10YR 3/3	100					Loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W4--SP1
Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): A Lat: 47.504 Long: -121.886 Datum: NAD 83 HARN
Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Hydric Soil Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	50	yes	FAC
2.			
3.			
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20' x 20')			
1. *Physocarpus capitatus*	40	yes	FACW
2. *Rubus spectabilis*	30	yes	FAC
3.			
4.			
5.			
50% = 35, 20% = 14	70	= Total Cover	
Herb Stratum (Plot size: 5' x 5')			
1. *Tolmiea menziesii*	20	yes	FAC
2. *Carex sp.*	5	no	-
3. *Athyrium filix-femina*	5	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 15, 20% = 6	30	= Total Cover	
Woody Vine Stratum (Plot size: 5' x 5')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 70

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: - in the Indicator status column indicates that the species is unknown. The inflorescence on the Carex species was not present making identification to species impossible.

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W4-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					loam	
5-13+	10 YR 5/2	75	10YR 5/8	10	C	M	loam	concentration is prominent
			2.5Y 7/3	15	D	M		

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	6
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	2

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W4-SP2
Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 10
Subregion (LRR): A Lat: 47.504 Long: -121.886 Datum: NAD 83 HARN
Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	30	yes	FAC
2. *Pseudotsuga menziesii*	10	yes	FACU
3. *Tsuga heterophylla*	10	yes	FACU
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20' x 20')			
1. *Rubus spectabilis*	60	yes	FAC
2.			
3.			
4.			
5.			
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size: 5' x 5')			
1. *Polystichum munitum*	5	yes	FACU
2. *Polypodium glycyrrhiza*	2	yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 3.5, 20% = 1.4	7	= Total Cover	
Woody Vine Stratum (Plot size: 5' x 5')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 93

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33.3	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W4-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15+	10YR 3/2	100					loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W4-SP3

Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A Lat: 47.501 Long: -121.886 Datum: NAD 83 HARN

Soil Map Unit Name: Tokul gravely loam, 6 to 15 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes**	☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐				
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20' x 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	30	yes	FAC
2. *Frangula purshiana*	20	yes	FAC
3. *Acer circinatum*	10	no	FAC
4. _____	_____	____	____
50% = 30, 20% = 12	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' x 15')			
1. *Rubus spectabilis*	60	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size: 5' x 5')			
1. *Tolmiea menziesii*	40	yes	FAC
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size: 5' x 5')			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: II-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W4-SP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					loam	
5-16+	10YR 5/2	75	7.5YR 5/4	25	C	M	loam	concentration is prominent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	5

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W4-SP4

Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): A Lat: 47.501 Long: -121.886 Datum: NAD 83 HARN

Soil Map Unit Name: Tokul gravely loam, 6 to 15 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20' x 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	30	yes	FAC
2. *Tsuga heterophylla*	10	yes	FACU
3. *Acer circinatum*	5	no	FAC
4.			
50% = 22.5, 20% = 9	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' x 15')			
1. *Rubus spectabilis*	40	yes	FAC
2.			
3.			
4.			
5.			
50% = 20, 20% = 8	40	= Total Cover	
Herb Stratum (Plot size: 5' x 5')			
1. *Athyrium filix-femina*	3	yes	FAC
2. *Tolmiea menziesii*	2	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 5' x 5')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 95

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W4-SP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					loam	
5-16+	7.5 YR 4/4	85					loam	
	2.5Y 6/4	15						

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w5-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): depression **Local relief (concave, convex, none):** concave **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.886 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: This wetland area is forming in excavated/disturbed WSDOT maintenance yard. Soils have been excavated and vegtetetion cleared and these factors are considered significantly disturbed. Excavation of soils may have inadvertently resulted in the establishment of this newly forming wetland. It is adjacent to W4. It may have been excavated in upland or maybe historic wetland given close proximity to W4.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Spiraea douglasii	30	☑ 37.5%	FACW
2. Populus balsamifera	30	☑ 37.5%	FAC
3. Salix sp.	10	☐ 12.5%	-
4. Rubus laciniatus	10	☐ 12.5%	FACU
5.	0	☐ 0.0%	
	80	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Juncus tenuis	10	☑ 41.7%	FAC
2. Juncus acuminatus	5	☑ 20.8%	OBL
3. Agrostis exarata	2	☐ 8.3%	FACW
4. Holcus lanatus	2	☐ 8.3%	FAC
5. Carex sp.	5	☑ 20.8%	-
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	24	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 76

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	32	x 2 =	64
FAC species	42	x 3 =	126
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	89 (A)		235 (B)

Prevalence Index = B/A = 2.640

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on both the Carex species and Salix species were not present and therefore the plants were not identifiable to species. Given that all of the species in this location except one are wetland species and that the soils and hydrology meet wetland criteria, the Carex and Salix species are likely a wetland species. The Salix species is not a dominant so its indicator status does not affect the dominance test calculation. The Carex species is included in the dominance calculation as a FAC or wetter plant. If the Carex was counted as an upland plant, the dominance text would still be met.

Soil

Sampling Point: w5-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	2/2	100						gravelly loam	
7-13	10YR	3/3	65	5YR	4/6	5	C	PL		
				5YR	4/4	20	C	PL		
				5YR	4/4	10	C	M		

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: This wetland is in a disturbed area on a WSDOT maintenance yard. The area appears to have been relatively recently excavated and is a newly forming wetland. Soils are bright and don't meet an indicator, however, they are still hydric soils and this is why the "other" box is checked. Soils meet the definition of hydric soils: ponding and saturation for long periods during the growing season. The presence of wetland hydrology and a hydrophytic plant community also indicate that the soils are wetland soils.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☑ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	9
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w5-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 1 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.886 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Upland is in actively used WSDOT maintenance yard. Soilsand vegetation are significantly disturbed by activities in the maintnence yard. Excivation of soils may have inadvertenly resulted in the establishment of this newly forming wetland. Upland is in actively used WSDOT maintenance yard. Soils are significantly disturbed by activities in the maintenance yard. Excavation of soils may have inadvertently resulted in this newly forming wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Festuca arundinacea	50	☑ 31.3%	FAC
2. Alopecurus pratensis	15	☑ 9.4%	FAC
3. Cirsium arvense	25	☑ 15.6%	FAC
4. Plantago lanceolata	5	☐ 3.1%	FACU
5. Geranium molle	10	☐ 6.3%	UPL
6. Rumex crispus	15	☑ 9.4%	FAC
7. Vicia americana	10	☐ 6.3%	FAC
8. Poa annua	15	☑ 9.4%	FAC
9. Festuca rubra	15	☑ 9.4%	FAC
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	160	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	145	x 3 =	435
FACU species	5	x 4 =	20
UPL species	10	x 5 =	50
Column Totals:	160 (A)		505 (B)

Prevalence Index = B/A = 3.156

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w5-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	2/2	100						Sandy Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Disturbed soils.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 04-Dec-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w5-sp3

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope just above ditch **Local relief (concave, convex, none):** concave **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.885 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 5 x 10 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 x 10 feet)				
1. Spiraea douglasii	3	☑	60.0%	FACW
2. Populus balsamifera	2	☑	40.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	5	= Total Cover		
Herb Stratum (Plot size: 5 x 5 feet)				
1. Scirpus cyperinus	50	☑	50.5%	OBL
2. Juncus effusus	15	☐	15.2%	FACW
3. Juncus articulatus	5	☐	5.1%	FACW
4. Holcus lanatus	15	☐	15.2%	FAC
5. Veronica americana	5	☐	5.1%	OBL
6. Phalaris arundinacea	5	☐	5.1%	FACW
7. Epilobium ciliatum	2	☐	2.0%	FACW
8. Carex stipata	2	☐	2.0%	OBL
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	99	= Total Cover		
Woody Vine Stratum (Plot size: 5 x 5)				
1.		☐	0.0%	
2.		☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 1

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	57	x 1 =	57
FACW species	30	x 2 =	60
FAC species	17	x 3 =	51
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	104 (A)		168 (B)

Prevalence Index = B/A = 1.615

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w5-sp3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soils are saturated with small pockets of shallow inundation. See hydrology remarks. Solis were to wet to ovserve the soil profile but they meet the defiinition of a hydric soil due to long periods of inundation or saturation.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	3
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w6-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** undulating **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.884 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Soil pit in middle of old abandon gravel driveway circle. Wetland appears to have formed on disturbed/compacted soils. Hydrology mainly driven by precipitation and run-on which perches on the compacted soils. Vegetation recetnly cleared andvolunteer saplings appear to be five to ten years old.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Alnus rubra	50	☑ 83.3%	FAC
2. Rubus spectabilis	5	☐ 8.3%	FAC
3. Rubus armeniacus	5	☐ 8.3%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	60	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Carex sp.	25	☑ 55.6%	-
2. Juncus effusus	20	☑ 44.4%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	45	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 55

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	80	x 3 =	240
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	105 (A)		300 (B)

Prevalence Index = B/A = 2.813

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Carex species was not present and therefore the plant was not identifiable to species. Given that all except one of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Carex species is likely a wetland species. The Carex species is included as a FAC or wetter species in the dominance test calculation. If it were excluded from the dominance calculation it would not be met but the prevalence index would still be met if the Carex species is counted as a FAC plant.

Soil

Sampling Point: w6-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	4/2	80	5YR	4/6	20	C	M/PL	Sandy Loam	gravels in profile concentration is prominent

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	8

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Standing water to 2 inces in portions of wetland. Very compactedsoils from previous disturbance, perch water. Hydrology mainly precipitation driven.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w6-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** undulating **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.884 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Soils have been significantly disturbed by past land use activities. There is an old abandon gravel access road and past vegetation clearing.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	45	☑ 45.0%	FAC
2. Pseudotsuga menziesii	40	☑ 40.0%	FACU
3. Alnus rubra	15	☐ 15.0%	FAC
4.	0	☐ 0.0%	
	100	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 x15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Rubus armeniacus	75	☑ 51.7%	FACU
2. Spiraea douglasii	20	☐ 13.8%	FACW
3. Gaultheria shallon	20	☐ 13.8%	FACU
4. Rubus ursinus	20	☐ 13.8%	FACU
5. Lonicera involucrata	10	☐ 6.9%	FAC
	145	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Agrostis exarata	15	☑ 60.0%	FACW
2. Holcus lanatus	10	☑ 40.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	25	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 75

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	80	x 3 =	240
FACU species	155	x 4 =	620
UPL species	0	x 5 =	0
Column Totals:	270 (A)		930 (B)

Prevalence Index = B/A = 3.444

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Vegetation in this area had been cleared in the recent past. Volunteer saplings in both the wetland and some surrounding upland areas appear to be five to ten years old.

Soil

Sampling Point: w6-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	2/1	100						gravelly sandy loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w7-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope on old roadbed **Local relief (concave, convex, none):** undulating **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.883 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 6% to 15% slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Wetland is perched on old compacted/impacted area with compacted/disturbed soils and previously cleared vegetation.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 x10 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Alnus rubra	2	☑ 33.3%	FAC
2. Salix sp.	2	☑ 33.3%	-
3. Spiraea douglasii	2	☑ 33.3%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	6	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Juncus effusus	65	☑ 65.7%	FACW
2. Hypericum perforatum	2	☐ 2.0%	FACU
3. Carex ovalis	20	☑ 20.2%	FACW
4. Vicia americana	2	☐ 2.0%	FAC
5. Tanacetum vulgare	5	☐ 5.1%	FACU
6. Agrostis exarata	5	☐ 5.1%	FACW
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	99	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 1

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	92	x 2 =	184
FAC species	4	x 3 =	12
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals:	103 (A)		224 (B)

Prevalence Index = B/A = 2.175

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Salix species was not present and therefore the plant was not identifiable to species. Given that all but two of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Salix species is likely a wetland species. The Salix species is included in the dominance calculation as a FAC or wetter plant. If the Salix species was excluded from the dominance calculation, the dominance text would still be met.

Soil

Sampling Point: w7-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	4/2	85	7.5YR	4/6	15	C	PL	gravelly sandy Loam	concentration is prominent
4+										gravel hardpan/compacted soils

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel hardpan/compacted soils from old gravel access road

Depth (inches): 4

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	2
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 22-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w7-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** undulating **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.505 **Long.:** -121.883 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 6% to 15% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Compacted/impacted areas are present in upland areas surrounding W7. Compacted/disturbed soils and previously cleared vegetation are present as a result of past land use activities and an abandon access road.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	45	☑ 81.8%	FAC
2. Alnus rubra	10	☐ 18.2%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	55	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 x10 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Spiraea douglasii	25	☑ 42.4%	FACW
2. Populus balsamifera	7	☐ 11.9%	FAC
3. Alnus rubra	7	☐ 11.9%	FAC
4. Cytisus scoparius	15	☑ 25.4%	UPL
5. Frangula purshiana	5	☐ 8.5%	FAC
	59	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Agrostis capillaris	60	☑ 57.1%	FAC
2. Festuca rubra	25	☑ 23.8%	FAC
3. Hypochaeris radicata	15	☐ 14.3%	FACU
4. Juncus effusus	5	☐ 4.8%	FACW
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	105	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	80.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	159	x 3 =	477
FACU species	15	x 4 =	60
UPL species	15	x 5 =	75
Column Totals:	219 (A)		672 (B)

Prevalence Index = B/A = 3.068

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☐ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w7-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/2	100						Gravelly sandy Loam	
2+										hard pan

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan/compacted soils form past disturbance

Depth (inches): 2

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 19-Nov-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w8-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** rolling **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR A **Lat.:** 47.507 **Long.:** -121.882 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Wetland is both in and adjacent to a roadside ditch along SW 104th St. The eastern portion of the wetland is regularly mowed as part of roadside maintenance. Vegetation in this portion of the wetland is significantly disturbed. Hydrology is naturally problematic during this field visit due to heavy rains in past 24 hours.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	30	☑ 54.5%	FAC
2. Alnus rubra	25	☑ 45.5%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	55	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 x15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Cornus alba	50	☑ 50.0%	FACW
2. Physocarpus capitatus	40	☑ 40.0%	FACW
3. Spiraea douglasii	10	☐ 10.0%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	100	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Phalaris arundinacea	35	☑ 77.8%	FACW
2. Rubus ursinus	10	☑ 22.2%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	45	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 55

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	135	x 2 =	270
FAC species	55	x 3 =	165
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	200 (A)		475 (B)

Prevalence Index = B/A = 2.375

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Understory herb and shrub layer is mowed in ditch/eastern portion of wetland.

Soil

Sampling Point: w8-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/2						Sandy Loam	soil is inundated so color and redox distorted
7+								hard pan/fill

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: fill/hardpan

Depth (inches): 7

Hydric Soil Present? Yes ◉ No ○

Remarks: The soil was inundated so an accurate description of the soil profile was unobtainable. The "other" box is checked because the soil meets the definition of a hydric soil: saturated or ponded for long periods during the growing season.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	18
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Weather is heavy rain for 2 hours prior to delineation. Wetland drains to constricted culvert outlet to roaside ditch draining to Stream 4.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 19-Nov-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w8-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** undulating **Slope:** 7.0 % / 4.0 °

Subregion (LRR): LRR A **Lat.:** 47.507 **Long.:** -121.882 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Hydrology is naturally problematic during this field visit due to heavy rains in past 24 hours. Sample point area is roadfill.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 15 x 15 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5x5)			
1. Rubus spectabilis	5	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	5	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Poa pratensis	40	☑ 32.8%	FAC
2. Festuca rubra	40	☑ 32.8%	FAC
3. Geum macrophyllum	20	☐ 16.4%	FAC
4. Verbascum thapsus	7	☐ 5.7%	FACU
5. Geranium robertianum	5	☐ 4.1%	UPL
6. Polystichum munitum	5	☐ 4.1%	FACU
7. Phalaris arundinacea	5	☐ 4.1%	FACW
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	122	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	105	x 3 =	315
FACU species	12	x 4 =	48
UPL species	5	x 5 =	25
Column Totals:	127 (A)		398 (B)

Prevalence Index = B/A = 3.134

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w8-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	2/2	100						Sandy Loam	
4+										hard pan/fill

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan/fill

Depth (inches): 4

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	2
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

heavy rain for two hours prior to delineation.

Remarks:

This upland sample point is 12 inches higher in elevation than the wetland sample point W8-SP1. This area has direct observation of water on this field visit due to heavy rains occurring in the past 24 hours. Due to landscape position and upland soils this area is assumed to not have wetland hydrology present, despite the presence of water in the upland plot during heavy precipitation event.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 19-Nov-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w9-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** hummocky **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.508 **Long.:** -121.881 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Hydrology is naturally problematic during this field visit due to heavy rains in past 24 hours.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Rubus spectabilis	35	☑ 36.8%	FAC
2. Lonicera involucrata	20	☑ 21.1%	FAC
3. Spiraea douglasii	15	☐ 15.8%	FACW
4. Thuja plicata	20	☑ 21.1%	FAC
5. Alnus rubra	5	☐ 5.3%	FAC
	95	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Ranunculus repens	60	☑ 80.0%	FAC
2. Rubus ursinus	10	☐ 13.3%	FACU
3. Polystichum munitum	5	☐ 6.7%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	75	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 25

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	140	x 3 =	420
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	170 (A)		510 (B)

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Polystichum munitum present on hummocks.

Soil

Sampling Point: w9-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	2/1	100%						sandy loam	lots of organic matter present
4+										hard pan

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan

Depth (inches): 4

Hydric Soil Present? Yes ◉ No ○

Remarks: The soil was inundated so an accurate description of the soil profile was unobtainable. The "other" box is checked because the soil meets the definition of a hydric soil: saturated or ponded for long periods during the growing season.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Heavy rains in past 24 hours. Vegetation and landscape position indicate that wetland hydrology is present in this location despite the heavy precipitation event occurring at the time of the field visit.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 19-Nov-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w9-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** undulating **Slope:** 15.0 % / 8.5 °

Subregion (LRR): LRR A **Lat.:** 47.508 **Long.:** -121.881 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Hydrology is naturally problematic during this field visit due to heavy rains in past 24 hours.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	40	☑	50.0%	FAC
2. Pseudotsuga menziesii	25	☑	31.3%	FACU
3. Thuja plicata	15	☐	18.8%	FAC
4.	0	☐	0.0%	
	80		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x15 feet)				
1. Gaultheria shallon	80	☑	79.2%	FACU
2. Rubus spectabilis	15	☐	14.9%	FAC
3. Tsuga heterophylla	2	☐	2.0%	FACU
4. Vaccinium parvifolium	2	☐	2.0%	FACU
5. Acer circinatum	2	☐	2.0%	FAC
	101		= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)				
1. Polystichum munitum	15	☑	42.9%	FACU
2. Pteridium aquilinum	10	☑	28.6%	FACU
3. Rubus ursinus	10	☑	28.6%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	35		= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)				
1.		☐	0.0%	
2.		☐	0.0%	
	0		= Total Cover	

% Bare Ground in Herb Stratum: 65

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	16.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	72	x 3 =	216
FACU species	144	x 4 =	576
UPL species	0	x 5 =	0
Column Totals:	216 (A)		792 (B)

Prevalence Index = B/A = 3.667

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Soil

Sampling Point: w9-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/2						Sandy Loam	with gravels

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Direct observations of water are not representative of wetland hydrology. Heavy rains in past 24 hrs. Due to landscape position, upland vegetation, and upland soils this area is assumed to not have wetland hydrology present, despite the presence of water in the upland plot during heavy precipitation event.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 03-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w10-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope with depressions **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.508 **Long.:** -121.879 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit. Wetland hydrology is assumed to be present during periods with normal precipitation. Wetland formed on top of restricted soil layer of that perches water during the growing season.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 15 x 15 feet)			
1. Populus balsamifera	80	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Spiraea douglasii	30	☑ 71.4%	FACW
2. Thuja plicata	10	☑ 23.8%	FAC
3. Rubus armeniacus	1	☐ 2.4%	FACU
4. Malus fusca	1	☐ 2.4%	FACW
5.	0	☐ 0.0%	
	42	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Agrostis capillaris	40	☑ 100.0%	FAC
2. Juncus effusus	0	☐ 0.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	40	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 60

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	31	x 2 =	62
FAC species	130	x 3 =	390
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	162 (A)		456 (B)

Prevalence Index = B/A = 2.815

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w10-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/1	80	10YR	3/4	10	C	M	loamy sand	concentration is distinct
				10YR	4/4	10	C	M		concentration is distinct
6+										hard pan restrictive layer

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1). Wetland hydrology is presumed present during periods with normal precipitation in this location given the vegetation community dominated by hydrophytic plants and the presence of hydric soils. Precipitation likely driven by precipitation and run-on which perches on the restrictive layer. Wetland is in MLRA 2 so water-stained leaves are a secondary indicator.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 03-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w10-sp2 & w11-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.508 **Long.:** -121.879 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	40	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Pseudotsuga menziesii	15	☑ 46.9%	FACU
2. Thuja plicata	10	☑ 31.3%	FAC
3. Spiraea douglasii	5	☐ 15.6%	FACW
4. Acer circinatum	1	☐ 3.1%	FAC
5. Cytisus scoparius	1	☐ 3.1%	UPL
	32	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Agrostis capillaris	60	☑ 73.2%	FAC
2. Plantago lanceolata	20	☑ 24.4%	FACU
3. Polystichum munitum	2	☐ 2.4%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	82	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 18

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	60.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	111	x 3 =	333
FACU species	37	x 4 =	148
UPL species	1	x 5 =	5
Column Totals:	154 (A)		496 (B)

Prevalence Index = B/A = 3.221

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☐ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Upland areas surrounding W10 and W11 have an overstory of Populus balsamifera with mixed understory of wetland and upland plants including Pseudotsuga menziesii, Spiraea douglasii, Cytisus scoparius, Thuja plicata saplings, and Acer circinatum.

Soil

Sampling Point: w10-sp2 & w11-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/1	100						Sandy Loam	
2+										hardpan/compaction

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan/compacted soilspossibly from past land use activities

Depth (inches): 2

Hydric Soil Present? Yes ○ No ◉

Remarks: Area appears to have been disturbed by past land use activities. It may have been logged or cleared which may have compacted these coarse mineral soils creating a shallow restrictive layer.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1), however, upland soils in this location likely indicate that wetland hydrology is not likely present in this location in periods with normal precipitation.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 03-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w11-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope with depressions **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.508 **Long.:** -121.879 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 6% to 15% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ◉	No ○
Wetland Hydrology Present?	Yes ◉	No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)				
1. Populus balsamifera	35	☑	56.5%	FAC
2. Spiraea douglasii	25	☑	40.3%	FACW
3. Thuja plicata	2	☐	3.2%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	62	= Total Cover		
Herb Stratum (Plot size: 5 x 5 feet)				
1. Juncus effusus	40	☑	66.7%	FACW
2. Agrostis exarata	10	☐	16.7%	FACW
3. Juncus articulatus	5	☐	8.3%	OBL
4. Prunella vulgaris	5	☐	8.3%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	60	= Total Cover		
Woody Vine Stratum (Plot size: 5 x 5 feet)				
1.		☐	0.0%	
2.		☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	75	x 2 =	150
FAC species	37	x 3 =	111
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	122 (A)		286 (B)

Prevalence Index = B/A = 2.344

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w11-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	4/1	70	10YR	4/4	10	C	M	Sandy Loam	concentration is distinct
				10YR	4/3	20	C	M		
4										hardpan

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan/compacted soils

Depth (inches): 4

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1). Wetland hydrology is presumed present during periods with normal precipitation in this location given the vegetation community dominated by hydrophytic plants and the presence of hydric soils and surface soil cracks. Precipitation likely driven by precipitation and run-on which perches on the restrictive layer. Wetland is in MLRA 2 so water-stained leaves are a secondary indicator.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W12-SP1
Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): A Lat: 47.509 Long: -122.877 Datum: NAD 83 HARN
Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Hydric Soil Present?	Yes	☒	No	☐	
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 20' x 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	40	yes	FAC
2. *Alnus rubra*	20	yes	FAC
3. *Acer circinatum*	5	no	FAC
4.			
50% = 32.5, 20% = 13	65	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' x 15')			
1. *Rubus spectabilis*	30	yes	FAC
2. *Lonicera involucrata*	5	no	FAC
3.			
4.			
5.			
50% = 17.5, 20% = 7	35	= Total Cover	
Herb Stratum (Plot size: 10' x 10')			
1. *Lysichiton americanus*	10	yes	OBL
2. *Polystichum munitum*	5	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 7.5, 20% = 3	15	= Total Cover	
Woody Vine Stratum (Plot size: 10' x 10')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 85

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W12-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16+	10YR 4/2	65	2.5Y 5/3	30	D	M	sandy loam	
			10YR 5/6	5	C	M		concentration is promonent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	6

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W12-SP2
Investigator(s): Tatiana Dreisbach, Brian Bigler Section, Township, Range: S2, T23N, R7E
Landform (hillslope, terrace, etc.): slope on road prism Local relief (concave, convex, none): concave Slope (%): 30
Subregion (LRR): A Lat: 47.509 Long: -121.877 Datum: NAD 83 HARN
Soil Map Unit Name: Tokul gravely loam, 15 to 30 percent slopes NWI classification: upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10' x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	20	yes	FAC
2. *Picea sitchensis*	10	yes	FAC
3. *Acer circinatum*	10	yes	FAC
4. *Alnus rubra*	10	yes	FAC
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10' x 20')			
1. *Rubus spectabilis*	25	yes	FAC
2.			
3.			
4.			
5.			
50% = 12.5, 20% = 5	25	= Total Cover	
Herb Stratum (Plot size: 5' x 5')			
1. *Equisetum sp.*	20	yes	-
2. *Rubus ursinus*	20	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size: 10' x 10 ')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	85.7	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: - in the Indicator status column indicates that the species is unknown. For the dominance worksheet the Equisetum species is counted as FAC or wetter because the common Equisetum species in this area are FAC or wetter.

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W12-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	100					sandy loam	
12+							fill	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: road fill

Depth (inches): 12

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011
Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W13-SP1
Investigator(s): D.littauer, A. Gross Section, Township, Range: S2, T23N, R7E
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): A Lat: 47.51 Long: -121.881 Datum: NAD 83 Harn
Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	40	yes	FAC
2. *Frangula purshiana*	5	no	FAC
3. *Acer circinatum*	7	no	FAC
4. _____	_____	____	____
50% = 26, 20% = 10.4	52	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	20	yes	FAC
2. *Oplopanax horridus*	2	no	FAC
3. *Acer circinatum*	5	no	FAC
4. _____	_____	____	____
5. _____	_____	____	____
50% = 13.5, 20% = 5.4	27	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Polystichum munitum*	10	yes	FACU
2. *Blechnum spicant*	1	no	FAC
3. *Athyrium filix-femina*	5	yes	FAC
4. *Rubus ursinus*	5	yes	FACU
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 10.5, 20% = 4.2	21	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 79			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W13-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	95	7.5YR 5/6	5	C	M	silt loam	concentration is prominent

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 9

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp City/County: /King Sampling Date: 10/31/2011

Applicant/Owner: Washington State Department of Transportation State: WA Sampling Point: W13-SP2

Investigator(s): D.littauer, A. Gross Section, Township, Range: S2, T23N, R7E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): A Lat: 47.51 Long: -121.881 Datum: NAD 83 Harn

Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	20	yes	FACU
2. *Frangula purshiana*	7	no	FAC
3. *Acer macrophyllum*	15	no	FACU
4. *Alnus rubra*	40	yes	FAC
50% = 41, 20% = 16.4	82	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Vaccinium parvifolium*	10	yes	FACU
2. *Acer circinatum*	5	no	FAC
3. *Rubus spectabilis*	25	yes	FAC
4.			
5.			
50% = 20, 20% = 8	40	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Polystichum munitum*	50	yes	FACU
2. *Rubus ursinus*	3	no	FACU
3. *Athyrium filix-femina*	5	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 29, 20% = 11.6	58	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	

% Bare Ground in Herb Stratum 42

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: I-90/SR 18 Interchange - Westbound Flyover Ramp

SOIL

Sampling Point: W13-SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/3	100					Loam	
9-16	7.5YR 4/4	100						

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 18-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w14-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): depression **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.88 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Two ditches drain to the wetland. One ditch drains from W13, the other drains from the east. Both ditches parallel I-90. Both ditches meet in a closed depressional area at the lowest point of this wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Alnus rubra	40	☑ 50.0%	FAC
2. Populus balsamifera	40	☑ 50.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Rubus spectabilis	30	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	30	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Equisetum hyemale	30	☑ 81.1%	FACW
2. Phalaris arundinacea	5	☐ 13.5%	FACW
3. Carex sp.	2	☐ 5.4%	-
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	37	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 63

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	110	x 3 =	330
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	145 (A)		400 (B)

Prevalence Index = B/A = 2.759

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Carex species was not present and therefore the plant was not identifiable to species. Given that all of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Carex species is likely a wetland species. The Carex species is not a dominant so its indicator status does not affect the dominance test calculation.

Soil

Sampling Point: w14-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	2/1	97	10YR	4/2	3	D	M	Silt Loam	
7-16	10YR	3/2	85	2.5Y	4/2	10	D	M	Sandy Clay Loam	
				10YR	5/8	5	C	M/PL	Sandy Clay Loam	concentration is prominent
16+	2.5Y	5/2	90	7.5YR	5/8	10	C	M	Sandy Clay Loam	concentration is prominent

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Standing water to 6 inches in depression approximately 10 feet east of sample point. Wetland is in MLRA 2 so water-stained leaves are a secondary indicator.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 18-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w14-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Footslope **Local relief (concave, convex, none):** concave **Slope:** 30.0 % / 16.6 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.88 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	55	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	55	= Total Cover		

Sapling/Shrub Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	35	☑	35.0%	FAC
2. Acer circinatum	5	☐	5.0%	FAC
3. Rubus armeniacus	25	☑	25.0%	FACU
4. Rubus spectabilis	25	☑	25.0%	FAC
5. Lonicera involucrata	10	☐	10.0%	FAC
	100	= Total Cover		

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Polystichum munitum	45	☑	64.3%	FACU
2. Equisetum hyemale	25	☑	35.7%	FACW
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	70	= Total Cover		

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.		☐	0.0%	
2.		☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 30

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	130	x 3 =	390
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	225 (A)		720 (B)

Prevalence Index = B/A = 3.200

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☐ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w14-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y	4/2	100						Sandy Loam	
7+										cobbles

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobbles

Depth (inches): 7

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Soils dry to bottom of pit.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 01-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w14-sp3

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully/Hillslope **Local relief (concave, convex, none):** hummocky **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.881 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ◉	No ○
Wetland Hydrology Present?	Yes ◉	No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Drier than normal precipitation conditions were present prior to the October 1, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit, however, saturated soils were observed in the wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Alnus rubra	10	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x15 feet)			
1. Rubus spectabilis	50	☑ 58.8%	FAC
2. Acer circinatum	30	☑ 35.3%	FAC
3. Frangula purshiana	5	☐ 5.9%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	85	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Tolmiea menziesii	40	☑ 65.6%	FAC
2. Athyrium filix-femina	10	☐ 16.4%	FAC
3. Carex sp.	2	☐ 3.3%	-
4. Maianthemum dilatatum	2	☐ 3.3%	FAC
5. Cardamine oligosperma	2	☐ 3.3%	FAC
6. Rubus ursinus	5	☐ 8.2%	FACU
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	61	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 39

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	149	x 3 =	447
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	154	(A)	467 (B)

Prevalence Index = B/A = 3.032

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Carex species was not present and therefore the plant was not identifiable to species. Given that all but one of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Carex species is likely a wetland species. The Carex species is not a dominant so its indicator status does not affect the dominance test calculation.

Soil

Sampling Point: w14-sp3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	2/1	100						mucky modified mineral	
10-16	10YR	2/1	80	10YR	4/3	20	C	M	sandy loam	organic matter

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks: The project is within LRR A/MLRA 2 (so the execption for indicator F1 of LRR- A/MLRA 1 does not apply).

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the October 1, 2012 field work (Appendix A-1), however, saturated soils and surface soil cracks were still observed.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 01-Oct-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w14-sp4

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** hummocky **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.881 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Drier than normal precipitation conditions were present prior to the October 1, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Tsuga heterophylla	75	☑ 78.9%	FACU
2. Alnus rubra	20	☑ 21.1%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Rubus spectabilis	40	☑ 57.1%	FAC
2. Acer circinatum	30	☑ 42.9%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	70	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Rubus ursinus	70	☑ 66.7%	FACU
2. Polystichum munitum	30	☑ 28.6%	FACU
3. Dryopteris expansa	5	☐ 4.8%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	105	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	90	x 3 =	270
FACU species	175	x 4 =	700
UPL species	0	x 5 =	0
Column Totals:	270 (A)		980 (B)

Prevalence Index = B/A = 3.630

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Soil

Sampling Point: w14-sp4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	2/2	100						Silt Loam	3 inches of duff on top of soil surface

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w15-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): depression **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.878 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)				
1. Spiraea douglasii	80	☑	84.2%	FACW
2. Frangula purshiana	5	☐	5.3%	FAC
3. Salix scouleriana	10	☐	10.5%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	95	= Total Cover		
Herb Stratum (Plot size: 5 x 5 feet)				
1. Juncus effusus	20	☑	33.3%	FACW
2. Agrostis exarata	15	☑	25.0%	FACW
3. Carex sp.	10	☐	16.7%	-
4. Festuca rubra	15	☑	25.0%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	60	= Total Cover		
Woody Vine Stratum (Plot size: 5 x 5 feet)				
1.		☐	0.0%	
2.		☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 40

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	115	x 2 =	230
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	145 (A)		320 (B)

Prevalence Index = B/A = 2.207

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Carex species was not present and therefore the plant was not identifiable to species. Given that all of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Carex species is likely a wetland species. The Carex species is not a dominant so its indicator status does not affect the dominance test calculation.

Soil

Sampling Point: w15-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y	5/1	85	10YR	4/6	5	C	M/PL	Sandy gravelly Loam	concentration is prominent
				7.5YR	4/6	10	C	PL		concentration is prominent
6+										hard pan

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Though drier than normal conditions were present during the time of the field visit, and direct observation of water was not present, other wetland hydrology indicators were present indicating wetland hydrology is present. Wetland is in MLRA 2 so water-stained leaves are a secondary indicator.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w15-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.878 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit. This upland data point is characteristic of some other upland areas in the project which are dominated by Spiraea douglasii. These upland areas at a glance may look like possible wetlands, however they are usually on slopes and do not retain water for long enough periods to support wetland hydrology. They also have upland and FAC species in the understory such as Rubus ursinus and Holcus lanatus and lack hydric soils.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	15	☑ 75.0%	FAC
2. Pseudotsuga menziesii	5	☑ 25.0%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x15 feet)			
1. Spiraea douglasii	10	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	10	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Rubus ursinus	30	☑ 19.6%	FACU
2. Agrostis capillaris	20	☐ 13.1%	FAC
3. Agrostis exarata	25	☑ 16.3%	FACW
4. Festuca rubra	40	☑ 26.1%	FAC
5. Dactylis glomerata	5	☐ 3.3%	FACU
6. Holcus lanatus	5	☐ 3.3%	FAC
7. Plantago lanceolata	20	☐ 13.1%	FACU
8. Solidago canadensis	5	☐ 3.3%	FACU
9. Tanacetum vulgare	1	☐ 0.7%	FACU
10. Populus balsamifera	1	☐ 0.7%	FAC
11. Prunella vulgaris	1	☐ 0.7%	FACU
	153	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	81	x 3 =	243
FACU species	67	x 4 =	268
UPL species	0	x 5 =	0
Column Totals:	183 (A)		581 (B)

Prevalence Index = B/A = 3.175

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w15-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/2	100						Gravelly Sandy Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 18-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w16-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): depression **Local relief (concave, convex, none):** concave **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.877 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 x 10 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Rubus spectabilis	60	☑ 92.3%	FAC
2. Spiraea douglasii	5	☐ 7.7%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	65	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Juncus effusus	30	☑ 58.8%	FACW
2. Scirpus microcarpus	15	☑ 29.4%	OBL
3. Agrostis capillaris	2	☐ 3.9%	FAC
4. Equisetum telmateia	2	☐ 3.9%	FACW
5. Athyrium filix-femina	2	☐ 3.9%	FAC
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	51	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 49

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	37	x 2 =	74
FAC species	64	x 3 =	192
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	116 (A)		281 (B)

Prevalence Index = B/A = 2.422

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w16-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	2/2	100						Sandy Loam	
3-10	10YR	4/2	85	10YR	3/6	15	C	PL	Loamy Sand	concentration is prominent
10+										cobbles/hard pan at 10 inches

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan/cobbles

Depth (inches): 10 inches

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Wetland is an open depression with constricted outlet with drainage patterns draining to jurisdictional ditch. Wetland is in MLRA 2 so water-stained leaves are a secondary indicator.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 18-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w16-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.877 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Populus balsamifera	25	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	25	= Total Cover		

Sapling/Shrub Stratum (Plot size: 10 x 10 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Rubus spectabilis	15	☑	75.0%	FAC
2. Populus balsamifera	5	☑	25.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	20	= Total Cover		

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Agrostis gigantea	60	☑	46.2%	FAC
2. Verbascum thapsus	5	☐	3.8%	FACU
3. Rubus ursinus	65	☑	50.0%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	130	= Total Cover		

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.		☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	105	x 3 =	315
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	175 (A)		595 (B)

Prevalence Index = B/A = 3.400

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☐ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w16-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/3	100%						gravelly loam	
6+										shovel refusal/hardpan at 6 inches

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 6 inches

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: I-90/SR 18 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 04-Dec-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w16-sp3

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.51 **Long.:** -121.877 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15 to 30 percent slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 10 x 10 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10 x 10 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
5.		☐ 0.0%	
	0	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)			
1. Juncus effusus	90	☑ 77.6%	FACW
2. Equisetum arvense	1	☐ 0.9%	FAC
3. Rubus ursinus	10	☐ 8.6%	FACU
4. Agrostis capillaris	15	☐ 12.9%	FAC
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	116	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	16	x 3 =	48
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	116 (A)		268 (B)

Prevalence Index = B/A = 2.310

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w16-sp3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/2	100						Gravelly Sandy Loam	
6-9	10YR	2/2	85	10YR	5/6	15	C	M	gravelly loam	concentration is prominent
9+									cobbles	restrictive layer

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobbles

Depth (inches): 9

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
Water Table Present?	Yes ◉	No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

surface water runing off the slope and ponded to 1 inch in smakk depressions.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w17-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.875 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Wetland has a constricted outlet through a a culvert running south under I-90. Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 x10 feet)			
1. Spiraea douglasii	40	☑ 76.9%	FACW
2. Rubus spectabilis	10	☐ 19.2%	FAC
3. Athyrium filix-femina	2	☐ 3.8%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	52	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	0	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 100

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	12	x 3 =	36
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	52 (A)		116 (B)

Prevalence Index = B/A = 2.231

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w17-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8 1/2	10YR	2/1							Silt Loam	high organic content
8 1/2-12	10YR	3/2	80	7.5YR	2.5/3	15	C	PL		concentration is faint
				7.5YR	3/4	5%	C	M	gravelly sandy loam	concentration is distinct

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the September 24, 2012 field work, however, soil saturation and other hydrology indicators were still present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w17-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.875 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Picea sitchensis	15	☑ 60.0%	FAC
2. Alnus rubra	10	☑ 40.0%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	25	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 x15 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Rubus spectabilis	70	☑ 97.2%	FAC
2. Acer circinatum	2	☐ 2.8%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	72	= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Rubus ursinus	80	☑ 96.4%	FACU
2. Polystichum munitum	2	☐ 2.4%	FACU
3. Maianthemum dilatatum	1	☐ 1.2%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	83	= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 17

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	75.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	98	x 3 =	294
FACU species	82	x 4 =	328
UPL species	0	x 5 =	0
Column Totals:	180 (A)		622 (B)

Prevalence Index = B/A = 3.456

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w17-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	2/1	100						gravelly loam	
4-11	7.5YR	2.5/2	95						gravelly loam	
	5YR	4/6	5							

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w17-sp3

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** hummocky **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.875 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Thuja plicata	60	☑ 85.7%	FAC
2. Equisetum telmateia	10	☐ 14.3%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.		☐ 0.0%	
5.		☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
5.		☐ 0.0%	
6.		☐ 0.0%	
7.		☐ 0.0%	
8.		☐ 0.0%	
9.		☐ 0.0%	
10.		☐ 0.0%	
11.		☐ 0.0%	
	0	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 100

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		200 (B)

Prevalence Index = B/A = 2.857

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w17-sp3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR	2/1							mucky gravelly loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: tree roots

Depth (inches): 15

Hydric Soil Present? Yes ◉ No ○

Remarks: Organic content likely masks other redoximorphic features.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the September 24, 2012 field work, however, soil saturation and other hydrology indicators were still present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w17-sp4

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** hummocky **Slope:** 5.0 % / 2.9 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.875 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Pseudotsuga menziesii	50	☑	45.5%	FACU
2. Populus balsamifera	35	☑	31.8%	FAC
3. Acer circinatum	20	☐	18.2%	FAC
4. Ilex aquifolium	5	☐	4.5%	UPL
	110		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Acer circinatum	20	☑	23.5%	FAC
2. Oplopanax horridus	15	☐	17.6%	FAC
3. Rubus spectabilis	40	☑	47.1%	FAC
4. Mahonia aquifolium	10	☐	11.8%	FACU
5.	0	☐	0.0%	
	85		= Total Cover	

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Rubus ursinus	50	☑	60.2%	FACU
2. Polystichum munitum	30	☑	36.1%	FACU
3. Athyrium filix-femina	3	☐	3.6%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	83		= Total Cover	

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.		☐	0.0%	
2.		☐	0.0%	
	0		= Total Cover	

% Bare Ground in Herb Stratum: 17

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	133	x 3 =	399
FACU species	140	x 4 =	560
UPL species	5	x 5 =	25
Column Totals:	278 (A)		984 (B)

Prevalence Index = B/A = 3.540

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Soil

Sampling Point: w17-sp4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	2/2	100						gravelly sandy loam	
3-16	10YR	3/3	100						gravelly sandy loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w18-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 30.0 % / 16.6 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.873 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	**= Total Cover**		
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	**= Total Cover**		
Herb Stratum (Plot size: 5 x 5 feet)				
1. Equisetum telmateia	65	☑	54.2%	FACW
2. Holcus lanatus	35	☑	29.2%	FAC
3. Festuca rubra	20	☐	16.7%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	120	**= Total Cover**		
Woody Vine Stratum (Plot size: 5 x 5 feet)				
1.		☐	0.0%	
2.		☐	0.0%	
	0	**= Total Cover**		

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	65	**x 2 =**	130
FAC species	55	**x 3 =**	165
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	120	**(A)**	295 **(B)**

Prevalence Index = B/A = 2.458

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w18-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	3/2	70	2.5Y	5/2	25	D	M	Sandy Loam	
				7.5YR	4/6	5	C	M/PL		concentration is prominent

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☑ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

soil moist 0-12 in. oxidized rhizospheres throughout top layer.

Remarks:

Though drier than normal conditions were present during the time of the field visit, and direct observation of water was not present, other wetland hydrology indicators were present indicating wetland hydrology is present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w18-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.873 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Alnus rubra	30	☑ 50.0%	FAC
2. Acer macrophyllum	30	☑ 50.0%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1. Rubus armeniacus	15	☑ 50.0%	FACU
2. Rubus spectabilis	10	☑ 33.3%	FAC
3. Fallopia japonica	5	☐ 16.7%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	30	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Agrostis exarata	60	☑ 80.0%	FACW
2. Rubus ursinus	10	☐ 13.3%	FACU
3. Equisetum arvense	5	☐ 6.7%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	75	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 25

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	60.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	45	x 3 =	135
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	165 (A)		495 (B)

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w18-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	3/2	100						Sandy Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w19-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** concave **Slope:** 15.0 % / 8.5 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.873 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ◉	No ○
Wetland Hydrology Present?	Yes ◉	No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 x 10 feet)			
1. Rubus spectabilis	40	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	40	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Tolmiea menziesii	60	☑ 90.9%	FAC
2. Athyrium filix-femina	5	☐ 7.6%	FAC
3. Carex sp.	1	☐ 1.5%	-
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	66	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 34

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	105	x 3 =	315
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		315 (B)

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: - in the Indicator Status column indicates the species is unknown. The inflorescence on the Carex species was not present and therefore the plant was not identifiable to species. Given that all of the species in this location are wetland species and that the soils and hydrology meet wetland criteria, the Carex species is likely a wetland species. The Carex species is not a dominant so its indicator status does not affect the dominance test calculation.

Soil

Sampling Point: w19-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	2/1	85	2.5YR	4/6	15	C	PL	mucky modified mineral	concentration is prominent
10-23	10YR	4/1	85	2.5YR	4/6	10	C	M	mucky modified mineral	concentration is prominent
				2.5YR	6/4	5	D	M		

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Though drier than normal conditions were present during the time of the field visit, and direct observation of water was not present, other wetland hydrology indicators were present indicating wetland hydrology is present. Soils moist throughout soil profile to 23 inches at tne end of the dry season. Wetland is in a forested gulley and likely has a highwater table and may convey surface water durring and following precipitation events.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w19-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** concave **Slope:** 15.0 % / 8.5 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.873 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○
Hydric Soil Present?	Yes ○	No ◉
Wetland Hydrology Present?	Yes ○	No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Acer macrophyllum	50	☑	62.5%	FACU
2. Acer circinatum	20	☑	25.0%	FAC
3. Alnus rubra	5	☐	6.3%	FAC
4. Thuja plicata	5	☐	6.3%	FAC
	80	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15 x 15 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Rubus spectabilis	80	☑	97.6%	FAC
2. Polystichum munitum	2	☐	2.4%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	82	= Total Cover		

Herb Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	0	= Total Cover		

Woody Vine Stratum (Plot size: 5 x 5 feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

% Bare Ground in Herb Stratum: 100

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	110	x 3 =	330
FACU species	52	x 4 =	208
UPL species	0	x 5 =	0
Column Totals:	162 (A)		538 (B)

Prevalence Index = B/A = 3.321

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w19-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	3/2	100						Silt Loam with gravels	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the October 3, 2012 field work (Appendix A-1), however, upland soils in this location indicate that wetland hydrology is not likely present in this location in periods with normal precipitation.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w20-sp1

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** concave **Slope:** 20.0 % / 11.3 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.869 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉	No ○	
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit. This is a cutslope wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 15 x 15 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 x 15 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
3.		☐ 0.0%	
4.		☐ 0.0%	
5.		☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Typha latifolia	30	☑ 28.6%	OBL
2. Carex stipata	20	☑ 19.0%	OBL
3. Juncus effusus	15	☐ 14.3%	FACW
4. Holcus lanatus	20	☑ 19.0%	FAC
5. Festuca rubra	10	☐ 9.5%	FAC
6. Elymus repens	10	☐ 9.5%	FAC
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	105	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	15	x 2 =	30
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		200 (B)

Prevalence Index = B/A = 1.905

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☑ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

Soil

Sampling Point: w20-sp1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	2/1	92	7.5YR	4/4	8	C	M/PL	Silt Loam	high organic content concentration is prominent

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Drier than normal precipitation conditions were present prior to the September 24, 2012 field work. Although direct observation of water was not observed other hydrology indicators were still present.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SR 18/I-90 Interchange - Westbound Flyover Ramp **City/County:** King **Sampling Date:** 24-Sep-12

Applicant/Owner: WSDOT **State:** WA **Sampling Point:** w20-sp2

Investigator(s): Tatiana Dreisbach/Beth Toberer **Section, Township, Range:** S 2 T 23N R 7E

Landform (hillslope, terrace, etc.): slope **Local relief (concave, convex, none):** concave **Slope:** 15.0 % / 8.5 °

Subregion (LRR): LRR A **Lat.:** 47.511 **Long.:** -121.869 **Datum:** NAD83HARN

Soil Map Unit Name: Tokul gravelly loam, 15% to 30% slopes **NWI classification:** Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○	No ◉	
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks: Drier than normal precipitation conditions were present prior to the September 24, 2012 field work (Appendix A-1), indicating hydrology is naturally problematic during this field visit.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Alnus rubra	30	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 x 10 feet)			
1. Rubus armeniacus	40	☑ 88.9%	FACU
2. Frangula purshiana	5	☐ 11.1%	FAC
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	45	= Total Cover	
Herb Stratum (Plot size: 5 x 5 feet)			
1. Holcus lanatus	60	☑ 66.7%	FAC
2. Rubus ursinus	30	☑ 33.3%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	= Total Cover	
Woody Vine Stratum (Plot size: 5 x 5 feet)			
1.		☐ 0.0%	
2.		☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	165 (A)		565 (B)

Prevalence Index = B/A = 3.424

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Soil

Sampling Point: w20-sp2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	3/3	87	7.5YR	5/8	5	C	M	Sandy Loam	
				2.5YR	6/3	8	D	M		

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

Appendix D. Wetland Rating Forms

Wetland name or number: 1

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 1 Date of site visit: 10/22/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 0.79 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☑ **II** ☐ **III** ☐ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	30
Score for Hydrologic Functions	24
Score for Habitat Functions	26
TOTAL score for functions	**80**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☑ **II** ☐ **Does not Apply** ☐

Final Category **(choose the "highest" category from above)** **I**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☑
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☐

Wetland Class	
Depressional	☑
Riverine	☐
Lake-fringe	☐
Slope	☐
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☑ NO - go to 5 ☐ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☑ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☑ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1** Provide photo or drawing	2 **Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☑ YES **Points = 4** ☐ NO **Points = 0**	4
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☑ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☐ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0** Map of Cowardin vegetation classes	5 **Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☑ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☐ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0** Map of hydroperiods	4 **Figure __**
	Total for D 1 *Add the points in the boxes above*	15
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☐ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☑ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☐ Other: _____ YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	30

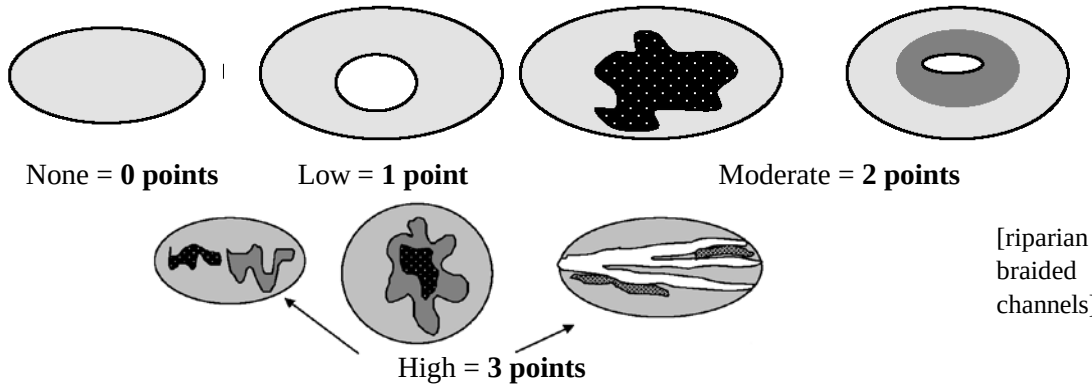
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.		
D 3.	**Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)***	**Points**
D 3.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☑ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	2
D 3.2	Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☑ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☐ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☐ Marks of ponding are less than 0.5 feet. **Points = 0**	5
D 3.3	Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☑ The area of the basin is <10 times the area of the unit. **Points = 5** ☐ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☐ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	5
Total for D 3	*Add the points in the boxes above*	12
D 4.	**Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)*** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☑ Wetland is in a headwater of a river or stream that has flooding problems. ☐ Wetland drains to a river or stream that has flooding problems. ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☐ Other:	Multiplier 2
YES - multiplier is **2**	NO - multiplier is **1**	
TOTAL - Hydrologic Functions	Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	24

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☑ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☑ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	1 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	2

Total for page 4

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	2
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☑ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☑ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	3
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	9
Comments:		

H 2.	**Does the wetland unit have the opportunity to provide habitat for many species?**	**Points**
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1**	4
	Aerial photo showing buffers	**Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	4
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 8

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	4
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	5
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		17
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			26

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☑ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☑ YES = **Category I** ☐ NO - not a forested wetland w/ special characteristics	I
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer YES, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		I

Wetland name or number: 2

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 2 Date of site visit: 10/22/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 0.02 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☑ **III** ☐ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	22
Score for Hydrologic Functions	10
Score for Habitat Functions	24
TOTAL score for functions	**56**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **II**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☑
Riverine	☐
Lake-fringe	☐
Slope	☐
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☑ NO - go to 5 ☐ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☑ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☑ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1**	2
	Provide photo or drawing	**Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☐ YES **Points = 4** ☑ NO **Points = 0**	0
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☑ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☐ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0**	5
	Map of Cowardin vegetation classes	**Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☑ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☐ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0**	4
	Map of hydroperiods	**Figure __**
	Total for D 1 *Add the points in the boxes above*	11
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☑ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☐ Other: _____ YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	22

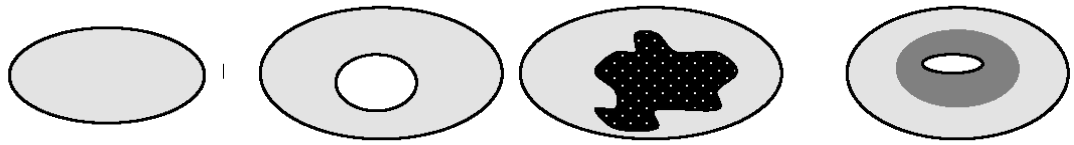
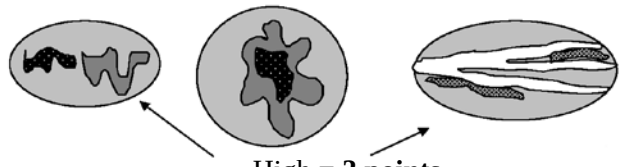
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.		
D 3.	**Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)***	**Points**
D 3.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☑ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	2
D 3.2	Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☐ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☑ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☐ Marks of ponding are less than 0.5 feet. **Points = 0**	3
D 3.3	Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☐ The area of the basin is <10 times the area of the unit. **Points = 5** ☐ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☑ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	0
Total for D 3	*Add the points in the boxes above*	5
D 4.	**Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)*** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☐ Wetland is in a headwater of a river or stream that has flooding problems. ☐ Wetland drains to a river or stream that has flooding problems. ☑ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☐ Other:	Multiplier 2
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions	Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	10

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☑ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	0 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 2

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points**  [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	2
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☑ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☑ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	3
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	7
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	4 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	4
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 8

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	4
	☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points** Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	5
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		17
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			24

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**Forested Wetlands** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**Wetlands in Coastal Lagoons** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetland</u>s** ***(see p. 93)***	
	Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?	
	☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating	
	If you answer YES, you will still need to rate the wetland based on its functions.	
	In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?	
	☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	
	☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 3

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 3 Date of site visit: 10/22/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 0.39 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☑ **II** ☐ **III** ☐ **IV** ☐

Category I = Score >=70	
Category II = Score 51-69	
Category III = Score 30-50	
Category IV = Score <30	

Score for Water Quality Functions	32
Score for Hydrologic Functions	20
Score for Habitat Functions	24
TOTAL score for functions	**76**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **I**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☑
Riverine	☐
Lake-fringe	☐
Slope	☐
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☑ NO - go to 5 ☐ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☑ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☑ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☐ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1**	3
	Provide photo or drawing	**Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☑ YES **Points = 4** ☐ NO **Points = 0**	4
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☑ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☐ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0**	5
	Map of Cowardin vegetation classes	**Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☑ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☐ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0**	4
	Map of hydroperiods	**Figure __**
	Total for D 1 *Add the points in the boxes above*	16
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☑ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☐ Other: _____ YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	32

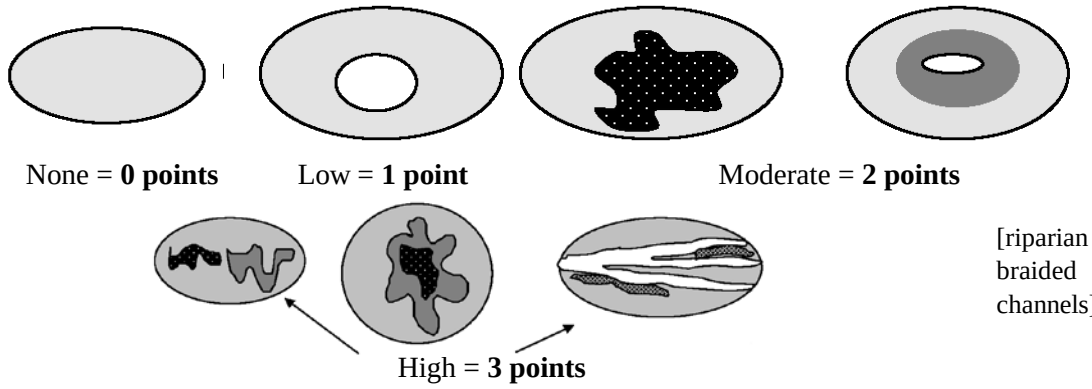
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.		
D 3.	**Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)***	**Points**
D 3.1	Characteristics of surface water flows out of the wetland: ☑ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☐ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	4
D 3.2	Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☐ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☑ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☐ Marks of ponding are less than 0.5 feet. **Points = 0**	3
D 3.3	Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☐ The area of the basin is <10 times the area of the unit. **Points = 5** ☑ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☐ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	3
Total for D 3	*Add the points in the boxes above*	10
D 4.	**Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)*** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☑ Wetland is in a headwater of a river or stream that has flooding problems. ☐ Wetland drains to a river or stream that has flooding problems. ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☐ Other:	Multiplier 2
YES - multiplier is **2**	NO - multiplier is **1**	
TOTAL - Hydrologic Functions	Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	20

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☑ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☑ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	1 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 3

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	2
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☑ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☑ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	3
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	8
Comments:		

H 2.	**Does the wetland unit have the opportunity to provide habitat for many species?**	**Points**
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	3 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	4
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 7

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	4
	☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	5
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		16
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			24

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer YES, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 4

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 4 Date of site visit: 10/22/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 6.45 acres

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☑ **III** ☐ **IV** ☐

Category I = Score >=70	
Category II = Score 51-69	
Category III = Score 30-50	
Category IV = Score <30	

Score for Water Quality Functions	18
Score for Hydrologic Functions	20
Score for Habitat Functions	30
TOTAL score for functions	**68**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☑ **II** ☐ **Does not Apply** ☐

Final Category **(choose the "highest" category from above)** **I**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☑
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☐

Wetland Class	
Depressional	☑
Riverine	☑
Lake-fringe	☐
Slope	☐
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☑

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☑ NO - go to 5 ☐ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☐ NO - go to 6 ☑ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☑
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☑ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1**	2
	Provide photo or drawing	**Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☐ YES **Points = 4** ☑ NO **Points = 0**	0
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☑ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☐ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0**	5
	Map of Cowardin vegetation classes	**Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☐ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☑ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0**	2
	Map of hydroperiods	**Figure __**
	Total for D 1 *Add the points in the boxes above*	9
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☑ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☐ Other: _____ YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	18

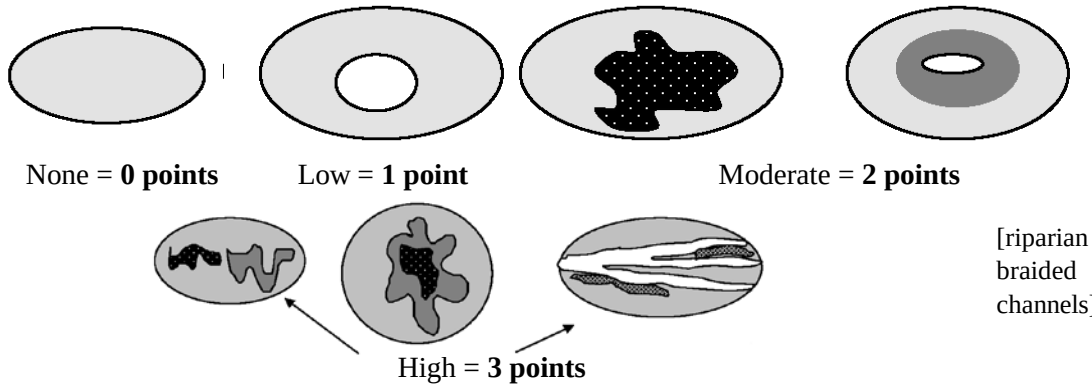
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.		
D 3.	**Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)***	**Points**
D 3.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☑ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	2
D 3.2	Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☐ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☑ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☐ Marks of ponding are less than 0.5 feet. **Points = 0**	3
D 3.3	Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☑ The area of the basin is <10 times the area of the unit. **Points = 5** ☐ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☐ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	5
Total for D 3	*Add the points in the boxes above*	10
D 4.	**Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)*** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☐ Wetland is in a headwater of a river or stream that has flooding problems. ☑ Wetland drains to a river or stream that has flooding problems. ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☐ Other:	Multiplier 2
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions	Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	20

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☑ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☑ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	1 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☑ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☑ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	3 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	2

Total for page 6

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	3
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☑ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☑ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☑ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	4
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	13
Comments:		

H 2.	**Does the wetland unit have the opportunity to provide habitat for many species?**	**Points**
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	4 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	4
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 8

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	4
	☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	5
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		17
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			30

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☑ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☑ YES = **Category I** ☐ NO - not a forested wetland w/ special characteristics	I
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetland</u>s** ***(see p. 93)***	
	Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?	
	☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating	
	If you answer YES, you will still need to rate the wetland based on its functions.	
	In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?	
	☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	
	☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 5

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 5 Date of site visit: 10/22/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: **Figure** Plansheet **Estimated size:** 0.10 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	14
Score for Hydrologic Functions	10
Score for Habitat Functions	15
TOTAL score for functions	**39**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☐
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if multiple HGM classes are present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E)* ***plant or animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☑ The wetland is on a slope (*slope can be very gradual*).

☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☑ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit meet all of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☑ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☑ NO - go to 7 ☐ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide.) Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands		
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.		
S 1.	**Does the wetland unit have the <u>potential</u> to improve water quality? *(see p. 64)***	**Points**
S 1.1	Characteristics of average slope of the unit: ☐ Slope is 1% or less (*a 1% slope has a 1-foot vertical drop for every 100 ft. horizontal distance*) **Points = 3** ☐ Slope is 1% - 2% **Points = 2** ☑ Slope is 2% - 5% **Points = 1** ☐ Slope is greater than 5% **Points = 0**	1
S 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES = 3 points NO = 0 points	0
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: *choose the points appropriate for the description that best fits vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation >90% of wetland area **Points = 6** Dense, uncut, herbaceous vegetation >1/2 of wetland area **Points = 3** Dense, woody vegetation >1/2 of wetland area **Points = 2** Dense, uncut, herbaceous vegetation >1/4 of wetland area **Points = 1** Does not meet any of the criteria above for vegetation **Points = 0**	6
	Aerial photo or map with vegetation polygons	**Figure __**
	Total for S 1 *Add the points in the boxes above*	7
S 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality? *(see p. 67)*** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources but any single source would qualify as an opportunity.* ☐ Grazing in the wetland or within 150 feet of the wetland ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields, logging, or orchards within 150 feet of the wetland ☐ Residential, urban areas, or golf courses are within 150 feet upslope of wetland ☑ Other: WSDOT maintenance yard, which is mowed and stockpiled with debris.	Multiplier 2
YES - multiplier is **2**	NO - multiplier is **1**	
TOTAL - Water Quality Functions	Multiply the score from S 1. by S 2. ***Add score to table on p. 1***	14

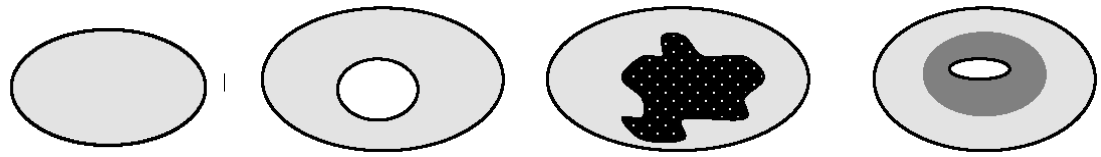
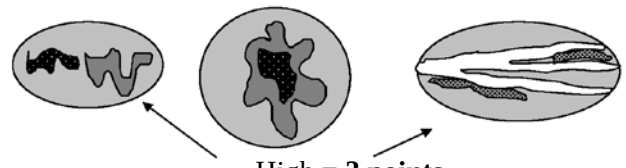
S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.	
S 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 68)*	**Points**
S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have truoble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* ☐ Dense, uncut, **rigid** vegetation covers >90% of wetland area **Points = 6** ☑ Dense, uncut, **rigid** vegetation covers >1/2 of wetland area **Points = 3** ☐ Dense, uncut, **rigid** vegetation covers >1/4 of wetland area **Points = 1** ☐ More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid **Points = 0**	3
S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: *the slope wetland has small surface depressions that can retain water over at least 10% of its area* YES = **2 points** NO = **0 points**	2
Record the points from the boxes above	5
S 4. Does wetland unit have the opportunity to reduce flooding and erosion? *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☑ Wetland has surface runoff that drains to a river or stream that has flooding problems ☐ Other: _____	Multiplier 2
YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions Multiply the score from S 3. by S 4. ***Add score to table on p. 1***	10

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the areaif unit is smaller than 2.5 acres.* ☐ Aquatic bed ☑ Emergent plants ☑ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0**	1
	Map of Cowardin vegetation classes	**Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points***	1
	Map of hydroperiods	**Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 3

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points**  [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	2
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☑ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	1
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	6
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☑ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	1 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	1
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☑ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 2

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**:(Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	4
	☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** / **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H2.4	Wetland Landscape *(see p. 84)*		
	Choose the **one** description of the landscape around the wetland that best fits.		
	☐ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	3
	☑ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		9
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			15

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO - not an estuarine wetland	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☑ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES = **Category I** ☑ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO - not a wetland in a coastal lagoon	

SC 6.0 **<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer Yes, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109. SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2* SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	**Category**
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.	N/A

Wetland name or number: 6

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 6 Date of site visit: 10/22/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: **Figure** Plansheet **Estimated size:** 0.05 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	16
Score for Hydrologic Functions	16
Score for Habitat Functions	12
TOTAL score for functions	**44**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☐
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if multiple HGM classes are present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E)* ***plant or animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☑	☐
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☑ The wetland is on a slope (*slope can be very gradual*).

☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☑ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit meet all of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☐ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide.) Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands		
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.		
S 1.	**Does the wetland unit have the <u>potential</u> to improve water quality? *(see p. 64)***	**Points**
S 1.1	Characteristics of average slope of the unit: ☐ Slope is 1% or less (*a 1% slope has a 1-foot vertical drop for every 100 ft. horizontal distance*) **Points = 3** ☑ Slope is 1% - 2% **Points = 2** ☐ Slope is 2% - 5% **Points = 1** ☐ Slope is greater than 5% **Points = 0**	2
S 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES = 3 points NO = 0 points	0
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: *choose the points appropriate for the description that best fits vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation >90% of wetland area **Points = 6** Dense, uncut, herbaceous vegetation >1/2 of wetland area **Points = 3** Dense, woody vegetation >1/2 of wetland area **Points = 2** Dense, uncut, herbaceous vegetation >1/4 of wetland area **Points = 1** Does not meet any of the criteria above for vegetation **Points = 0**	6
	Aerial photo or map with vegetation polygons	**Figure __**
	Total for S 1 *Add the points in the boxes above*	8
S 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality? *(see p. 67)***	
	☐ Grazing in the wetland or within 150 feet of the wetland ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields, logging, or orchards within 150 feet of the wetland ☐ Residential, urban areas, or golf courses are within 150 feet upslope of wetland ☑ Other: receives overland flow of surface water	Multiplier 2
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Water Quality Functions	Multiply the score from S 1. by S 2. ***Add score to table on p. 1***	16

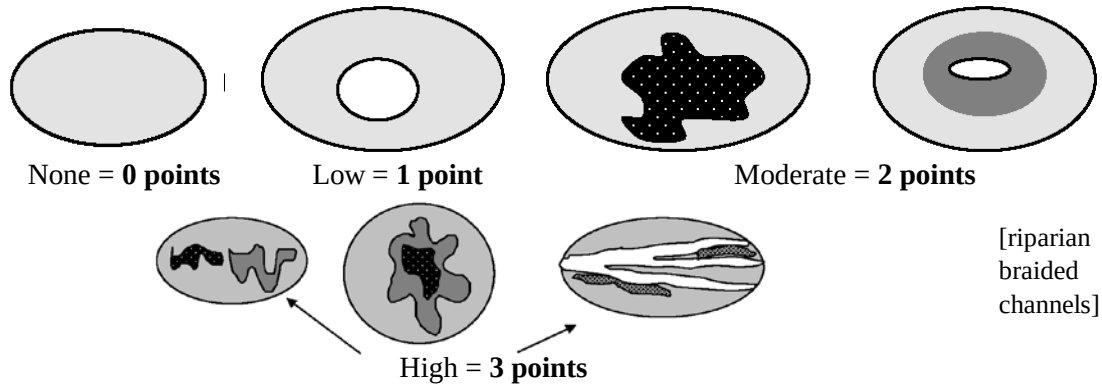
S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.	
S 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 68)*	**Points**
S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have truoble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* ☑ Dense, uncut, **rigid** vegetation covers >90% of wetland area **Points = 6** ☐ Dense, uncut, **rigid** vegetation covers >1/2 of wetland area **Points = 3** ☐ Dense, uncut, **rigid** vegetation covers >1/4 of wetland area **Points = 1** ☐ More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid **Points = 0**	6
S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: *the slope wetland has small surface depressions that can retain water over at least 10% of its area* YES = **2 points** NO = **0 points**	2
Record the points from the boxes above	8
S 4. Does wetland unit have the opportunity to reduce flooding and erosion? *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☑ Wetland has surface runoff that drains to a river or stream that has flooding problems ☐ Other: _____	Multiplier 2
YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions Multiply the score from S 3. by S 4. ***Add score to table on p. 1***	16

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the areaif unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☑ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin vegetation classes	0 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	0

Total for page 1

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	0
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	0
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	1
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☑ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	2 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	1
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☑ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 3

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**:(Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** / **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H2.4	Wetland Landscape *(see p. 84)*		
	Choose the **one** description of the landscape around the wetland that best fits.		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	5
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		11
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			12

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☑ NO - not an estuarine wetland	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES = **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO - not a wetland in a coastal lagoon	

SC 6.0 **<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer Yes, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109. SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2* SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	**Category**
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.	N/A

Wetland name or number: 7

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 7 Date of site visit: 10/22/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 0.01 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	14
Score for Hydrologic Functions	4
Score for Habitat Functions	12
TOTAL score for functions	**30**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☑
Riverine	☐
Lake-fringe	☐
Slope	☐
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☑	☐
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☑ NO - go to 5 ☐ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☑ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☑ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1**	2
	Provide photo or drawing	**Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☐ YES **Points = 4** ☑ NO **Points = 0**	0
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☐ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☑ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0**	3
	Map of Cowardin vegetation classes	**Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☐ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☑ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0**	2
	Map of hydroperiods	**Figure __**
	Total for D 1 *Add the points in the boxes above*	7
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☐ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☑ Other: Area disturbed during past land use including: veg. clearing/soil compaction YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	14

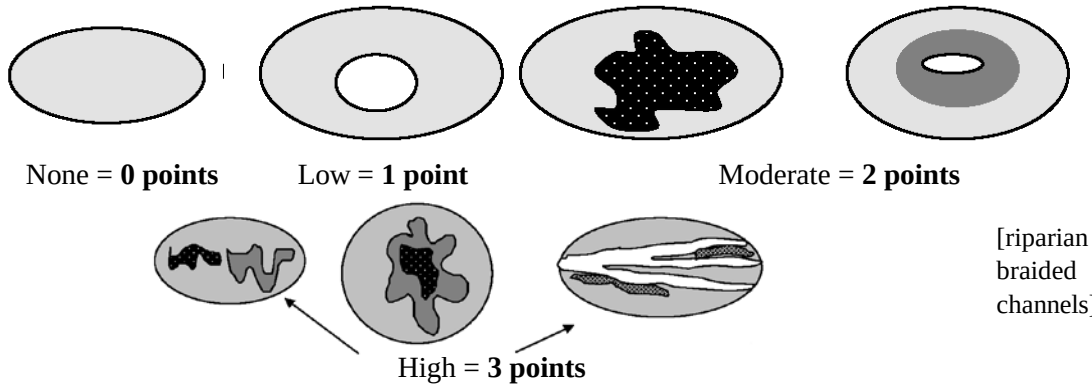
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.	
D 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)*	**Points**
D 3.1 Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☑ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	2
D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☐ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☐ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☑ Marks of ponding are less than 0.5 feet. **Points = 0**	0
D 3.3 Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☐ The area of the basin is <10 times the area of the unit. **Points = 5** ☐ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☑ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	0
Total for D 3 *Add the points in the boxes above*	2
D 4. Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)* Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☑ Wetland is in a headwater of a river or stream that has flooding problems. ☐ Wetland drains to a river or stream that has flooding problems. ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☐ Other:	Multiplier 2
YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	4

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☑ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	0 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	0

Total for page 1

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	0
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	0
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	1
Comments:		

H 2.	**Does the wetland unit have the opportunity to provide habitat for many species?**	**Points**
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☑ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1**	2
	Aerial photo showing buffers	**Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	1
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☑ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 3

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points** Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☐ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	5
	☑ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		11
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			12

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**Forested Wetlands** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**Wetlands in Coastal Lagoons** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer YES, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 8

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 8 Date of site visit: 10/22/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 0.07 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	18
Score for Hydrologic Functions	16
Score for Habitat Functions	16
TOTAL score for functions	**50**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☑
Riverine	☐
Lake-fringe	☐
Slope	☐
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☑	☐
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☑ NO - go to 5 ☐ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☑ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☑ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1**	2
	Provide photo or drawing	**Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☐ YES **Points = 4** ☑ NO **Points = 0**	0
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☐ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☑ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0**	3
	Map of Cowardin vegetation classes	**Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☑ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☐ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0**	4
	Map of hydroperiods	**Figure __**
	Total for D 1 *Add the points in the boxes above*	9
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☑ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☐ Other: _____ YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	18

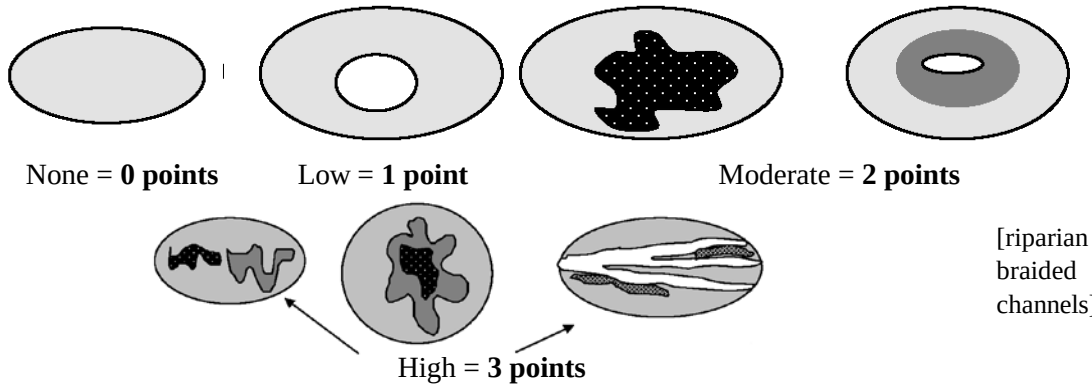
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.		
D 3.	**Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)***	**Points**
D 3.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☑ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	2
D 3.2	Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☐ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☑ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☐ Marks of ponding are less than 0.5 feet. **Points = 0**	3
D 3.3	Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☐ The area of the basin is <10 times the area of the unit. **Points = 5** ☑ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☐ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	3
Total for D 3	*Add the points in the boxes above*	8
D 4.	**Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)*** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☐ Wetland is in a headwater of a river or stream that has flooding problems. ☑ Wetland drains to a river or stream that has flooding problems. ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☐ Other:	Multiplier 2
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions	Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	16

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☑ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☑ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	1 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 3

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	1
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☑ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	1
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	5
Comments:		

H 2.	**Does the wetland unit have the opportunity to provide habitat for many species?**	**Points**
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☑ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1**	2
	Aerial photo showing buffers	**Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	1
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☑ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 3

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	5
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	
	☑ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		11
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			16

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☐ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon	
SC 5.1	Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer YES, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 9

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 9 Date of site visit: 10/#/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: **Figure** Plansheet **Estimated size:** 0.03 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	14
Score for Hydrologic Functions	16
Score for Habitat Functions	13
TOTAL score for functions	**43**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☐

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☐

Wetland Class	
Depressional	☐
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if multiple HGM classes are present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E)* ***plant or animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☑	☐
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☑ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☑ The wetland is on a slope (*slope can be very gradual*).

☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☑ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit meet all of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☐ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide.) Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.		
S 1.	**Does the wetland unit have the <u>potential</u> to improve water quality? *(see p. 64)***	**Points**
S 1.1	Characteristics of average slope of the unit: ☐ Slope is 1% or less (*a 1% slope has a 1-foot vertical drop for every 100 ft. horizontal distance*) **Points = 3** ☐ Slope is 1% - 2% **Points = 2** ☑ Slope is 2% - 5% **Points = 1** ☐ Slope is greater than 5% **Points = 0**	1
S 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES = 3 points NO = 0 points	0
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: *choose the points appropriate for the description that best fits vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation >90% of wetland area **Points = 6** Dense, uncut, herbaceous vegetation >1/2 of wetland area **Points = 3** Dense, woody vegetation >1/2 of wetland area **Points = 2** Dense, uncut, herbaceous vegetation >1/4 of wetland area **Points = 1** Does not meet any of the criteria above for vegetation **Points = 0**	6
	Aerial photo or map with vegetation polygons	**Figure __**
	Total for S 1 *Add the points in the boxes above*	7
S 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality? *(see p. 67)*** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources but any single source would qualify as an opportunity.* ☐ Grazing in the wetland or within 150 feet of the wetland ☑ Untreated stormwater discharges to the wetland ☐ Tilled fields, logging, or orchards within 150 feet of the wetland ☐ Residential, urban areas, or golf courses are within 150 feet upslope of wetland ☐ Other:	Multiplier 2
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Water Quality Functions	Multiply the score from S 1. by S 2. ***Add score to table on p. 1***	14

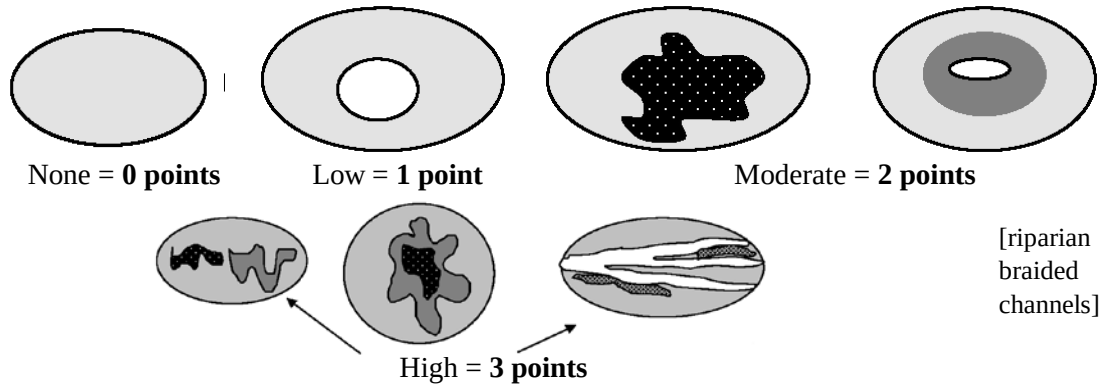
S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.	
S 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 68)*	**Points**
S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have truoble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* ☑ Dense, uncut, **rigid** vegetation covers >90% of wetland area **Points = 6** ☐ Dense, uncut, **rigid** vegetation covers >1/2 of wetland area **Points = 3** ☐ Dense, uncut, **rigid** vegetation covers >1/4 of wetland area **Points = 1** ☐ More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid **Points = 0**	6
S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: *the slope wetland has small surface depressions that can retain water over at least 10% of its area* YES = **2 points** NO = **0 points**	2
Record the points from the boxes above	8
S 4. Does wetland unit have the opportunity to reduce flooding and erosion? *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☑ Wetland has surface runoff that drains to a river or stream that has flooding problems ☐ Other: _____	Multiplier 2
YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions Multiply the score from S 3. by S 4. ***Add score to table on p. 1***	16

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the areaif unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☑ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin vegetation classes	0 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 2

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	0
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☑ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	2
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	4
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☑ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	1 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	2
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 3

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☐ **Old-growth/Mature forests**:(Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** / **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H2.4	Wetland Landscape *(see p. 84)*		
	Choose the **one** description of the landscape around the wetland that best fits.		
	☐ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	3
	☑ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		9
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			13

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☑ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☑ NO - not an estuarine wetland	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☐ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES = **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO - not a wetland in a coastal lagoon	

		Category
SC 6.0	**<u>Interdunal Wetlands</u>** ***(see p. 93)***	
	Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?	
	☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating	
	If you answer Yes, you will still need to rate the wetland based on its functions.	
	In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?	
	☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	
	☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 10

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 10 Date of site visit: 11/18/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 0.90 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	18
Score for Hydrologic Functions	10
Score for Habitat Functions	15
TOTAL score for functions	**43**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☑
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☑

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☑	☐
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☑ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☑
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☑ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1**	2
	Provide photo or drawing	**Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☐ YES **Points = 4** ☑ NO **Points = 0**	0
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☑ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☐ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0**	5
	Map of Cowardin vegetation classes	**Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☐ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☑ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0**	2
	Map of hydroperiods	**Figure __**
	Total for D 1 *Add the points in the boxes above*	9
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☑ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☐ Other: _____ YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	18

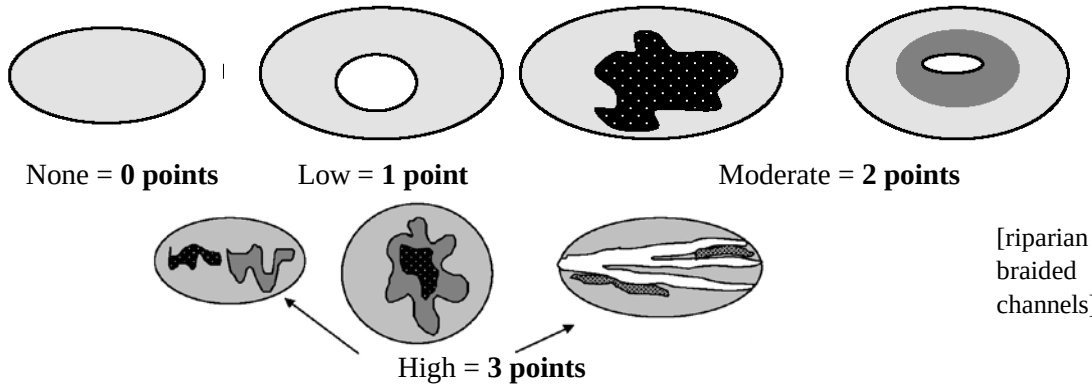
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.		
D 3.	**Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)***	**Points**
D 3.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☑ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	2
D 3.2	Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☐ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☐ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☑ Marks of ponding are less than 0.5 feet. **Points = 0**	0
D 3.3	Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☐ The area of the basin is <10 times the area of the unit. **Points = 5** ☑ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☐ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	3
Total for D 3	*Add the points in the boxes above*	5
D 4.	**Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)*** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☑ Wetland is in a headwater of a river or stream that has flooding problems. ☐ Wetland drains to a river or stream that has flooding problems. ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☐ Other:	Multiplier 2
YES - multiplier is **2**	NO - multiplier is **1**	
TOTAL - Hydrologic Functions	Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	10

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☑ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	0 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 2

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	0
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☑ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	1
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	3
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☑ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	3 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	1
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☑ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 4

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☐ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points** Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	5
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		12
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			15

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☐ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**Forested Wetlands** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**Wetlands in Coastal Lagoons** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer YES, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☑ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 11

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 11 Date of site visit: 10/18/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 0.35 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	18
Score for Hydrologic Functions	10
Score for Habitat Functions	15
TOTAL score for functions	**43**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☑
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☑

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☑	☐
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☑ NO - go to 5 ☐ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☑ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☑
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☑ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1**	2
	Provide photo or drawing	**Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☐ YES **Points = 4** ☑ NO **Points = 0**	0
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☐ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☑ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0**	3
	Map of Cowardin vegetation classes	**Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☑ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☐ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0**	4
	Map of hydroperiods	**Figure __**
	Total for D 1 *Add the points in the boxes above*	9
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☑ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☐ Other: _____ YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	18

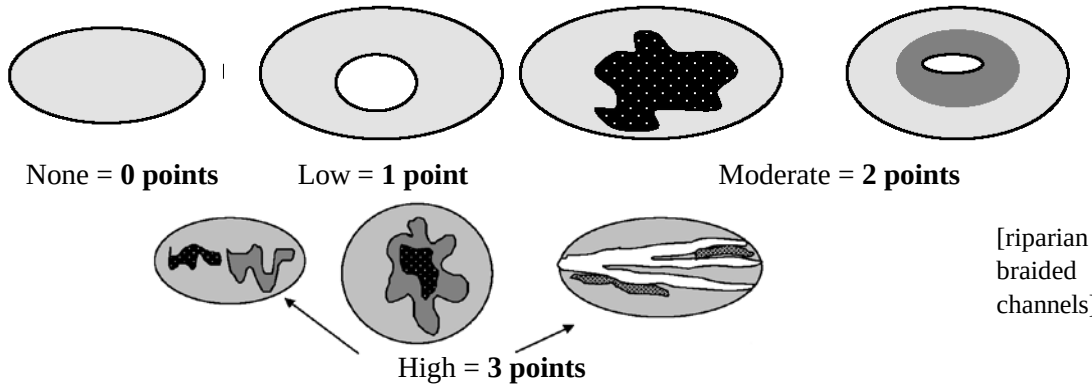
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.		
D 3.	**Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)***	**Points**
D 3.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☑ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	2
D 3.2	Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☐ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☐ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☑ Marks of ponding are less than 0.5 feet. **Points = 0**	0
D 3.3	Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☐ The area of the basin is <10 times the area of the unit. **Points = 5** ☑ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☐ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	3
Total for D 3	*Add the points in the boxes above*	5
D 4.	**Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)*** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☐ Wetland is in a headwater of a river or stream that has flooding problems. ☐ Wetland drains to a river or stream that has flooding problems. ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☑ Other: Wetland detains floodwaters prior to downstream road and wetlands. YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Hydrologic Functions	Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	10

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☑ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	0 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 2

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	0
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☑ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	1
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	3
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☑ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	3 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	1
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☑ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 4

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☐ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points** Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	5
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		12
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			15

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**Forested Wetlands** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**Wetlands in Coastal Lagoons** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer YES, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 12

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 12 Date of site visit: 11/18/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 0.11 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	22
Score for Hydrologic Functions	20
Score for Habitat Functions	19
TOTAL score for functions	**61**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **II**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☑
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☑

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☑	☐
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☑ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☑
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☑ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1** Provide photo or drawing	2 **Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☐ YES **Points = 4** ☑ NO **Points = 0**	0
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☑ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☐ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0** Map of Cowardin vegetation classes	5 **Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☑ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☐ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0** Map of hydroperiods	4 **Figure __**
	Total for D 1 *Add the points in the boxes above*	11
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☑ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☐ Other: _____ YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	22

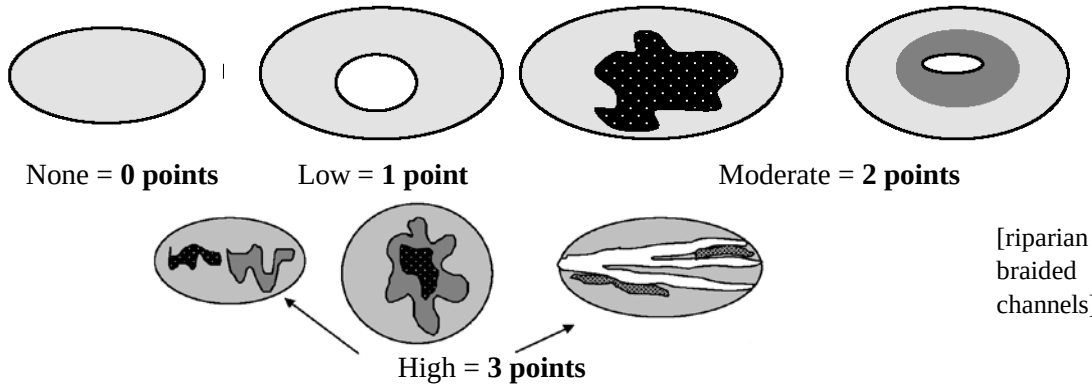
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.		
D 3.	**Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)***	**Points**
D 3.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☑ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	2
D 3.2	Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☐ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☑ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☐ Marks of ponding are less than 0.5 feet. **Points = 0**	3
D 3.3	Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☑ The area of the basin is <10 times the area of the unit. **Points = 5** ☐ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☐ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	5
Total for D 3	*Add the points in the boxes above*	10
D 4.	**Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)*** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☐ Wetland is in a headwater of a river or stream that has flooding problems. ☐ Wetland drains to a river or stream that has flooding problems. ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☑ Other: Wetland detains floodwaters prior to downstream road and wetlands. YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Hydrologic Functions	Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	20

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☑ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☑ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	1 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 3

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	2
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☑ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	1
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	6
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☑ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	4 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	1
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☑ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 5

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	5
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		13
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			19

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**Forested Wetlands** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**Wetlands in Coastal Lagoons** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer YES, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 13

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 13 Date of site visit: 9/18/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 0.16 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☑ **III** ☐ **IV** ☐

Category I = Score >=70	
Category II = Score 51-69	
Category III = Score 30-50	
Category IV = Score <30	

Score for Water Quality Functions	11
Score for Hydrologic Functions	16
Score for Habitat Functions	24
TOTAL score for functions	**51**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **II**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☑
Riverine	☐
Lake-fringe	☐
Slope	☐
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☑ NO - go to 5 ☐ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☑ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☑ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1** Provide photo or drawing	2 **Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☐ YES **Points = 4** ☐ NO **Points = 0**	0
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☑ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☐ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0** Map of Cowardin vegetation classes	5 **Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☑ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☐ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0** Map of hydroperiods	4 **Figure __**
	Total for D 1 *Add the points in the boxes above*	11
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☐ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☐ Other: _____ YES - multiplier is **2** NO - multiplier is **1**	Multiplier 1
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	11

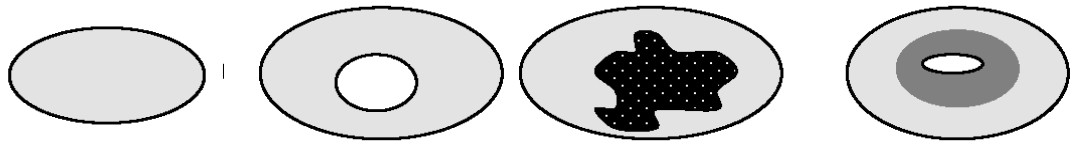
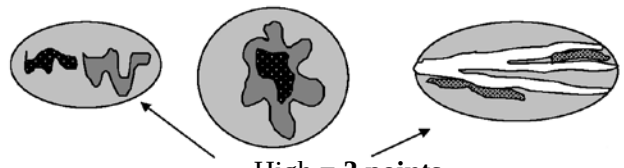
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.		
D 3.	**Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)***	**Points**
D 3.1	Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☑ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	2
D 3.2	Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☐ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☑ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☐ Marks of ponding are less than 0.5 feet. **Points = 0**	3
D 3.3	Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☐ The area of the basin is <10 times the area of the unit. **Points = 5** ☑ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☐ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	3
Total for D 3	*Add the points in the boxes above*	8
D 4.	**Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)*** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☐ Wetland is in a headwater of a river or stream that has flooding problems. ☑ Wetland drains to a river or stream that has flooding problems. ☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☐ Other:	Multiplier 2
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions	Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	16

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☑ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☑ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	1 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 3

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points**  [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	3
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☑ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☑ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	3
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	9
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	5 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	2
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 7

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points** Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	5
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		15
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			24

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**Forested Wetlands** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**Wetlands in Coastal Lagoons** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer YES, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 14

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 14 Date of site visit: 9/18/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: Figure Plansheet **Estimated size:** 0.23 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☑ **III** ☐ **IV** ☐

Category I = Score >=70	
Category II = Score 51-69	
Category III = Score 30-50	
Category IV = Score <30	

Score for Water Quality Functions	10
Score for Hydrologic Functions	20
Score for Habitat Functions	23
TOTAL score for functions	**53**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **II**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☑
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if unit has multiple HGM classes present	☑

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*).

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☐ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☐ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☑
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
D 1.	**Does the wetland unit have the <u>potential</u> to improve water quality?** ***(see p. 38)***	
D 1.1	Characteristics of surface water flows out of the wetland: ☑ Unit is a depression with no surface water leaving it (no outlet) **Points = 3** ☐ Unit has an intermittently flowing, or highly constricted permanently flowing outlet. **Points = 2** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 1** ☐ Unit is a flat depression (Q. 7 on key) or in the Flats class, with permenent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") **Points = 1**	3
	Provide photo or drawing	**Figure __**
D 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions): ☐ YES **Points = 4** ☑ NO **Points = 0**	0
D 1.3	Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☑ Wetland has persistent, ungrazed vegetation >=95% of area. **Points = 5** ☐ Wetland has persistent, ungrazed vegetation >=1/2 of area. **Points = 3** ☐ Wetland has persistent, ungrazed vegetation >=1/10 of area. **Points = 1** ☐ Wetland has persistent, ungrazed vegetation <1/10 of area **Points = 0**	5
	Map of Cowardin vegetation classes	**Figure __**
D 1.4	Characteristics of seasonal ponding or inundation. *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* ☐ Area seasonally ponded is >1/2 total area of wetland. **Points = 4** ☑ Area seasonally ponded is >1/4 total area of wetland. **Points = 2** ☐ Area seasonally ponded is <1/4 total area of wetland. **Points = 0**	2
	Map of hydroperiods	**Figure __**
	Total for D 1 *Add the points in the boxes above*	10
D 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality?** ***(see p. 44)*** Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants:* ☐ Grazing in the wetland or within 150 feet. ☐ Untreated stormwater discharges to wetland. ☐ Tilled fields or orchards within 150 feet of wetland. ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging. ☐ Residential, urban areas, golf courses are within 150 feet of wetland. ☐ Wetland is fed by ground water high in phosphorus or nitrogen. ☐ Other: _____ YES - multiplier is **2** NO - multiplier is **1**	Multiplier 1
TOTAL - Water Quality Functions	Multiply the score from D 1. by D 2. ***Add score to table on p. 1***	10

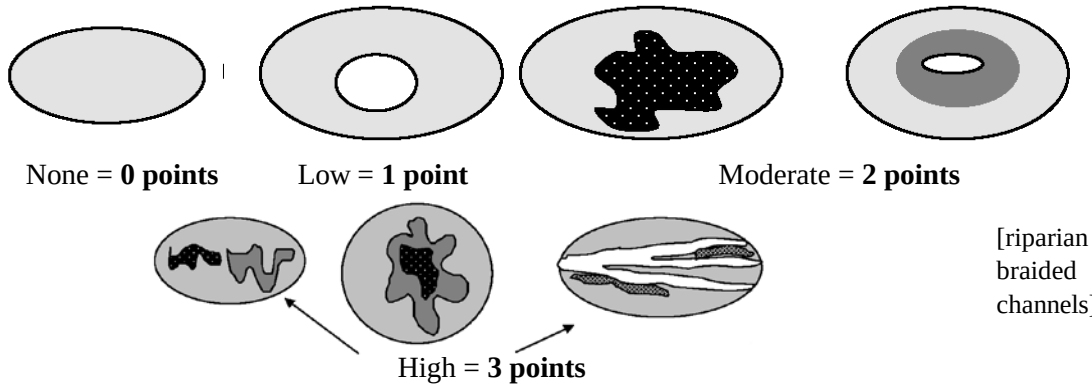
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation.		
D 3.	**Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 46)***	**Points**
D 3.1	Characteristics of surface water flows out of the wetland: ☑ Unit is a depression with no surface water leaving it (no outlet). **Points = 4** ☐ Unit has an intermittently flowing, **OR** highly constricted permanently flowing outlet. **Points = 2** ☐ Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and **no obvious natural outlet** and/or outlet is a man-made ditch. (*If ditch is not permanently flowing, treat unit at "intermittently flowing."*) **Points = 1** ☐ Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*). **Points = 0**	4
D 3.2	Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* ☐ Marks of ponding are 3 feet or more above the surface or bottom of outlet. **Points = 7** ☐ The wetland is a "headwater" wetland. **Points = 5** ☐ Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. **Points = 5** ☑ Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. **Points = 3** ☐ Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. **Points = 1** ☐ Marks of ponding are less than 0.5 feet. **Points = 0**	3
D 3.3	Contribution of wetland to storage in the watershed. *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.* ☐ The area of the basin is <10 times the area of the unit. **Points = 5** ☑ The area of the basin is 10 to 100 times the area of the unit. **Points = 3** ☐ The area of the basin is >100 times the area of the unit. **Points = 0** ☐ Entire unit is in the **Flats** class (basin=wetland) **Points = 5**	3
Total for D 3	*Add the points in the boxes above*	10
D 4.	**Does wetland unit have the opportunity to reduce flooding/erosion? *(see p. 49)*** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir, etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply:* ☐ Wetland is in a headwater of a river or stream that has flooding problems. ☐ Wetland drains to a river or stream that has flooding problems. ☑ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems. ☑ Other: Wetland upslope of roadway, jurisdictional ditches, and wetlands. YES - multiplier is **2** NO - multiplier is **1**	Multiplier 2
TOTAL - Hydrologic Functions	Multiply the score from D 3. by D 4. ***Add score to table on p. 1***	20

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☑ Scrub/shrub (areas where shrubs have >30% cover) ☑ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☑ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin classes	2 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 4

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	2
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☑ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	2
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	8
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	5 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	2
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 7

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**: (Old growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8/acre) >81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** **2** priority habitats = **3 points** / No habitats = **0 points** Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H 2.4	Wetland Landscape ***(see p. 84)***		
	Choose the ***one*** *description of the landscape around the wetland that best fits.*		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	5
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		15
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			23

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES - **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**Forested Wetlands** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**Wetlands in Coastal Lagoons** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO = **Category II**	

		Category
SC 6.0	**<u>Interdunal Wetland</u>s** ***(see p. 93)***	
	Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?	
	☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating	
	If you answer YES, you will still need to rate the wetland based on its functions.	
	In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?	
	☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	
	☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Wetland name or number: 15

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 15 Date of site visit: 9/23/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: **Figure** Plansheet **Estimated size:** 0.04 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	7
Score for Hydrologic Functions	16
Score for Habitat Functions	16
TOTAL score for functions	**39**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☐
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if multiple HGM classes are present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E)* ***plant or animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☑ The wetland is on a slope (*slope can be very gradual*).

☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☑ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit meet all of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☐ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide.) Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.		
S 1.	**Does the wetland unit have the <u>potential</u> to improve water quality? *(see p. 64)***	**Points**
S 1.1	Characteristics of average slope of the unit: ☐ Slope is 1% or less (*a 1% slope has a 1-foot vertical drop for every 100 ft. horizontal distance*) **Points = 3** ☐ Slope is 1% - 2% **Points = 2** ☑ Slope is 2% - 5% **Points = 1** ☐ Slope is greater than 5% **Points = 0**	1
S 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES = 3 points NO = 0 points	0
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: *choose the points appropriate for the description that best fits vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation >90% of wetland area **Points = 6** Dense, uncut, herbaceous vegetation >1/2 of wetland area **Points = 3** Dense, woody vegetation >1/2 of wetland area **Points = 2** Dense, uncut, herbaceous vegetation >1/4 of wetland area **Points = 1** Does not meet any of the criteria above for vegetation **Points = 0**	6
	Aerial photo or map with vegetation polygons	**Figure __**
	Total for S 1 *Add the points in the boxes above*	7
S 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality? *(see p. 67)*** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources but any single source would qualify as an opportunity.* ☐ Grazing in the wetland or within 150 feet of the wetland ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields, logging, or orchards within 150 feet of the wetland ☐ Residential, urban areas, or golf courses are within 150 feet upslope of wetland ☐ Other:	Multiplier 1
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Water Quality Functions	Multiply the score from S 1. by S 2. ***Add score to table on p. 1***	7

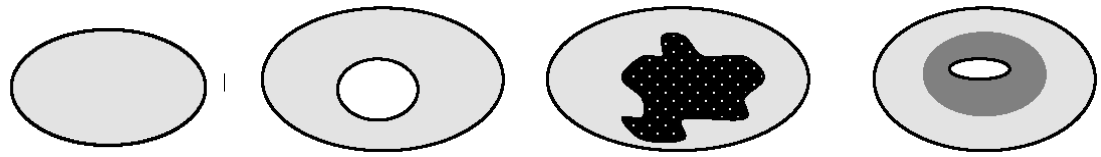
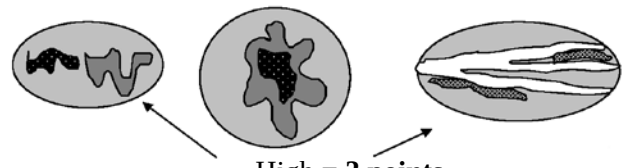
S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.	
S 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 68)*	**Points**
S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have truoble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* ☑ Dense, uncut, **rigid** vegetation covers >90% of wetland area **Points = 6** ☐ Dense, uncut, **rigid** vegetation covers >1/2 of wetland area **Points = 3** ☐ Dense, uncut, **rigid** vegetation covers >1/4 of wetland area **Points = 1** ☐ More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid **Points = 0**	6
S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: *the slope wetland has small surface depressions that can retain water over at least 10% of its area* YES = **2 points** NO = **0 points**	2
Record the points from the boxes above	8
S 4. Does wetland unit have the opportunity to reduce flooding and erosion? *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☑ Other: Wetland upstream of jursidictional ditches, roadway, and other wetlands.	Multiplier 2
YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions Multiply the score from S 3. by S 4. ***Add score to table on p. 1***	16

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the areaif unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☑ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin vegetation classes	0 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 2

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points**  [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	1
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	1
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	4
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."*	
	☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5**	
	☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4**	
	☑ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4**	
	☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3**	
	☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3**	4
	If buffer does not meet any of the criteria above:	
	☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2**	
	☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2**	
	☐ Heavy grazing in buffer. **Points = 1**	
	☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0**	
	☐ Buffer does not meet any of the criteria above. **Points = 1**	
	Aerial photo showing buffers	**Figure __**
H 2.2	Corridors and Connections ***(see p. 81)***	
H 2.2.1	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 4

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**:(Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** / **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H2.4	Wetland Landscape *(see p. 84)*		
	Choose the **one** description of the landscape around the wetland that best fits.		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	5
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		12
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			16

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO - not an estuarine wetland	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES = **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO - not a wetland in a coastal lagoon	

SC 6.0 **<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer Yes, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109. SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2* SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	**Category**
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.	N/A

Wetland name or number: 16

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 16 Date of site visit: 9/25/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: **Figure** Plansheet **Estimated size:** 0.07 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	10
Score for Hydrologic Functions	10
Score for Habitat Functions	17
TOTAL score for functions	**37**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☐
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if multiple HGM classes are present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E)* ***plant or animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☑ The wetland is on a slope (*slope can be very gradual*).

☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☑ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit meet all of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☐ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide.) Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands		
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.		
S 1.	**Does the wetland unit have the <u>potential</u> to improve water quality? *(see p. 64)***	**Points**
S 1.1	Characteristics of average slope of the unit: ☐ Slope is 1% or less (*a 1% slope has a 1-foot vertical drop for every 100 ft. horizontal distance*) **Points = 3** ☐ Slope is 1% - 2% **Points = 2** ☐ Slope is 2% - 5% **Points = 1** ☑ Slope is greater than 5% **Points = 0**	0
S 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES = 3 points NO = 0 points	3
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: *choose the points appropriate for the description that best fits vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation >90% of wetland area **Points = 6** Dense, uncut, herbaceous vegetation >1/2 of wetland area **Points = 3** Dense, woody vegetation >1/2 of wetland area **Points = 2** Dense, uncut, herbaceous vegetation >1/4 of wetland area **Points = 1** Does not meet any of the criteria above for vegetation **Points = 0**	2
	Aerial photo or map with vegetation polygons	**Figure __**
	Total for S 1 *Add the points in the boxes above*	5
S 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality? *(see p. 67)*** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources but any single source would qualify as an opportunity.* ☐ Grazing in the wetland or within 150 feet of the wetland ☑ Untreated stormwater discharges to the wetland ☐ Tilled fields, logging, or orchards within 150 feet of the wetland ☐ Residential, urban areas, or golf courses are within 150 feet upslope of wetland ☐ Other:	Multiplier 2
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Water Quality Functions	Multiply the score from S 1. by S 2. ***Add score to table on p. 1***	10

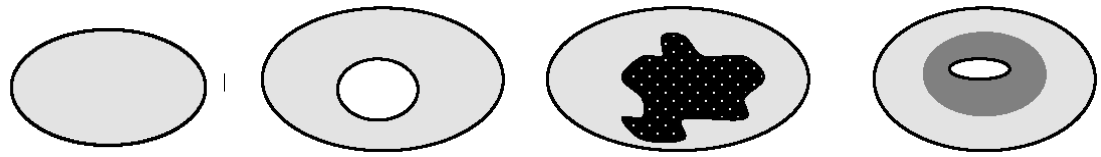
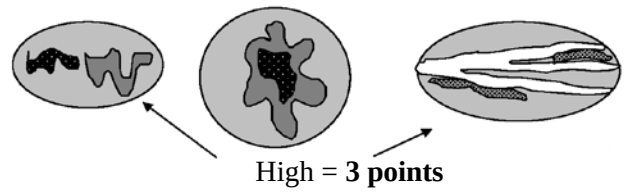
S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.	
S 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 68)*	**Points**
S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have truoble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* ☐ Dense, uncut, **rigid** vegetation covers >90% of wetland area **Points = 6** ☑ Dense, uncut, **rigid** vegetation covers >1/2 of wetland area **Points = 3** ☐ Dense, uncut, **rigid** vegetation covers >1/4 of wetland area **Points = 1** ☐ More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid **Points = 0**	3
S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: *the slope wetland has small surface depressions that can retain water over at least 10% of its area* YES = **2 points** NO = **0 points**	2
Record the points from the boxes above	5
S 4. Does wetland unit have the opportunity to reduce flooding and erosion? *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☑ Other: Wetland upslope of roadway and jurisdictional ditches.	Multiplier 2
YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions Multiply the score from S 3. by S 4. ***Add score to table on p. 1***	10

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the areaif unit is smaller than 2.5 acres.* ☐ Aquatic bed ☑ Emergent plants ☑ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0**	1
	Map of Cowardin vegetation classes	**Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points***	1
	Map of hydroperiods	**Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 3

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points**  [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	2
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	1
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	6
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1**	3
	Aerial photo showing buffers	**Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	2
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 5

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**:(Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	1
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** — **1** priority habitat = **1 point** **2** priority habitats = **3 points** — No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H2.4	Wetland Landscape *(see p. 84)*		
	Choose the **one** description of the landscape around the wetland that best fits.		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	5
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		11
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			17

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO - not an estuarine wetland	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES = **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO - not a wetland in a coastal lagoon	

SC 6.0 **<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer Yes, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109. SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2* SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	**Category**
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.	N/A

Wetland name or number: 17

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 17 Date of site visit: 9/25/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: **Figure** Plansheet **Estimated size:** 0.11 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	6
Score for Hydrologic Functions	16
Score for Habitat Functions	19
TOTAL score for functions	**41**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☐
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if multiple HGM classes are present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E)* ***plant or animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☑ The wetland is on a slope (*slope can be very gradual*).

☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☑ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit meet all of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☐ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide.) Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.		
S 1.	**Does the wetland unit have the <u>potential</u> to improve water quality? *(see p. 64)***	**Points**
S 1.1	Characteristics of average slope of the unit: ☐ Slope is 1% or less (*a 1% slope has a 1-foot vertical drop for every 100 ft. horizontal distance*) **Points = 3** ☐ Slope is 1% - 2% **Points = 2** ☐ Slope is 2% - 5% **Points = 1** ☑ Slope is greater than 5% **Points = 0**	0
S 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES = 3 points NO = 0 points	0
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: *choose the points appropriate for the description that best fits vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation >90% of wetland area **Points = 6** Dense, uncut, herbaceous vegetation >1/2 of wetland area **Points = 3** Dense, woody vegetation >1/2 of wetland area **Points = 2** Dense, uncut, herbaceous vegetation >1/4 of wetland area **Points = 1** Does not meet any of the criteria above for vegetation **Points = 0**	6
	Aerial photo or map with vegetation polygons	**Figure __**
	Total for S 1 *Add the points in the boxes above*	6
S 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality? *(see p. 67)*** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources but any single source would qualify as an opportunity.* ☐ Grazing in the wetland or within 150 feet of the wetland ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields, logging, or orchards within 150 feet of the wetland ☐ Residential, urban areas, or golf courses are within 150 feet upslope of wetland ☐ Other:	Multiplier 1
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Water Quality Functions	Multiply the score from S 1. by S 2. ***Add score to table on p. 1***	6

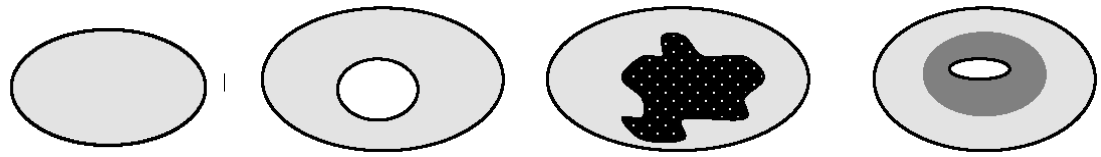
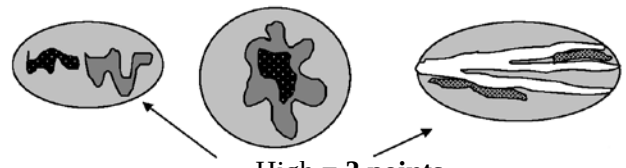
S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.	
S 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 68)*	**Points**
S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have truoble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* ☑ Dense, uncut, **rigid** vegetation covers >90% of wetland area **Points = 6** ☐ Dense, uncut, **rigid** vegetation covers >1/2 of wetland area **Points = 3** ☐ Dense, uncut, **rigid** vegetation covers >1/4 of wetland area **Points = 1** ☐ More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid **Points = 0**	6
S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: *the slope wetland has small surface depressions that can retain water over at least 10% of its area* YES = **2 points** NO = **0 points**	2
Record the points from the boxes above	8
S 4. Does wetland unit have the opportunity to reduce flooding and erosion? *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☑ Other: Wetland upslope of the highway and other wetlands.	Multiplier 2
YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions Multiply the score from S 3. by S 4. ***Add score to table on p. 1***	16

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the areaif unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☑ Scrub/shrub (areas where shrubs have >30% cover) ☑ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin vegetation classes	1 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 3

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points**  [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	1
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	1
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	5

Comments:

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	4 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	2
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 6

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**:(Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** / **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H2.4	Wetland Landscape *(see p. 84)*		
	Choose the **one** description of the landscape around the wetland that best fits.		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	5
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		14
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			19

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO - not an estuarine wetland	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES = **Category I** ☐ NO - not a bog for purpose of rating	0

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO - not a wetland in a coastal lagoon	

SC 6.0 **<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer Yes, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109. SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2* SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	**Category**
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.	N/A

Wetland name or number: 18

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 18 Date of site visit: 9/24/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: **Figure** Plansheet **Estimated size:** 0.14 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☐ **IV** ☑

Category I = Score >=70	
Category II = Score 51-69	
Category III = Score 30-50	
Category IV = Score <30	

Score for Water Quality Functions	6
Score for Hydrologic Functions	2
Score for Habitat Functions	14
TOTAL score for functions	**22**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **IV**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☐
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if multiple HGM classes are present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E)* ***plant or animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☑ The wetland is on a slope (*slope can be very gradual*).

☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☑ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit meet all of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☐ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide.) Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands		
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.		
S 1.	**Does the wetland unit have the <u>potential</u> to improve water quality? *(see p. 64)***	**Points**
S 1.1	Characteristics of average slope of the unit: ☐ Slope is 1% or less (*a 1% slope has a 1-foot vertical drop for every 100 ft. horizontal distance*) **Points = 3** ☐ Slope is 1% - 2% **Points = 2** ☐ Slope is 2% - 5% **Points = 1** ☑ Slope is greater than 5% **Points = 0**	0
S 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES = 3 points NO = 0 points	0
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: *choose the points appropriate for the description that best fits vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation >90% of wetland area **Points = 6** Dense, uncut, herbaceous vegetation >1/2 of wetland area **Points = 3** Dense, woody vegetation >1/2 of wetland area **Points = 2** Dense, uncut, herbaceous vegetation >1/4 of wetland area **Points = 1** Does not meet any of the criteria above for vegetation **Points = 0**	6
	Aerial photo or map with vegetation polygons	**Figure __**
	Total for S 1 *Add the points in the boxes above*	6
S 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality? *(see p. 67)*** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources but any single source would qualify as an opportunity.* ☐ Grazing in the wetland or within 150 feet of the wetland ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields, logging, or orchards within 150 feet of the wetland ☐ Residential, urban areas, or golf courses are within 150 feet upslope of wetland ☐ Other:	Multiplier 1
YES - multiplier is **2**	NO - multiplier is **1**	
TOTAL - Water Quality Functions	Multiply the score from S 1. by S 2. ***Add score to table on p. 1***	6

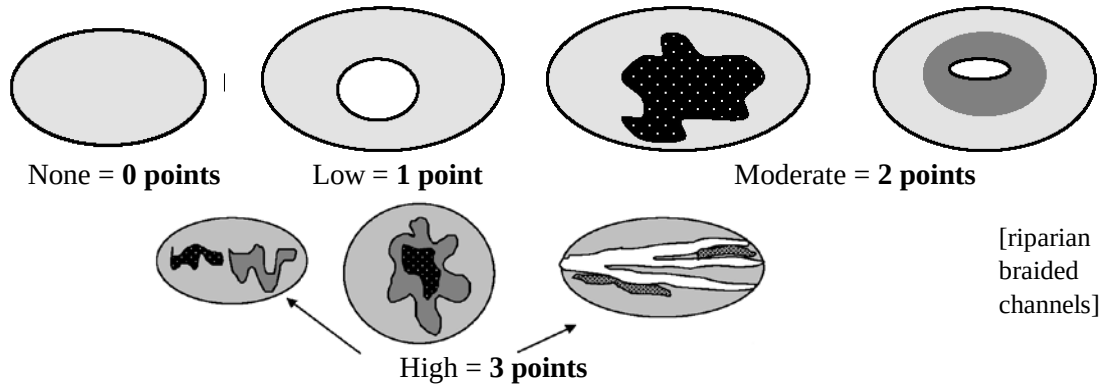
S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.	
S 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 68)*	**Points**
S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have truoble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* ☐ Dense, uncut, **rigid** vegetation covers >90% of wetland area **Points = 6** ☐ Dense, uncut, **rigid** vegetation covers >1/2 of wetland area **Points = 3** ☑ Dense, uncut, **rigid** vegetation covers >1/4 of wetland area **Points = 1** ☐ More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid **Points = 0**	1
S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: *the slope wetland has small surface depressions that can retain water over at least 10% of its area* YES = **2 points** NO = **0 points**	0
Record the points from the boxes above	1
S 4. Does wetland unit have the opportunity to reduce flooding and erosion? *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☑ Other: Wetland is upslope of roadway, jurisdictional ditches and other wetlands.	Multiplier 2
YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions Multiply the score from S 3. by S 4. ***Add score to table on p. 1***	2

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the areaif unit is smaller than 2.5 acres.* ☐ Aquatic bed ☑ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin vegetation classes	0 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☐ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☐ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	**Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	0

Total for page 0

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	0
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	0
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	0
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	4 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	2
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 6

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**:(Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** / **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H2.4	Wetland Landscape *(see p. 84)*		
	Choose the **one** description of the landscape around the wetland that best fits.		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	5
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		14
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			14

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☑ NO - not an estuarine wetland	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES = **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**Forested Wetlands** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**Wetlands in Coastal Lagoons** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☐ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☑ NO - not a wetland in a coastal lagoon	

SC 6.0 **<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer Yes, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109. SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2* SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	**Category**
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.	N/A

Wetland name or number: 19

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 19 Date of site visit: 9/25/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: **Figure** Plansheet **Estimated size:** 0.05 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☐ **IV** ☑

Category I = Score >=70	
Category II = Score 51-69	
Category III = Score 30-50	
Category IV = Score <30	

Score for Water Quality Functions	2
Score for Hydrologic Functions	6
Score for Habitat Functions	18
TOTAL score for functions	**26**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **IV**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☐
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if multiple HGM classes are present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E)* ***plant or animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☑ The wetland is on a slope (*slope can be very gradual*).

☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☑ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☑ NO - go to 5 ☐ YES - the wetland class is **Slope**

5. Does the entire wetland unit meet all of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☐ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide.) Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands		
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.		
S 1.	**Does the wetland unit have the <u>potential</u> to improve water quality? *(see p. 64)***	**Points**
S 1.1	Characteristics of average slope of the unit: ☐ Slope is 1% or less (*a 1% slope has a 1-foot vertical drop for every 100 ft. horizontal distance*) **Points = 3** ☐ Slope is 1% - 2% **Points = 2** ☐ Slope is 2% - 5% **Points = 1** ☑ Slope is greater than 5% **Points = 0**	0
S 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES = 3 points NO = 0 points	0
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: *choose the points appropriate for the description that best fits vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation >90% of wetland area **Points = 6** Dense, uncut, herbaceous vegetation >1/2 of wetland area **Points = 3** Dense, woody vegetation >1/2 of wetland area **Points = 2** Dense, uncut, herbaceous vegetation >1/4 of wetland area **Points = 1** Does not meet any of the criteria above for vegetation **Points = 0**	2
	Aerial photo or map with vegetation polygons	**Figure __**
	Total for S 1 *Add the points in the boxes above*	2
S 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality? *(see p. 67)*** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources but any single source would qualify as an opportunity.* ☐ Grazing in the wetland or within 150 feet of the wetland ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields, logging, or orchards within 150 feet of the wetland ☐ Residential, urban areas, or golf courses are within 150 feet upslope of wetland ☐ Other:	Multiplier 1
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Water Quality Functions	Multiply the score from S 1. by S 2. ***Add score to table on p. 1***	2

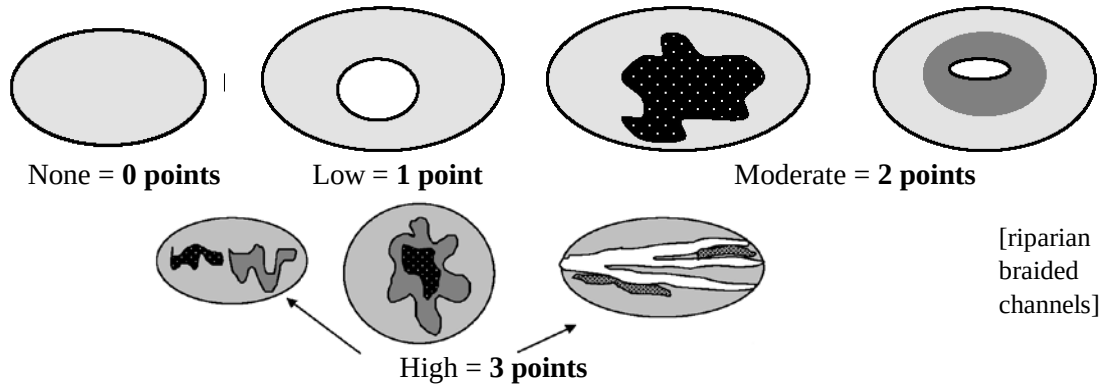
S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.	
S 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 68)*	**Points**
S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have truoble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* ☐ Dense, uncut, **rigid** vegetation covers >90% of wetland area **Points = 6** ☑ Dense, uncut, **rigid** vegetation covers >1/2 of wetland area **Points = 3** ☐ Dense, uncut, **rigid** vegetation covers >1/4 of wetland area **Points = 1** ☐ More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid **Points = 0**	3
S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: *the slope wetland has small surface depressions that can retain water over at least 10% of its area* YES = **2 points** NO = **0 points**	0
Record the points from the boxes above	3
S 4. Does wetland unit have the opportunity to reduce flooding and erosion? *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☑ Other: Wetland is upslope of roadway, jurisdictional ditches, and wetlands.	Multiplier 2
YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions Multiply the score from S 3. by S 4. ***Add score to table on p. 1***	6

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the areaif unit is smaller than 2.5 acres.* ☐ Aquatic bed ☐ Emergent plants ☑ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin vegetation classes	0 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 2

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	0
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☑ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	2
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	4
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☑ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	4 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	2
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 6

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**:(Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** / **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H2.4	Wetland Landscape *(see p. 84)*		
	Choose the **one** description of the landscape around the wetland that best fits.		
	☐ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	5
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		14
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			18

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO - not an estuarine wetland	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES = **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO - not a wetland in a coastal lagoon	

SC 6.0 **<u>Interdunal Wetlands</u>** ***(see p. 93)*** Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating ***If you answer Yes, you will still need to rate the wetland based on its functions.*** In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109. SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger? ☐ YES = **Category II** ☐ NO - *go to SC 6.2* SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? ☐ YES = **Category III**	**Category**
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.	N/A

Wetland name or number: 20

WETLAND RATING FORM - WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): SR 18/I-90 Flyover Ramp-Wetland 20 Date of site visit: 9/24/12

Rated by : Beth Toberer Trained by Ecology? Yes ☑ No ☐ Date: 11/7/07

SEC: 2 TWNSHP: 23 North RNGE: 7 East Is S/T/R in Appendix D? Yes ☐ No ☑

Map of wetland unit: **Figure** Plansheet **Estimated size:** 0.22 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland:

I ☐ **II** ☐ **III** ☑ **IV** ☐

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score <30

Score for Water Quality Functions	12
Score for Hydrologic Functions	12
Score for Habitat Functions	16
TOTAL score for functions	**40**

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ **II** ☐ **Does not Apply** ☑

Final Category **(choose the "highest" category from above)** **III**

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	☐
Natural Heritage Wetland	☐
Bog	☐
Mature Forest	☐
Old Growth Forest	☐
Coastal Lagoon	☐
Interdunal	☐
None of the above	☑

Wetland Class	
Depressional	☐
Riverine	☐
Lake-fringe	☐
Slope	☑
Flats	☐
Freshwater Tidal	☐
Check if multiple HGM classes are present	☐

Comments:

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below, you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)		YES	NO
SP1.	*Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E)* ***plant or animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2.	*Has the wetland unit been documented as habitat for any state listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	☐	☑
SP3.	*Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*	☐	☑
SP4.	*Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.	☐	☑

To complete the next part of the data sheet, you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, indentify which hydrologic criteria in questions 1-7 apply and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e., except during floods)?

☑ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe**

If YES, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ YES - **Freshwater Tidal Fringe** ☐ NO - **Saltwater Tidal Fringe (Estuarine)**

If your wetland can be classified as a Freshwater Tidal Fringe, use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

☑ NO - go to 3 ☐ YES - the wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

☐ At least 30% of the open water area is deeper than 6.6 feet (2 m)?

☑ NO - go to 4 ☐ YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☑ The wetland is on a slope (*slope can be very gradual*).

☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☑ The water leaves the wetland **without being impounded.**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

☐ NO - go to 5 ☑ YES - the wetland class is **Slope**

5. Does the entire wetland unit meet all of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

☐ The overbank flooding occurs once every two years.

☐ NO - go to 6 ☐ YES - the wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ YES - the wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - the wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide.) Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes Within a Delineated Wetland Boundary	***Class to Use in Rating***	
Slope + Riverine	Riverine	☐
Slope + Depressional	Depressional	☐
Slope + Lake-fringe	Lake-fringe	☐
Depressional + Riverine along stream within boundary	Depressional	☐
Depressional + Lake-fringe	Depressional	☐
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	☐

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands

WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.

		Points
S 1.	**Does the wetland unit have the <u>potential</u> to improve water quality? *(see p. 64)***	
S 1.1	Characteristics of average slope of the unit: ☐ Slope is 1% or less (*a 1% slope has a 1-foot vertical drop for every 100 ft. horizontal distance*) **Points = 3** ☐ Slope is 1% - 2% **Points = 2** ☐ Slope is 2% - 5% **Points = 1** ☑ Slope is greater than 5% **Points = 0**	0
S 1.2	The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES = 3 points NO = 0 points	0
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: *choose the points appropriate for the description that best fits vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation >90% of wetland area **Points = 6** Dense, uncut, herbaceous vegetation >1/2 of wetland area **Points = 3** Dense, woody vegetation >1/2 of wetland area **Points = 2** Dense, uncut, herbaceous vegetation >1/4 of wetland area **Points = 1** Does not meet any of the criteria above for vegetation **Points = 0**	6
	Aerial photo or map with vegetation polygons	**Figure __**
	Total for S 1 *Add the points in the boxes above*	6
S 2.	**Does the wetland unit have the <u>opportunity</u> to improve water quality? *(see p. 67)*** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources but any single source would qualify as an opportunity.* ☐ Grazing in the wetland or within 150 feet of the wetland ☑ Untreated stormwater discharges to the wetland ☐ Tilled fields, logging, or orchards within 150 feet of the wetland ☐ Residential, urban areas, or golf courses are within 150 feet upslope of wetland ☐ Other:	Multiplier 2
	YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Water Quality Functions	Multiply the score from S 1. by S 2. ***Add score to table on p. 1***	12

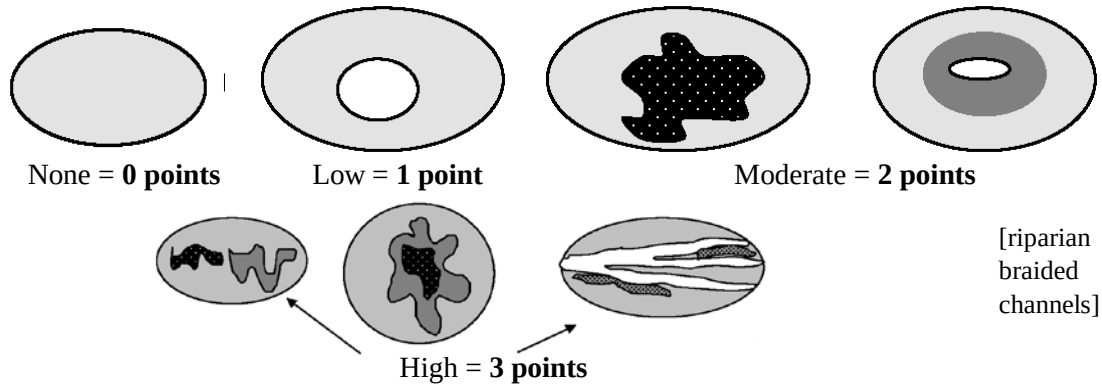
S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.	
S 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? *(see p. 68)*	**Points**
S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have truoble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* ☑ Dense, uncut, **rigid** vegetation covers >90% of wetland area **Points = 6** ☐ Dense, uncut, **rigid** vegetation covers >1/2 of wetland area **Points = 3** ☐ Dense, uncut, **rigid** vegetation covers >1/4 of wetland area **Points = 1** ☐ More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid **Points = 0**	6
S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: *the slope wetland has small surface depressions that can retain water over at least 10% of its area* YES = **2 points** NO = **0 points**	0
Record the points from the boxes above	6
S 4. Does wetland unit have the opportunity to reduce flooding and erosion? *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☑ Other: Wetland is upslope of jurisdictional ditches, roadway and other wetlands.	Multiplier 2
YES - multiplier is **2** NO - multiplier is **1**	
TOTAL - Hydrologic Functions Multiply the score from S 3. by S 4. ***Add score to table on p. 1***	12

These questions apply to wetlands of all HGM classes

HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.

H 1.	**Does the wetland unit have the potential to provide habitat for many species?**	**Points**
H 1.1	Vegetation structure ***(see p. 72)*** *Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the areaif unit is smaller than 2.5 acres.* ☐ Aquatic bed ☑ Emergent plants ☐ Scrub/shrub (areas where shrubs have >30% cover) ☐ Forested (areas where trees have >30% cover) *If the unit has a forested class, check if:* ☐ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* 4 structures or more **Points = 4** 3 structures **Points = 2** 2 structures **Points = 1** 1 structure **Points = 0** Map of Cowardin vegetation classes	0 **Figure __**
H 1.2	Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more types present **Points = 3** ☑ Seasonally flooded or inundated — 3 types present **Points = 2** ☐ Occasionally flooded or inundated — 2 types present **Points = 1** ☑ Saturated only — 1 type present **Points = 0** ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ ***Lake-fringe wetland = 2 points*** ☐ ***Freshwater tidal wetland = 2 points*** Map of hydroperiods	1 **Figure __**
H 1.3	Richness of Plant Species ***(see p. 75)*** *Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: >19 species **Points = 2** 5-19 species **Points = 1** *List species below if you want to:* <5 species **Points = 0**	1

Total for page 2

		Points
H 1.4	Interspersion of Habitats ***(see p. 76)*** *Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.*  None = **0 points** Low = **1 point** Moderate = **2 points** [riparian braided channels] High = **3 points** NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". **Use map of Cowardin vegetation classes.**	0
H 1.5	Special Habitat Features ***(see p. 77)*** *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ☐ Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long). ☐ Standing snags (diameter at the bottom >4 inches) in the wetland. ☐ Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m). ☐ Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned brown/gray*). ☐ At least 1/4 acre of thin-stemmed presistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*). ☑ Invasive plants cover less than 25% of the wetland area in each stratum of plants.	1
	Note: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	3
Comments:		

H 2.	Does the wetland unit have the opportunity to provide habitat for many species?	Points
H 2.1	Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within undisturbed part of buffer (*relatively undisturbed also means no grazing, no landscaping, no daily human use*). **Points = 5** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >50% of circumference. **Points = 4** ☐ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** ☐ 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >25% circumference. **Points = 3** ☑ 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for >50% circumference. **Points = 3** **If buffer does not meet any of the criteria above:** ☐ No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** ☐ Heavy grazing in buffer. **Points = 1** ☐ Vegetated buffers are <2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). **Points = 0** ☐ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	3 **Figure __**
H 2.2 H 2.2.1	Corridors and Connections ***(see p. 81)*** Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 30% cover of shrubs, forest, or native undisturbed prairie, that connects to estuaries, other wetlands, or undisturbed uplands that are at least 250 acres in size? (*Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.*) YES = **4 points** (*go to H 2.3*) NO = *go to H 2.2.2*	2
H 2.2.2	Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands, or undisturbed uplands that are at least 25 acres in size **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = *go to H 2.2.3*	
H 2.2.3	Is the wetland: ☐ within 5 miles (8 km) of a brackish or salt water estuary **OR** ☐ within 3 miles of a large field or pasture > 40 acres in size **OR** ☐ within 1 mile of a lake greater than 20 acres in size? YES = **1 point** NO = **0 points**	

Total for page 5

H 2.3	Near or Adjacent to Other Priority Habitats Listed by WDFW ***(see p. 82)***	Points
	Which of the following priority habitats are within 330 feet (100 m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions*	
	☐ **Aspen stands:** Pure or mixed stands of aspen >0.4 ha (1 acre).	
	☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).	
	☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.	
	☑ **Old-growth/Mature forests**:(Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	☐ **Oregon white Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (*full descrptions in WDFW PHS report p. 158*).	
	☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).	3
	☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life hsitory requirements for instream fish and wildlife resources.	
	☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A).*	
	☐ **Caves**: Naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
	☐ **Cliffs**: Greater than 7.6 m (25 ft) high and occuring below 5,000 ft.	
	☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.	
	If wetland has: **3+** priority habitats = **4 points** / **1** priority habitat = **1 point** / **2** priority habitats = **3 points** / No habitats = **0 points**	
	Note: all vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4	

			Points
H2.4	Wetland Landscape *(see p. 84)*		
	Choose the **one** description of the landscape around the wetland that best fits.		
	☑ There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	**Points = 5**	
	☐ The wetland is Lake-fringe on a lake with little disturbance and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 5**	5
	☐ There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	**Points = 3**	
	☐ The wetland is Lake-fringe on a lake **with** disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	**Points = 3**	
	☐ There is at least 1 wetland within 1/2 mile.	**Points = 2**	
	☐ There are no wetlands within 1/2 mile.	**Points = 0**	
	H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*		13
Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1			16

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.*	**Category**
SC 1.0 **<u>Estuarine Wetlands</u>** ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt. ☐ YES = *Go to SC 1.1* ☑ NO - not an estuarine wetland	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ YES = **Category I** ☐ NO = *Go to SC 1.2*	
SC 1.2 Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has <10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover >10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre. ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or continguous freshwater wetlands. ☐ YES = **Category I** ☐ NO - not an estuarine wetland	

		Category
SC 2.0	**<u>Natural Heritage Wetlands</u>** ***(see p. 87)*** Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (This question is used to screen out most sites before you need to contact WNHP/DNR.) S/T/R information from Appendix D ☑ or accessed from WNHP/DNR web site ☐ ☐ YES - contact WNHP/DNR *(see p. 79)* and *go to SC 3.2* ☑ NO SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species? ☐ YES = **Category I** ☑ NO - not a Heritage wetland	
SC 3.0	**<u>Bogs</u>** ***(see p. 87)*** Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer Yes, you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic oils.) ☐ YES - *go to Q. 3* ☑ NO - *go to Q. 2* 2. Does the unit have organic soils, either peats or mucks, that are <16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? ☐ YES - *go to Q. 3* ☑ NO - not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (>30% of total shrub and herbaceous cover consists of species in Table 3)? ☐ YES - is a bog for purpose of rating ☐ NO - *go to Q. 4* NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (>30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (*>30% coverage of total shrub/herbaceous cover*)? ☐ YES = **Category I** ☐ NO - not a bog for purpose of rating	

		Category
SC 4.0	**<u>Forested Wetlands</u>** ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? *If you answer Yes, you will still need to rate the wetland based on its functions.* ☐ **Old-growth forests**: (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. ☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. ☐ YES = **Category I** ☑ NO - not a forested wetland w/ special characteristics	
SC 5.0	**<u>Wetlands in Coastal Lagoons</u>** ***(see p. 91)*** Does the wetland meet all of the following criteria of a wtland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ☐ The lagoon in which the wetland is located contains surface water that is saline or brackish (>.5 ppt) during most of the year in at leat a portion of the lagoon (*needs to be measured near the bottom*). ☐ YES = *go to SC 5.1* ☑ NO - not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following 3 conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ☐ At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland. ☐ The wetland is larger than 1/10 acre (4,350 square feet). ☐ YES = **Category I** ☐ NO - not a wetland in a coastal lagoon	

		Category
SC 6.0	**<u>Interdunal Wetlands</u>** ***(see p. 93)***	
	Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?	
	☐ YES - *go to SC 6.1* ☑ NO - not an interdunal wetland for rating	
	If you answer Yes, you will still need to rate the wetland based on its functions.	
	In practical terms, that means the following geographic areas: • Long Beach Peninsula - lands west of SR 103 • Grayland-Westport - lands west of SR 105 • Ocean Shores-Copalis - lands west of SR 1115 and SR 109.	
SC 6.1	Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?	
	☐ YES = **Category II** ☐ NO - *go to SC 6.2*	
SC 6.2	Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	
	☐ YES = **Category III**	
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If you answered NO for all types, enter "Not Applicable" on p. 1.		N/A

Appendix E. Wetland Functional Assessment Summaries

Wetland Functions and Values Form

Wetland I.D. Wetland 1 Project: SR 18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PFO Ecology Category: I Local Rating: I Wetland size: 0.79 acre Date: 10/22/12

Function/Value	Occurrence Y	N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland has dense woody vegetation and seasonal ponding during storms to detain surface water.	**Y**	High. Wetland is a large size, and located in the headwaters of the Raging River.
Sediment Removal	**X**		Wetland is depressional, has dense vegetation, seasonal ponding, and intermittent outlet.	**Y**	High. Wetland has hummocky topography and is large to hold back sediments in the watershed.
Nutrient & Toxicant Removal	**X**		Wetland is depressional, has dense vegetation, seasonal ponding, an intermittent outlet, and soils with high organic matter content.	**Y**	High. Wetland has hummocky topography and is large to hold back nutrients and toxicants in the watershed.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not directly associated with a stream channel.		
Production of Organic Matter and its Export	**X**		Wetland has understory vegetation with an intermittent outlet.	**Y**	Moderate. The wetland floods releasing organic matter, but the outlet is intermittent. Function limited by an overstory dominance of conifers reducing organic inputs.
General Habitat Suitability	**X**		Wetland provides habitat for passerine birds, amphibians, small and large mammals. Wetland is mature forest.	**Y**	High. Wetland is connected to a large mature forested upland corridor that connects to other wetlands and Raging River.
Habitat for Aquatic Invertebrates	**X**		Wetland supports seasonal ponding with downed large woody debris (LWD).	**Y**	High. Wetland has hummocky terrain with habitat complexity in the understory. Wetland is large.
Habitat for Amphibians	**X**		Wetland supports seasonal ponding with downed LWD.	**Y**	Moderate. Habitat for adults, but no breeding habitat. Wetland has hummocky terrain with habitat complexity in understory.
Habitat for Wetland-Associated Mammals		**X**	Wetland does not support permanent ponding.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water component and mudflats.		
General Fish Habitat		**X**	Wetland is not directly connected to a fish bearing stream, and does not support fish habitat.		
Native Plant Richness	**X**		Wetland is mature forest with canopy, shrubs, herbaceous vegetation and moss inclusions.	**Y**	High. Wetland has greater than 19 native species and invasive species are present in less than 25% of the wetland.
Educational or Scientific Value		**X**	Wetland is mature forest and has diverse habitat; however, parking for a school bus and safe wetland access is limited.		
Uniqueness and Heritage	**X**		PHS species are not mapped in the wetland, but pileated woodpeckers, a PHS species were observed in adjacent wetland. Wetland is mature forest and Category I based on Special Characteristics. This Ecology rating system has been accepted by King County; therefore, wetland is unique.	**Y**	High. Wetland is a large mature forested wetland and likely provides habitat for PHS species of birds.

Wetland Functions and Values Form

Wetland I.D. Wetland 2 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PEM Ecology Category: II Local Rating: II Wetland size: 0.02 acre Date: 10/22/12

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland has some dense woody vegetation and a constricted outlet.	**N**	Low. Wetland function is limited due to small size.
Sediment Removal	**X**		Wetland is depressional, has dense vegetation, and a constricted outlet.	**Y**	Moderate. Wetland has dense herbaceous vegetation and a constricted outlet to trap sediments from surface water.
Nutrient & Toxicant Removal	**X**		Wetland is depressional, has dense vegetation, and a constricted outlet.	**Y**	Moderate. Wetland has dense herbaceous vegetation and a constricted outlet to trap nutrients and toxicants from surface water.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not directly associated with a stream.		
Production of Organic Matter and its Export	**X**		Wetland outlets to a culvert draining to Stream1.	**Y**	Moderate. Vegetation dominated by *Carex obnupta* does not produce much organic matter but over hanging shrubs contribute some
General Habitat Suitability	**X**		Wetland provides habitat for invertebrates, amphibians, passerine birds, small mammals, and deer.	**Y**	Moderate. Wetland is connected to a large upland forested corridor that connects to other wetlands and Raging River. Function limited by wetland size.
Habitat for Aquatic Invertebrates	**X**		Wetland has seasonal ponding and dense vegetation.	**Y**	Moderate. Wetland has downed LWD and a constricted outlet increasing function during storms.
Habitat for Amphibians	**X**		Wetland is densely vegetated with *Carex obnupta* and seasonally ponded.	**Y**	Moderate. Wetland supports breeding habitat, has LWD, and is connected to a forested upland corridor and other wetlands.
Habitat for Wetland-Associated Mammals		**X**	Wetland does not have permanent inundation.		
Habitat for Wetland-Associated Birds		**X**	Wetland does not support an open water component.		
General Fish Habitat		**X**	Wetland does not support fish habitat.		
Native Plant Richness	**X**		Wetland supports herbaceous and shrub species.	**Y**	Moderate. Wetland has at least five native species and no invasive species in the wetland.
Educational or Scientific Value		**X**	Wetland is small and parking for a school bus inadequate.		
Uniqueness and Heritage		**X**	PHS species are not mapped in the wetland, and it's not designated as unique or significant in King County.		

Wetland Functions and Values Form

Wetland I.D. Wetland 3 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PFO Ecology Category: I Local Rating: I Wetland size: 0.39 acre Date: 10/22/12

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	X		Wetland has dense woody vegetation and seasonal ponding during storms to detain surface water.	Y	High. Wetland is large and located in the headwaters of the Raging River.
Sediment Removal	X		Wetland is depressional, has dense vegetation, seasonal ponding, and no outlet.	Y	High. Wetland in vicinity of SR 18, receives overland flow of surface water during storms, and has no outlet.
Nutrient & Toxicant Removal	X		Wetland is a closed depression, has dense vegetation, seasonal ponding, and soils with high organic matter content.	Y	High. Wetland in vicinity of SR 18, receives overland flow of surface water during storms, and has no outlet.
Erosion Control & Shoreline Stabilization		X	Wetland is not directly associated with a stream channel.		
Production of Organic Matter and its Export		X	Wetland does not have an outlet.		
General Habitat Suitability	X		Wetland provides habitat for passerine birds, amphibians, small and large mammals.	Y	High. Wetland is forested and connected to forested upland habitat and other wetlands.
Habitat for Aquatic Invertebrates	X		Wetland supports seasonal ponding with downed large woody debris (LWD). Other streams and wetlands present nearby with forested connections between them.	Y	Moderate. Wetland has habitat complexity but function is limited by wetland size and lack of varying water regimes.
Habitat for Amphibians	X		Wetland supports seasonal ponding with downed LWD. Other streams and wetlands present nearby with forested connections between them.	Y	Moderate. Habitat for adults, but no breeding habitat. Wetland has hummocky terrain with habitat complexity in understory.
Habitat for Wetland-Associated Mammals		X	Wetland does not support permanent ponding.		
Habitat for Wetland-Associated Birds		X	Wetland lacks open water component.		
General Fish Habitat		X	Wetland does not support fish bearing stream.		
Native Plant Richness	X		Wetland is forested with some areas supporting a canopy with a well-developed understory of shrubs, herbs, and moss species.	Y	Moderate. Wetland has at least 15 native plant species and invasive species are present are less than 25% of the wetland.
Educational or Scientific Value		X	Wetland has diverse habitat; however, parking for a school bus and safe wetland access is limited due to the busy highway and lack of parking facilities.		
Uniqueness and Heritage	X		Wetland is Category I and a PHS species, pileated woodpecker observed very close to wetland.	Y	Moderate. Wetland function somewhat limited by size and habitat function.

Wetland Functions and Values Form

Wetland I.D. Wetland 4 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PFO Ecology Category: I Local Rating: I Wetland size: 6.45 acres Date: 10/22/12

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	X		Wetland is dominated by woody species receives flood overflow from Lake Creek and stormwater inputs.	Y	High. Wetland is large, high in the watershed of Raging River and has storm inputs from multiple sources.
Sediment Removal	X		Wetland has dense vegetation and receives stormwater runoff.	Y	High. Wetland is large, has undulating topography, and LWD to trap sediments from runoff. Receives runoff from multiple sources.
Nutrient & Toxicant Removal	X		Wetland is depressional, has dense vegetation, seasonal ponding, an intermittent outlet, and soils with high organic matter content.	Y	High. Wetland is large, has undulating topography, and LWD to trap nutrients and toxicant removal.
Erosion Control & Shoreline Stabilization	X		Wetland is directly associated with Lake Creek.	Y	Moderate. Function limited by SR 18 next to wetland/stream buffer and culvert constricting flows under the highway, changing hydraulics of the creek.
Production of Organic Matter and its Export	X		Wetland supports dense deciduous woody vegetation with some understory herbaceous species and has multiple outlets.	Y	High. Wetland is large, has high input of organic matter and multiple outlets.
General Habitat Suitability	X		Wetland provides habitat for fish, wetland mammals, amphibians, large and small land mammals, and passerine birds.	Y	High. Wetland is large, has multiple hydroperiods, forested habitat with understory and buffer is connected to mature forested upland and other wetlands.
Habitat for Aquatic Invertebrates	X		Wetland has seasonal ponding, receives flood overflows from a stream, and habitat complexity.	Y	High. Wetland has multiple hydroperiods, LWD, and is large.
Habitat for Amphibians	X		Wetland has seasonal ponding and an understory of herbaceous species.	Y	Moderate. Wetland has habitat complexity and is large in size, but function limited by lack of well-developed emergent habitat.
Habitat for Wetland-Associated Mammals	X		Wetland supports woody species along Lake Creek.	Y	Moderate. Buffer is reduced near SR 18 and some portions of wetland are scrub shrub.
Habitat for Wetland-Associated Birds		X	Wetland lacks open water, lacks aquatic bed habitat, and has low cover of herbaceous species.		
General Fish Habitat	X		Fish are documented in Lake Creek.	Y	Moderate. Lake Creek receives large amounts of stormwater runoff and sediment, limiting quality of fish habitat.
Native Plant Richness	X		Wetland is forested with developed understory and greater than 19 native species.	Y	High. Wetland is large and invasive species cover a low portion of the wetland
Educational or Scientific Value		X	Wetland lacks safe parking for a school bus and is not easily accessible.		
Uniqueness and Heritage	X		Wetland is directly associated with Lake Creek, which provides habitat for priority species of salmonids and potentially for ESA Threatened species of salmonids. Category I mature forested.	Y	High. Lake Creek receives stormwater runoff from multiple inputs and is not designated as unique in its local jurisdiction.

Wetland Functions and Values Form

Wetland I.D. Wetland 5 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PSS/PEM Ecology Category: III Local Rating: III Wetland size: 0.10 acre Date: 10/22/12

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	X		Wetland receives surface water runoff from upslope maintenance yard. Wetland has small depressions to retain runoff. Water sheetflows out of wetland across access road flowing to ditch draining to Lake Creek.	N	Moderate. Function limited due to wetland on slope, un constricted outlet and small wetland size.
Sediment Removal	X		Wetland is on a gentle slope, but has dense vegetation and surface depressions to trap sediments.	Y	High. Sediment inputs are high from WSDOT maintenance yard.
Nutrient & Toxicant Removal	X		Wetland is on a gentle slope, but has dense vegetation and surface depressions to trap nutrients and toxicants.	Y	High. Inputs are high from WSDOT maintenance yard.
Erosion Control & Shoreline Stabilization		X	Wetland is not directly associated with a stream.		
Production of Organic Matter and its Export	X		Wetland supports emergent vegetation and outlets at the base of a slope.	N	Low. Wetland is small and inputs relatively low.
General Habitat Suitability	X		Wetland supports two Cowardin classes and has seasonal ponding. Provides habitat for passerine birds, small mammals, and aquatic invertebrates.	Y	Low. Wetland has some habitat diversity and is located in the vicinity of upland forest and other wetlands, however, function limited by impacted buffer, surrounding WSDOT maintenance yard, and small wetland size.
Habitat for Aquatic Invertebrates	X		Wetland supports two Cowardin classes and has seasonal ponding.	Y	Moderate. Wetland has habitat diversity and is located in the vicinity of upland forest and other wetlands. Function limited by impacted buffer and small wetland size.
Habitat for Amphibians	X		Wetland has seasonal ponding and emergent vegetation.	N	Low. Wetland supports shallow ponding but has very high sediment inputs that likely preventing successful breeding habitat.
Habitat for Wetland-Associated Mammals		X	Wetland does not support open water.		
Habitat for Wetland-Associated Birds		X	Wetland does not have an open water component or mudflats.		
General Fish Habitat		X	Wetland does not support fish habitat.		
Native Plant Richness	X		Wetland supports two Cowardin classes.	Y	Moderate. Wetland has at least 7 native species, but some reed canarygrass is present in about 10 percent of the wetland.
Educational or Scientific Value		X	Wetland is located on WSDOT property so not open to the public. Wetland provides minimal habitat and function, so lacks significant educational value.		
Uniqueness and Heritage		X	Wetland does not support habitat for ESA listed, PHS, or other locally significant species. Wetland is not designated as unique under local ordinances.		

Wetland Functions and Values Form

Wetland I.D. Wetland 6 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PSS Ecology Category: III Local Rating: III Wetland size: 0.05 acre Date: 10/22/2012

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland has dense woody vegetation and slope is 1-2%.	**Y**	Moderate. Wetland receives overland flow of surface water runoff.
Sediment Removal	**X**		Wetland has dense vegetation and surface depressions to trap sediment.	**Y**	Moderate. Wetland receives overland flow of surface water runoff.
Nutrient & Toxicant Removal	**X**		Wetland has dense vegetation and surface depressions to trap nutrients and toxicants.	**Y**	Moderate. Wetland receives overland flow of surface water runoff.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not directly associated with a stream.		
Production of Organic Matter and its Export	**X**		Wetland outlets at base of slope, and has deciduous vegetation.	**N**	Low. Function limited by small wetland size and lack of understory herbaceous vegetation development in wetland.
General Habitat Suitability	**X**		Wetland supports shrubs and has shallow surface ponding. Wetland provides habitat for passerine birds and small mammals.	**Y**	Moderate. Portions of wetland buffer connect to forested uplands, other wetlands, and a stream.
Habitat for Aquatic Invertebrates	**X**		Wetland has woody species and seasonal ponding.	**N**	Low. Wetland is small and ponding shallow.
Habitat for Amphibians		**X**	Wetland lacks emergent wetland component and ponding is very shallow.		
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland does not support fish habitat.		
Native Plant Richness		**X**	Wetland only supports one Cowardin class.		
Educational or Scientific Value		**X**	Wetland has low habitat value and does not have safe parking for a school bus.		
Uniqueness and Heritage		**X**	Wetland mapped as habitat for elk, a Priority species, but wetland does not provide watering hole or forested habitats for this species. Wetland does not support habitat for ESA listed, PHS, or other locally significant species. Wetland is not designated as unique under local ordinances.		

Wetland Functions and Values Form

Wetland I.D. Wetland 7 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PEM Ecology Category: III Local Rating: III Wetland size: 0.01 acre Date: 10/22/2012

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	X		Wetland is a depression and supports some woody vegetation. Wetland receives overland flow of surface water flooding during heavy storms.	Y	Moderate. Wetland receives overland flow of surface water runoff.
Sediment Removal	X		Wetland is a depression and has dense vegetation to trap sediments.	Y	Moderate. Sediment inputs are high from overland flow of surface water and polluted stormwater.
Nutrient & Toxicant Removal	X		Wetland is a depression and has dense vegetation to trap nutrients and toxicants.	Y	Moderate. Inputs are high from overland flow of surface water and polluted stormwater.
Erosion Control & Shoreline Stabilization		X	Wetland is not directly associated with a stream.		
Production of Organic Matter and its Export	X		Wetland supports emergent vegetation and outlets intermittently across a wide distance.	N	Low. Wetland inputs are low and outlet is intermittent. Function limited by small size.
General Habitat Suitability	X		Wetland supports dense vegetation and has seasonal ponding. Wetland provides minimal habitat for passerine birds and small mammals.	Y	Moderate. Wetland has ponding and intact buffers that connect to other wetlands and a stream.
Habitat for Aquatic Invertebrates	X		Wetland has dense vegetation and seasonal ponding.	Y	Moderate. Wetland is depression with ponding and intact buffers connect to other wetlands and a stream.
Habitat for Amphibians	X		Wetland has dense emergent vegetation and seasonal ponding.	N	Low. Wetland is depression with ponding and intact buffers connect to other wetlands and a stream. Function limited by small size and pollution (stormwater inputs).
Habitat for Wetland-Associated Mammals		X	Wetland lacks an open water component.		
Habitat for Wetland-Associated Birds		X	Wetland lacks an open water component.		
General Fish Habitat		X	Wetland does not support fish habitat.		
Native Plant Richness		X	Wetland has only one Cowardin class and Scotts broom present in wetland.		
Educational or Scientific Value		X	Wetland has low habitat value and does not have safe parking for a school bus.		
Uniqueness and Heritage		X	Wetland mapped as habitat for elk, a Priority species, but wetland does not provide watering hole or forested habitats for this species. Wetland does not support habitat for ESA listed, PHS, or other locally significant species. Wetland is not designated as unique under local ordinances.		

Wetland Functions and Values Form

Wetland I.D. Wetland 8 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PFO Ecology Category: III Local Rating: III Wetland size: 0.07 acre Date: 11/18/2012

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland is a depression and supports some woody vegetation. Wetland receives overland flow of surface water and stormwater during heavy storms.	**Y**	High. Wetland is high in the watershed and receives stormwater from I-90. Wetland impounds significant amounts of surface water for long periods despite its small size.
Sediment Removal	**X**		Wetland is a depression and has dense vegetation to trap sediments.	**Y**	Moderate. Sediment inputs are moderate from upland forest and roadside runoff. Ponding is to 2 feet deep. Function limited by small wetland size.
Nutrient & Toxicant Removal	**X**		Wetland is a depression and has dense vegetation to trap nutrients and toxicants.	**Y**	High. Stormwater runoff form SE 104th St. drains directly to wetland. Ponding is to 2 feet deep and is present for long periods. Function limited by small wetland size.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not directly associated with a stream.		
Production of Organic Matter and its Export	**X**		Wetland has dense herbaceous vegetation, deciduous trees and an outlet.	**Y**	Moderate. Ditch outlet drains to a seasonal stream.
General Habitat Suitability	**X**		Wetland supports dense vegetation and has seasonal ponding. Wetland provides minimal habitat for passerine birds and small mammals.	**Y**	Moderate. Wetland has ponding and intact buffers that connect to other wetlands and a stream.
Habitat for Aquatic Invertebrates	**X**		Wetland has dense vegetation and seasonal ponding.	**Y**	Moderate. Wetland is depression with ponding and intact buffers connect to other wetlands and a stream.
Habitat for Amphibians	**X**		Wetland has dense vegetation and seasonal ponding.	**N**	Low. Wetland is depression with ponding and intact buffers connect to other wetlands and a stream. Function limited by small size and pollution (stormwater inputs).
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland lacks fish habitat.		
Native Plant Richness	**X**		Wetland has overstory of forest with understory of shrubs and herbaceous vegetation.	**N**	Low. Wetland has only one Cowardin Class and Himalayan blackberry.
Educational or Scientific Value		**X**	Wetland has low habitat value and does not have safe parking for a school bus.		
Uniqueness and Heritage		**X**	Wetland mapped as habitat for elk, a Priority species, but wetland does not provide watering hole or forested habitats for this species. Wetland does not support habitat for ESA listed, PHS, or other locally significant species. Wetland is not designated as unique under local ordinances.		

Wetland Functions and Values Form

Wetland I.D. Wetland 9 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: III Ecology Category: III Local Rating: III Wetland size: 0.03 acre Date: 11/18/2012

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	X		Wetland is densely vegetated with woody species and drains to a seasonal stream. Wetland receives runoff during heavy storms.	Y	Moderate. Wetland is high in the watershed and receives stormwater from I-90. Function limited by small wetland size.
Sediment Removal	X		Wetland is a slope, but is densely vegetated and has surface depressions to trap sediments.	Y	Moderate. Wetland is down slope from I-90 and other wetlands that also contribute surface flows through this wetland. Function limited by small wetland size.
Nutrient & Toxicant Removal	X		Wetland is a slope, but is densely vegetated and has surface depressions to trap nutrients and toxicants.	Y	Moderate. Wetland is down slope from I-90 and other wetlands in similar landscape position below I-90, that contribute surface flows through this wetland. Function limited by small wetland size.
Erosion Control & Shoreline Stabilization	X		Wetland drains to a ditch connecting to a seasonal stream.	N	Low. Wetland is not directly connected to stream bank. Function limited by small wetland size. Ditch outlet has some erosion.
Production of Organic Matter and its Export	X		Wetland is densely vegetated and outlets to a ditch at the base of its slope.	N	Low. Function limited by small wetland size.
General Habitat Suitability	X		Wetland supports dense vegetation and has seasonal ponding. Wetland provides minimal habitat for passerine birds, small mammals, and aquatic invertebrates.	N	Low. Wetland bound by a fence on southern side limited movement of wildlife. Function limited by small wetland size.
Habitat for Aquatic Invertebrates	X		Wetland has dense vegetation and seasonal ponding.	N	Low. Ponding is shallow and runoff polluted. Function limited further by small wetland size.
Habitat for Amphibians		X	Seasonal ponding is shallow and polluted. No breeding habitat present.		
Habitat for Wetland-Associated Mammals		X	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		X	Wetland lacks open water.		
General Fish Habitat		X	Fish do not have access to the wetland.		
Native Plant Richness	X		Wetland is dominated by shrubs with an understory of herbaceous species.	N	Low. Wetland has only one Cowardin class, but no invasive species noted. Function limited by wetland size and lack of habitat complexity.
Educational or Scientific Value		X	Wetland is on WSDOT ROW and does not have safe parking for a school bus.		
Uniqueness and Heritage		X	Wetland mapped as habitat for elk, a Priority species, but wetland does not provide watering hole or forested habitats for this species. Wetland does not support habitat for ESA listed, PHS, or other locally significant species. Wetland is not designated as unique under local ordinances.		

Wetland Functions and Values Form

Wetland I.D. Wetland 10 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PFO Ecology Category: III Local Rating: III Wetland size: 0.90 acre Date: 11/18/2012

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland has dense woody vegetation and receives overland flow of surface runoff in heavy storms.	**Y**	Moderate. Wetland is high in the watershed and receives stormwater from I-90. Function limited by shallow ponding in wetland.
Sediment Removal	**X**		Wetland has dense herbaceous vegetation and seasonal ponding.	**Y**	High. Wetland has surface depressions to trap sediment and high inputs from stormwater.
Nutrient & Toxicant Removal	**X**		Wetland has dense herbaceous vegetation and seasonal ponding.	**Y**	High. Wetland has surface depressions to trap sediment and high inputs from stormwater.
Erosion Control & Shoreline Stabilization	**X**		Wetland drains to a seasonal stream.	**N**	Low. Stream is ditched and adjacent to a roadway.
Production of Organic Matter and its Export	**X**		Wetland has herbaceous vegetation and an outlet.	**N**	Low. Outlet is a highly constricted culvert.
General Habitat Suitability	**X**		Wetland has forested vegetation and seasonal ponding. Provides habitat for passerine birds, small mammals, and amphibians.	**Y**	Moderate. Wetland has buffer that connects to other wetlands. Function limited by high stormwater inputs.
Habitat for Aquatic Invertebrates	**X**		Wetland has forested overstory with shrub and herbaceous understory. Wetland has seasonal flooding.	**Y**	Moderate. Function limited by polluted stormwater inputs and shallow ponding.
Habitat for Amphibians	**X**		Wetland has forested overstory with shrub and herbaceous understory. Wetland has seasonal flooding.	**N**	Low. Low potential for breeding habitat. Function limited by polluted stormwater inputs and shallow ponding.
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland does not provide fish habitat.		
Native Plant Richness	**X**		Wetland has overstory of forest with understory of shrubs and herbaceous vegetation.	**N**	Low. Wetland has only one Cowardin class and supports Scott's broom and Himalayan blackberry.
Educational or Scientific Value		**X**	Wetland is on WSDOT ROW and does not have safe parking for a school bus.		
Uniqueness and Heritage		**X**	Wetland mapped as habitat for elk, a Priority species, but wetland does not provide watering hole or forested habitats for this species. Wetland does not support habitat for ESA listed, PHS, or other locally significant species. Wetland is not designated as unique under local ordinances.		

Wetland Functions and Values Form

Wetland I.D. Wetland 11 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PFO Ecology Category: III Local Rating: III Wetland size: 0.35 acre Date: 11/18/2012

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland has dense woody vegetation and receives overland flow of surface runoff in heavy storms.	**Y**	Moderate. Wetland is high in the watershed and receives stormwater from I-90. Function limited by shallow ponding in wetland.
Sediment Removal	**X**		Wetland has dense herbaceous vegetation and seasonal ponding.	**Y**	High. Wetland has surface depressions to trap sediment and high inputs from stormwater.
Nutrient & Toxicant Removal	**X**		Wetland has dense herbaceous vegetation and seasonal ponding.	**Y**	High. Wetland has surface depressions to trap sediment and high inputs from stormwater.
Erosion Control & Shoreline Stabilization	**X**		Wetland outlet is culvert that drains to a seasonal stream.	**N**	Low. Stream is ditched and adjacent to a roadway.
Production of Organic Matter and its Export	**X**		Wetland has dense herbaceous vegetation, deciduous trees and an outlet.	**N**	Low. Wetland outlet is very constricted.
General Habitat Suitability	**X**		Wetland has forested vegetation and seasonal ponding. Provides habitat for passerine birds, small mammals, and amphibians.	**Y**	Moderate. Wetland has buffer that connects to other wetlands. Function limited by high stormwater inputs.
Habitat for Aquatic Invertebrates	**X**		Wetland has forested overstory with shrub and herbaceous understory. Wetland has seasonal flooding.	**Y**	Moderate. Function limited by polluted stormwater inputs and shallow ponding.
Habitat for Amphibians	**X**		Wetland has forested overstory with shrub and herbaceous understory. Wetland has seasonal flooding.	**N**	Low. Low potential for breeding habitat. Function limited by polluted stormwater inputs and shallow ponding.
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland does not provide fish habitat.		
Native Plant Richness	**X**		Wetland has overstory of forest with understory of shrubs and herbaceous vegetation.	**N**	Low. Wetland has only one Cowardin class. Scotts broom and Himalayan blackberry present in wetland.
Educational or Scientific Value		**X**	Wetland is on WSDOT ROW and does not have safe parking for a school bus.		
Uniqueness and Heritage		**X**	Wetland mapped as habitat for elk, a Priority species, but wetland does not provide watering hole or forested habitats for this species. Wetland does not support habitat for ESA listed, PHS, or other locally significant species. Wetland is not designated as unique under local ordinances.		

Wetland Functions and Values Form

Wetland I.D. Wetland 12 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PFO Ecology Category: II Local Rating: II Wetland size: 0.11 acre Date: 11/18/2012

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland has dense woody vegetation and receives overland flow of surface runoff in heavy storms.	**Y**	Moderate. Wetland is high in the watershed and receives stormwater from I-90. Function limited by shallow ponding in wetland.
Sediment Removal	**X**		Wetland has dense herbaceous vegetation and seasonal ponding.	**Y**	High. Wetland has surface depressions to trap sediment and high inputs from stormwater.
Nutrient & Toxicant Removal	**X**		Wetland has dense herbaceous vegetation and seasonal ponding.	**Y**	High. Wetland has surface depressions to trap sediment and high inputs from stormwater.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not directly associated with a stream.		
Production of Organic Matter and its Export	**X**		Wetland has dense herbaceous vegetation, deciduous trees, and outlets to a ditch.	**Y**	Moderate. Wetlands outlets to a ditch. Function limited by smaller size of wetland.
General Habitat Suitability	**X**		Wetland has forested vegetation with understory and seasonal ponding. Provides limited habitat for passerine birds, small mammals, and amphibians.	**Y**	Low. Habitat connectivity is extremely limited as the wetland is confined on one side by I-90 and the ROW fence on the other. Function limited by high stormwater inputs.
Habitat for Aquatic Invertebrates	**X**		Wetland has forested overstory with shrub and herbaceous understory. Wetland has seasonal flooding.	**Y**	Moderate. Function limited by polluted stormwater inputs and shallow ponding.
Habitat for Amphibians	**X**		Wetland has forested overstory with shrub and herbaceous understory. Wetland has seasonal flooding.	**N**	Low. Function limited by high inputs of polluted stormwater.
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland does not support fish habitat.		
Native Plant Richness	**X**		Wetland has overstory of forest with understory of shrubs and herbaceous vegetation.	**N**	Low. Wetland has only one Cowardin class and is small size.
Educational or Scientific Value		**X**	Wetland is on WSDOT ROW and does not have safe parking for a school bus.		
Uniqueness and Heritage		**X**	Wetland mapped as habitat for elk, a Priority species, but wetland does not provide watering hole or forested habitats for this species. Wetland does not support habitat for ESA listed, PHS, or other locally significant species. Wetland is not designated as unique under local ordinances.		

Wetland Functions and Values Form

Wetland I.D. Wetland 13 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PFO Ecology Category: II Local Rating: II Wetland size: 0.16 acre Date: 9/18/12

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland densely vegetated with woody species and has no outlet and seasonal ponding.	**Y**	High. Wetland located high in the watershed with downstream resources.
Sediment Removal	**X**		Wetland densely vegetated, seasonal ponding, and constricted outlet.	**Y**	Low. Wetland has constricted outlet. Function limited by low inputs due to forested buffers.
Nutrient & Toxicant Removal	**X**		Wetland densely vegetated, seasonal ponding, and constricted outlet.	**Y**	Low. Wetland has a constricted outlet. Function limited by low inputs due to forested buffers that do not receive stormwater runoff from roadways.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not directly associated with a stream.		
Production of Organic Matter and its Export		**X**	Wetland has constricted outlet.		Low. Does not have opportunity to export to downstream habitats.
General Habitat Suitability	**X**		Wetland is forested with developed understory with seasonal ponding. Wetland provides habitat for passerine birds, small mammals, amphibians, and deer.	**Y**	High. Wetland has seasonal ponding and forested buffers that connect to other wetlands.
Habitat for Aquatic Invertebrates	**X**		Wetland has dense vegetation and seasonal ponding.	**Y**	High. Wetland has habitat complexity and forested buffers.
Habitat for Amphibians	**X**		Wetland has dense vegetation and seasonal ponding.	**Y**	Moderate. Potential for breeding habitat due to emergent species, habitat complexity, and intact forested buffers.
Habitat for Wetland-Associated Mammals		**X**			
Habitat for Wetland-Associated Birds		**X**			
General Fish Habitat		**X**			
Native Plant Richness	**X**		Wetland is forested with a developed understory. Does not support a dominance of invasive species.	**Y**	Moderate. Wetland dominated by native species with native forested buffers.
Educational or Scientific Value		**X**	Wetland is on private property, is not very accessible, and does not have safe parking for a school bus.		
Uniqueness and Heritage		**X**	Wetland does not support PHS species or T&E species. Wetland is small and not designated in a local code and is not unique.		

Wetland Functions and Values Form

Wetland I.D. Wetland 14 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PFO/PSS Ecology Category: II Local Rating: II Wetland size: 0.23 acre Date: 9/18/2012

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland is densely vegetated with woody species and has seasonal flooding.	**Y**	High. Wetland is high in the watershed. Closed depression at bottom of slope allows for high volumes of water retention.
Sediment Removal	**X**		Wetland is densely vegetated with woody and herbaceous species and has seasonal ponding without an outlet.	**N**	Moderate. Depressional portion of wetland receives stormwater and has ponding to trap sediments.
Nutrient & Toxicant Removal	**X**		Wetland is densely vegetated with woody and herbaceous species and has seasonal ponding without an outlet.	**N**	Low. Wetland has potential to perform this function but inputs are not present as stormwater comes from upland forest areas
Erosion Control & Shoreline Stabilization		**X**	Wetland is not directly associated with a stream.		
Production of Organic Matter and its Export		**X**	Wetland has no outlet to export organic matter.		
General Habitat Suitability	**X**		Wetland has two Cowardin classes, seasonal ponding. Wetland provides habitat for passerine birds, small mammals, amphibians, and deer.	**Y**	High. Wetland has seasonal ponding and forested buffers that connect to other wetlands.
Habitat for Aquatic Invertebrates	**X**		Wetland is densely vegetated with seasonal ponding.	**Y**	High. Wetland has habitat complexity and forested buffers.
Habitat for Amphibians	**X**		Wetland is densely vegetated with seasonal ponding. Wetland understory developed with emergent species.		Low. Portion of wetland with deeper ponding is polluted and lacks understory development of herbaceous species. No breeding habitat.
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland does not support a stream.		
Native Plant Richness	**X**		Wetland has two Cowardin classes and developed understory.	**Y**	Moderate. Native species dominate wetland; buffer has some Himalayan blackberry.
Educational or Scientific Value		**X**	Wetland is on private property, is not very accessible, and does not have safe parking for a school bus.		
Uniqueness and Heritage		**X**	Wetland does not support PHS species or T&E species. Wetland is small and not designated in a local code and is not unique.		

Wetland Functions and Values Form

Wetland I.D. Wetland 15 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PSS Ecology Category: III Local Rating: III Wetland size: 0.04 acre Date: 9/24/2012

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland has dense woody vegetation and is upslope of ditches, roadway, and other wetlands. Wetland has small surface depressions to trap surface runoff.	**N**	Low. Function limited by small size. Runoff inputs are low, as upstream areas are forested.
Sediment Removal	**X**		Wetland has dense vegetation and small surface depressions to trap surface runoff.	**N**	Low. Function limited by small size. Runoff inputs are low, as upstream areas are forested.
Nutrient & Toxicant Removal	**X**		Wetland has dense vegetation and small surface depressions to trap nutrients and toxicants.	**N**	Low. Function limited by small size. Runoff inputs are low, as upstream areas are forested.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not directly associated with a stream.		
Production of Organic Matter and its Export	**X**		Wetland is densely vegetated and outlets at the base of its slope to a ditch.	**N**	Low. Function limited by low input and small wetland size.
General Habitat Suitability	**X**		Wetland has seasonal flooding and dense vegetation. Provides habitat for passerine birds and small mammals.	**Y**	Moderate. Wetland has forested buffer with connection to other wetlands. Function limited by a fence north of wetland and its small size.
Habitat for Aquatic Invertebrates	**X**		Wetland has dense emergent vegetation and seasonal flooding.	**N**	Low. Wetland lacks habitat complexity and is limited by small size and shallow ponding.
Habitat for Amphibians		**X**	Emergent vegetation has low cover in wetland understory and seasonal ponding is very shallow.		
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland does not support fish habitat.		
Native Plant Richness		**X**	Wetland has only one Cowardin class and Himalayan blackberry present in wetland vicinity.		
Educational or Scientific Value		**X**	Adequate parking for a school is not located in the wetland vicinity.		
Uniqueness and Heritage		**X**	Wetland does not support PHS species or T&E species. Wetland is small and not designated in a local code and is not unique.		

Wetland Functions and Values Form

Wetland I.D. Wetland 16 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PSS/PEM Ecology Category: III Local Rating: III Wetland size: 0.07 acre Date: 9/25/12

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland has dense woody vegetation and is upslope of ditches, roadway, and other wetlands. Wetland has small surface depressions to trap surface runoff.	**N**	Low. Function limited by small size. Runoff inputs are low, as upslope areas are forested.
Sediment Removal	**X**		Wetland has dense vegetation and small surface depressions to trap surface runoff.	**N**	Low. Function limited by small size. Runoff inputs are low, as upslope areas are forested.
Nutrient & Toxicant Removal	**X**		Wetland has dense vegetation and small surface depressions to trap nutrients and toxicants.	**N**	Low. Function limited by small size. Runoff inputs are low, as upslope areas are forested and runoff from I-90 only enters the lowest/ditched portion of the wetland.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not associated with a stream.		
Production of Organic Matter and its Export	**X**		Wetland has dense herbaceous vegetation and outlets to a ditch.	**N**	Low. Organic inputs are low. Function limited by small wetland size.
General Habitat Suitability	**X**		Wetland has seasonal flooding and dense vegetation. Provides habitat for passerine birds and small mammals.	**Y**	Moderate. Wetland has forested buffer with connection to other wetlands. Function limited by a fence north of wetland and its small size.
Habitat for Aquatic Invertebrates	**X**		Wetland supports dense herbaceous vegetation and has seasonal flooding.	**N**	Low. Wetland has moderate interspersion, but lacking habitat complexity. Wetland located next to roadway.
Habitat for Amphibians	**X**		Wetland supports dense herbaceous vegetation and has seasonal flooding.	**N**	Low. Seasonal ponding is shallow and wetland located next to the road.
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland does not support fish habitat.		
Native Plant Richness	**X**		Wetland has two Cowardin classes.	**N**	Low. Wetland function limited by low habitat diversity and small wetland size.
Educational or Scientific Value		**X**	Adequate parking for a school is not located in the wetland vicinity.		
Uniqueness and Heritage		**X**	Wetland does not support PHS species or T&E species. Wetland is small and not designated in a local code and is not unique.		

Wetland Functions and Values Form

Wetland I.D. Wetland 17 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PFO/PSS Ecology Category: III Local Rating: III Wetland size: 0.11 acre Date: 9/25/2012

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland has dense woody species to detain flood flows from upslope areas.	**N**	Low. Wetland is high in the watershed, but has signs of erosion in upper forested portion.
Sediment Removal	**X**		Wetland has dense vegetation and seasonal flooding. Wetland has surface depressions to trap sediment.	**N**	Low. Inputs are moderate, upslope areas are forested with little developments.
Nutrient & Toxicant Removal	**X**		Wetland has dense vegetation and seasonal flooding. Wetland has surface depressions to trap nutrients and toxicants.	**N**	Low. Inputs are moderate, upslope areas are forested with little developments.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not associated with a stream.		
Production of Organic Matter and its Export	**X**		Wetland supports deciduous species of shrubs and herbaceous species in the understory and has an outlet.	**N**	Low. Upper portion of wetland dominated by conifers and outlet constricted.
General Habitat Suitability	**X**		Wetland has to Cowardin classes and seasonal flooding. Wetland provides habitat for passerine birds and small mammals.	**Y**	Moderate. Wetland has forested buffer with connection to other wetlands. Function limited by a fence in the middle of the wetland.
Habitat for Aquatic Invertebrates	**X**		Wetland supports dense vegetation and has seasonal flooding.	**Y**	Moderate. Wetland has some habitat complexity.
Habitat for Amphibians	**X**		Wetland supports dense vegetation and has seasonal flooding.	**N**	Low. Herbaceous vegetation in understory not well developed. No breeding habitat.
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland lacks fish habitat.		
Native Plant Richness	**X**		Wetland has two Cowardin classes.	**Y**	Moderate. Wetland understory is not well developed and Himalayan blackberry present on wetland margins.
Educational or Scientific Value		**X**	Adequate parking for a school is not located in the wetland vicinity.		
Uniqueness and Heritage		**X**	Wetland does not support PHS species or T&E species. Wetland is not designated in a local code and is not unique.		

Wetland Functions and Values Form

Wetland I.D. Wetland 18 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PEM Ecology Category: IV Local Rating: IV Wetland size: 0.14 acre Date: 9/24/12

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration		**X**	Wetland is on a very steep slope and lacks woody species.		
Sediment Removal	**X**		Wetland is densely vegetated and receives runoff from upslope areas.	**N**	Low. Sediment inputs are low, upslope areas are forested. Function limited by wetland size and steep slope.
Nutrient & Toxicant Removal	**X**		Wetland is densely vegetated and receives runoff from upslope areas.	**N**	Low. Toxicant/nutrient inputs are low, upslope areas are primarily forested. Function limited by wetland size and steep slope.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not associated with a stream.		
Production of Organic Matter and its Export		**X**	Wetland is slope and dominated by equisetum.		
General Habitat Suitability	**X**		Wetland has dense vegetation and seasonal flooding from seeps. Provides minimal habitat for passerine birds and small mammals.	**N**	Low. Wetland lacks habitat complexity.
Habitat for Aquatic Invertebrates	**X**		Wetland has dense vegetation and seasonal flooding from seeps.	**N**	Low. Wetland lacks habitat complexity.
Habitat for Amphibians		**X**	Wetland is seasonally flooded by seeps, but lacks surface depressions for standing water.		
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland lacks fish habitat.		
Native Plant Richness		**X**	Wetland has one Cowardin class and low plant diversity. Wetland has Himalayan blackberry.		
Educational or Scientific Value		**X**	Adequate parking for a school is not located in the wetland vicinity.		
Uniqueness and Heritage		**X**	Wetland does not support PHS species or T&E species. Wetland is not designated in a local code and is not unique.		

Wetland Functions and Values Form

Wetland I.D. Wetland 19 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PSS Ecology Category: IV Local Rating: IV Wetland size: 0.05 acre Date: 9/25/12

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland floods and supports dense woody species.	**N**	Low. Wetland does not support surface depressions to hold back flood flows. Slope is steep.
Sediment Removal	**X**		Wetland is vegetated on a slope.	**N**	Low. Function limited by steep slope and lack of surface depressions.
Nutrient & Toxicant Removal	**X**		Wetland is vegetated on a slope.	**N**	Low. Function limited by steep slope and lack of surface depressions.
Erosion Control & Shoreline Stabilization		**X**	Wetland is not associated with a stream.		
Production of Organic Matter and its Export		**X**	Wetland supports deciduous shrubs, but outlets to a French drain.		
General Habitat Suitability	**X**		Wetland is densely vegetated and seasonally flooded. Provides habitat for passerine birds, deer and small mammals.	**Y**	Moderate. Buffers are mature forest that connects to other wetlands.
Habitat for Aquatic Invertebrates	**X**		Wetland is vegetated with seasonal flooding.	**N**	Low. Wetland lacks surface depressions to trap water. Wetland lacks habitat complexity.
Habitat for Amphibians		**X**	Wetland is densely vegetated but understory not well developed and surface depressions are lacking.		
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland lacks fish habitat.		
Native Plant Richness		**X**	Wetland only supports scrub shrub Cowardin class.		
Educational or Scientific Value		**X**	Adequate parking for a school is not located in the wetland vicinity.		
Uniqueness and Heritage		**X**	Wetland does not support PHS species or T&E species. Wetland is not designated in a local code and is not unique.		

Wetland Functions and Values Form

Wetland I.D. Wetland 20 Project: SR18/I-90 Flyover Ramp Assessed by: Beth Toberer, Tatiana Dreisbach

Cowardin Class: PEM Ecology Category: III Local Rating: III Wetland size: 0.22 acre Date: 9/24/12

Function/Value	Occurrence Y	Occurrence N	Rationale	Principal Function(s)	Comments
Flood Flow Alteration	**X**		Wetland is densely vegetated with cattails and upslope of roadway, ditches and other wetlands.	**N**	Low. Wetland has moderate opportunity and function limited by lack of woody species and steep slopes with only small depressions.
Sediment Removal	**X**		Wetland is densely vegetated with herbaceous species. Ditch portion of wetland receives stormwater runoff.	**Y**	Low. Stormwater runoff drains to ditch portion of wetland. Inputs are low from seep and upslope areas. Function limited by small wetland size.
Nutrient & Toxicant Removal	**X**		Wetland is densely vegetated with herbaceous species. Ditch portion of wetland receives stormwater runoff.	**Y**	Low. Stormwater runoff drains to ditch portion of wetland. Inputs are low from seep and upslope areas. Function limited by small wetland size.
Erosion Control & Shoreline Stabilization		**X**	Wetland not associated with a stream.		
Production of Organic Matter and its Export	**X**		Wetland is densely vegetated and outlets at base of slope.	**N**	Low. Dominant emergent species is cattails. Organic inputs are low.
General Habitat Suitability	**X**		Wetland is densely vegetated with seasonal flooding. Wetland provides habitat for passerine birds and small mammals.	**Y**	Moderate. Intact wetland buffers are mature forest with connections to other wetlands.
Habitat for Aquatic Invertebrates	**X**		Wetland is densely vegetated with seasonal flooding.	**Y**	Moderate. Intact wetland buffers are mature forest with connections to other wetlands. Function limited by small wetland size and lack of complexity.
Habitat for Amphibians		**X**	Wetland is densely vegetated with seasonal flooding, but ponding is shallow and dominant species is cattails.		
Habitat for Wetland-Associated Mammals		**X**	Wetland lacks open water.		
Habitat for Wetland-Associated Birds		**X**	Wetland lacks open water.		
General Fish Habitat		**X**	Wetland lacks open water.		
Native Plant Richness		**X**	Wetland has one Cowardin class with low species diversity. Himalayan blackberry present in wetland buffer.		
Educational or Scientific Value		**X**	Adequate parking for a school is not located in the wetland vicinity.		
Uniqueness and Heritage		**X**	Wetland does not support PHS species or T&E species. Wetland is not designated in a local code and is not unique.		

Appendix H. Reverification Memo

Washington State Department of Transportation

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710
206-440-4000
TTY: 1-800-833-6388
www.wsdot.wa.gov

January 20, 2022

TO: Nicole Evans, U.S. Army Corps of Engineers
Caroline Corcoran, Washington Department of Ecology

FROM: Alyson Rae, Northwest Region Environmental

SUBJECT: I-90/SR 18 Interchange to Deep Creek Interchange Improvements & Widening

This memorandum is intended to summarize and confirm changes to the 20 wetlands and five streams initially delineated and described in the *Wetland and Stream Assessment Report (WSAR)*, dated June 2013. Changes addressed here are specifically associated with the information in the 2013 report and the March 2021 *Wetland and Stream Assessment Report*, including any changes to the wetland ratings. Unless noted below, no changes were made to the wetland delineation or description. A summary of any changes, using the current name, is as follows:

<u>Changes to Names, Boundaries, or Ratings – summary of changes</u>:

LC-01: 0.79-acre, Category I[1]

- Previously identified as Wetland 1 in the 2013 WSAR.

LC-02: 0.015-acre, Category II[1]

- Previously identified as Wetland 2 in the 2013 WSAR.
- Area updated in 2021, previously 0.02-acre.
- Category updated in 2022, previously Category I wetland.

LC-03: 0.39-acre, Category I[1]

- Previously identified as Wetland 3 in the 2013 WSAR.

LC-04: 6.45 acres, Category I[1]

- Previously identified as Wetland 4 in the 2013 WSAR.

LC-05: 0.10-acre, Category III[1]

- Previously identified as Wetland 5 in the 2013 WSAR.

LC-11: 0.16-acre, Category III[1]

- Previously identified as Wetland 13 in the 2013 WSAR.
- Category updated in 2019, previously a Category II wetland.

LC-12: 0.23-acre, Category II[1]
- Previously identified as Wetland 14 in the 2013 WSAR.

LC-13: 0.04-acre, Category III[1]
- Previously identified as Wetland 15 in the 2013 WSAR.

LC-14: 0.11-acre, Category III[1]
- Previously identified as Wetland 17 in the 2013 WSAR.

LC-15: 0.05-acre, Category IV[1]
- Previously identified as Wetland 19 in the 2013 WSAR.

LC-16: 0.14-acre, Category III[1]
- Previously identified as Wetland 18 in the 2013 WSAR.
- Category updated in 2019, previously a Category IV wetland.

LC-17: 0.22-acre, Category III[1]
- Previously identified as Wetland 20 in the 2013 WSAR.

LC-18: 0.11-acre, Category III[1]
- Previously identified as Wetland 12 in the 2013 WSAR.
- Category updated in 2019, previously a Category II wetland.

LC-19: 0.35-acre, Category II[1]
- Previously identified as Wetland 11 in the 2013 WSAR.
- Category updated in 2019, previously a Category III wetland.

LC-20: 0.90-acre, Category III[1]
- Previously identified as Wetland 10 in the 2013 WSAR.

LC-21: 0.03-acre, Category III[1]
- Previously identified as Wetland 9 in the 2013 WSAR.

LC-22: 0.07-acre, Category II[1]
- Previously identified as Wetland 8 in the 2013 WSAR.
- Originally a Category III, updated to a Category II in 2019.

LC-25: 0.05-acre, Category III[1]
- Previously identified as Wetland 6 in the 2013 WSAR.

LC-26: 0.01-acre, Category III[1]
- Previously identified as Wetland 7 in the 2013 WSAR.

LC-A: Type F[2] Stream
- Previously identified as Lake Creek/3 in the 2013 WSAR.

LC-B: Type F[2] Stream

- Previously identified as Stream 1 in the 2013 WSAR.

LC-C: Type F[2] Stream

- Previously identified as Stream 2 in the 2013 WSAR.

LC-G: Type F[2] Stream

- Previously identified as Stream 5 in the 2013 WSAR.

LC-H: Type F[2] Stream

- Previously identified as Wetland 16 in the 2013 WSAR.

LC-I: Type F[2] Stream

- Previously identified as Stream 4 in the 2013 WSAR.

[1] Washington Department of Ecology Rating, Hruby 2014.
[2] WDNR Stream Types: F = stream provides fish habitat (WDNR 2018); Type S = shoreline of the state; Type N = nonfish habitat stream.

The information on the wetlands and streams discussed above is consistent with the *Wetland and Stream Assessment Report*, dated Revised January 2022; the *JARPA*, dated January 20, 2022, and the *Draft Wetland and Stream Mitigation Plan*, dated January 2022. Please feel free to contact me at (360) 483-9448 or raea@wsdot.wa.gov if you have any questions or require additional information.

JKC Otak