Utility Construction Agreement Utility Work by WSDOT– Utility Cost and Utility Work by WSDOT – WSDOT Cost		Utility Name & Address Highline Water District (HWD) 23828 30th Avenue S. Kent, WA 98032
Agreement Number **UTB 1363**	Region **NWR**	Project Title/Location SR 509 Completion Project Stage 1b
State Route **SR 509 (I-5)**	Mileposts **From (148.40) to 21.24**	
Estimated Agreement Amount **$ 3,206,932.52**		Advance Payment Amount **$ 3,206,932.52**
Description of Utility Work WSDOT will construct certain work elements for the Highline Water District (HWD) associated with WSDOT's SR 509 Completion Project Stage 1, including adding/ relocating/removing HWD Utility facilities associated with the SR 99 Bridge.		

WSDOT	**UTILITY**
WSDOT Agency Representatives Susan Everett, PE	Utility Representatives Jeremy DelMar
Title Design Project Manager	Title Engineering and Operations Manager
Address 999 3rd Avenue Suite 2300 Seattle, WA, 98104	Address 23828 30th Avenue S. Kent, WA 98032
E-mail Address EverettS@wsdot@wa.gov	E-mail Address jdelmar@highlinewater.org
Phone (206) 805-5422	Phone 206 592 8904

This Utility Construction Agreement is entered into between the Washington State Department of Transportation, hereinafter "WSDOT" and Highline Water District, hereinafter the "Utility;" collectively the "Parties'" and individually the "Party."

Recitals

A. WSDOT is planning the construction or improvement of the State Route as shown above for the identified WSDOT Project, and in connection therewith, it is necessary to remove and/or relocate and/or add certain Utility facilities (Utility Work).

B. The Utility is responsible for the cost of the Utility Work for (1) Utility facilities located without a documented ownership of and/or interest in real property, such as being Utility facilities located pursuant to a franchise, a permit, or undocumented permission, (2) all betterments, and (3) new facilities.

C. WSDOT is responsible for the cost of the Utility Work affecting the Utility's facilities located pursuant to a documented ownership of and/or interest in real property, such as an easement, fee title, or court finding of prescriptive right, which is impacted by the WSDOT Project.

D. The Utility Work shall be defined as all design, materials, equipment, labor, contract administration, taxes, rights of way acquisition and any other efforts required to perform the relocation, new construction, and/or removal of the Utility's facilities. The Utility Work is further identified in Exhibit A – Scope of Utility Work and Exhibit B – Conceptual Plans.

E. It is deemed to be in the best public interest for WSDOT to perform the relocation, removal, or new construction of Utility's facilities.

Now, therefore, pursuant to RCW 47.01.210 and chapter 47.44 RCW and in consideration of the terms, conditions, covenants, and performances contained herein, as well as the attached Exhibits which are incorporated and made a part hereof,

It Is Mutually Agreed As Follows:

1. Conceptual Plans, Specifications and Request for Proposals (RFP)

1.1. Program Guide*: Utility Relocation and Accommodation on Federal Aid Highway Projects* (Program Guide) shall determine and establish the definitions and applicable standards for this Agreement. By this reference the Program Guide is adopted and made a part of this Agreement as if fully contained herein. In the event of inconsistencies, the language in the Agreement Sections 1 through 8 herein shall take precedence over the Program Guide.

1.2. Betterment**:** A betterment is any improvement to the Utility's facilities not required by code, regulation, standard industry practice, or any other applicable regulation. If any of the Utility Work constitutes a betterment as defined in the Program Guide, the Utility is solely responsible for the costs of such improvement.

1.3. WSDOT, acting on behalf of the Utility, agrees to perform the Utility Work in accordance with Exhibit A - Scope of Utility Work (Utility Work Elements), and Exhibit B - Conceptual Plans, and Exhibit C – WSDOT Standard Specifications and Utility Special Provisions, System Design Standards and Standard Details, all attached hereto and by this reference made a part of this Agreement, where either: (1) Utility supplied the Utility Work conceptual plans and special provisions to WSDOT, or (2) WSDOT developed the Utility Work conceptual plans and special provisions from Utility-provided information. WSDOT will incorporate the Utility Work plans and special provisions into a WSDOT Project Request for Proposal (RFP) in accordance with Utility and WSDOT requirements. The Utility agrees that it is responsible for ensuring that all Utility Work conceptual plans, special provisions, and Utility standards that Utility supplied to WSDOT relating to the Utility Work are in compliance with all applicable standards, codes, regulations, or any other requirements the Utility is obligated to meet, unless otherwise noted.

1.4. WSDOT and the Utility will review and approve the Utility Work Elements and Conceptual Plans that will be incorporated into WSDOT Project RFP. WSDOT will advertise the Utility Work as part of the WSDOT Project RFP. WSDOT will be the lead agency during the bid advertisement and award period. When requested by WSDOT, the Utility shall timely assist WSDOT in answering proposal questions and resolving any design issues associated with the Utility Work Elements and Conceptual Plans that may arise during RFP evaluation. All comments and clarifications must go through WSDOT. If the Utility supplied the Utility Work plans and special provisions, the Utility agrees to provide WSDOT with any addenda required for the Utility Work during the RFP evaluation to the Parties' mutual satisfaction.

1.5. WSDOT agrees that it is responsible for ensuring the procurement and contract award process is conducted in a manner that is in full compliance with all applicable statutes and regulations regarding the selection, procurement, execution, and completion of the Utility Work.

1.6. WSDOT has reviewed and commented on the Utility supplied Utility Work conceptual plans and special provisions and acknowledges the documents are in general conformance with the overall WSDOT SR509 Completion Project Stage 1 scope at the time of RFP issuance. Deviations or changes by WSDOT or its DB Contractor in the WSDOT SR509 Completion Project scope or project requirements after issuance of the RFP resulting in material changes in the Utility Work's conceptual plans and special provisions will be incidental to the maximum financial contribution for the Utility.

1.7. Cost Estimating*:* WSDOT and the Utility negotiated a Lump Sum Cost Estimate for the Utility Work Elements for which Utility has cost responsibility based on similar work performed by WSDOT for Utility's Utility Work Elements listed in Exhibit D (Lump Sum Cost Estimate) attached hereto and by this reference made a part of this Agreement. Notwithstanding anything to the contrary in this Agreement, the Parties agree that except for Utility's elective changes under Section 5 and except for those certain required changes for which the Utility is responsible under Section 5, the Utility's financial contribution to the Utility Work Elements under this Agreement is in the nature of a fixed-price contract and the Utility's maximum financial contribution for the Utility Work to be performed by WSDOT or its contractor under this Agreement shall not exceed **Three Million Two Hundred Six Thousand Nine Hundred Thirty Two and 52/100 Dollars ($3,206,932.52)** without separate written approval by the Utility.

2. Final Design Documents and Release for Construction Plan

2.1. Review*:* Utility will review and comment on construction plans and utility special provisions related to Utility facilities work developed by WSDOT's DB contractor. Comments will be provided to WSDOT fifteen (15) calendar days (exclusive of the day of notification) after each construction plans and Utility special provisions review submittals are transmitted to the Utility. WSDOT, collaborating with the Utility and WSDOT's DB contractor will resolve all comments received from the Utility before the Released for Construction plans related to Utility facilities work are approved for use.

3. Construction, Inspection, and Acceptance

3.1. WSDOT agrees to construct and administer the Utility Work on behalf of the Utility. WSDOT agrees that it is responsible for ensuring the Utility Work performed on behalf of the Utility is in full compliance with the Released for Construction plans, contract documents and all applicable statutes and regulations.

3.2. WSDOT agrees to disconnect and/or reconnect Utility's facilities when such disconnection or reconnection is required by the Utility Work plans. Utility is responsible for notification to consumers of scheduled switchovers or outages related to temporary or permanent relocations of Utility's facilities. WSDOT agrees, as part of the Utility Work, to remove disconnected and/or abandoned facilities at the Utility's cost (which costs are included as part of the Lump Sum Cost Estimate), except where specified otherwise in Exhibit A – Scope of Utility Work. Utility facilities not removed pursuant to this Agreement shall remain the ownership, operation and maintenance responsibility of the Utility.

3.3. The Utility may furnish an inspector for the Utility Work. The Utility agrees that it is solely responsible for all such inspection costs. The Utility's inspector shall not directly contact WSDOT's contractor. All contact between the Utility's inspector and WSDOT's contractor shall be through WSDOT's representative(s). WSDOT's Project Construction Engineer may require the removal and/or replacement of the Utility's inspector if the inspector interferes with WSDOT's Project, WSDOT's contractor and/or the Utility Work.

3.4. WSDOT shall promptly notify the Utility in writing when the Utility Work is completed.

3.5. The Utility shall, within sixty (60) calendar days of being notified by WSDOT in writing that the Utility Work is completed: (a) deliver a letter of acceptance to WSDOT which shall include a release and waiver of all future claims or demands of any nature against WSDOT resulting from the performance of the Work and WSDOT's administration thereof or (b) deliver to WSDOT written reasons why the Utility Work does not comply with the previously approved Plans and Special Provisions for Utility Work Elements. The Utility agrees to work diligently and in good faith with WSDOT to resolve any issues so as not to delay WSDOT's Project. If all issues are resolved, the Utility agrees to deliver to WSDOT a letter of acceptance as

provided herein. WSDOT shall require its DB Contractor to provide the Utility any guaranty or warranty furnished as a customary trade practice in connection with the purchase of any equipment, materials, or items incorporated into the Utility Work. Utility's acceptance of the Utility Work as complete shall not be deemed to be a waiver of any Washington statute of limitations laws the Utility has rights to invoke against the WSDOT DB contractor(s) performing the Utility Work due to defective materials or workmanship that may be discovered by Utility after the warranty period expires. WSDOT's contract for the Utility Work shall specifically identify Utility as a third-party beneficiary under the contract to ensure that Utility has an adequate remedy for any warranty claims or for any claims associated with defective materials and workmanship.

3.6. If the Utility does not respond within sixty (60) calendar days as provided in section 3.5, the Utility Work and the administration thereof will be deemed accepted by the Utility, and WSDOT shall be released from all future claims and demands.

3.7. Upon completion and acceptance of the Utility Work pursuant to Sections 3.5 or 3.6, the Utility agrees that it shall be solely responsible for all future ownership, operation and maintenance costs of its facilities, without WSDOT liability or expense. Nothing in the Agreement will prevent the Utility from utilizing or commissioning the Utility Work in service prior to final acceptance.

3.8. WSDOT will prepare the final construction documentation in general conformance with WSDOT's Construction Manual (M 41-01.34). WSDOT will maintain one set of plans as the official "as-built" set, then make notations in red of all plan revisions typically recorded per standard WSDOT practice, as directed by WSDOT's Construction Manual. Once the Utility has accepted the Utility Work per Section 2.5 or 2.6, WSDOT upon request by the Utility will provide one reproducible set of contract as-builts to the Utility, and the Utility agrees to pay the cost of reproduction upon receipt of a WSDOT invoice. WSDOT shall also provide Utility with an electronic copy of the as-builts at no additional cost.

3.9. WSDOT shall include a provision in its contract for the Utility Work that requires the Utility to be named as an additional insured on all insurance policies and coverages required to be maintained by the contractor under WSDOT's contract for the Utility Work. The contract shall require the contractor to provide the Utility with either a certified copy of all policies with endorsements attached, or a Certificate of Insurance with endorsements attached as are necessary to comply with the terms of this Agreement.

4. Payment

4.1. The Utility agrees that it shall be responsible for a lump sum payment to WSDOT that covers WSDOT's costs, including design reviews, mobilization, construction engineering, contract administration and overhead costs, and the costs of the Contractor and designers associated with the construction of the Utility Work. An itemized estimate of Utility-responsible costs for Utility Work to be performed by WSDOT on behalf of the Utility is included in Exhibit D - Lump Sum Cost Estimate.

4.2. The Utility agrees to pay WSDOT the Lump Sum Cost Estimate in two payments. Upon the execution of this Agreement the Utility agrees to pay WSDOT an initial payment amount sufficient to cover WSDOT's preliminary engineering expenses incurred for the Utility Work. The remaining balance of the Lump Sum Cost Estimate shall be paid by the Utility to WSDOT after the full execution of the contract between WSDOT and its contractor for the Utility Work and within thirty (30) calendar days after WSDOT issues the first notice to proceed to its contractor. The initial payment shall be Fifty-Four Thousand Three Hundred Sixty One Dollars ($54,361.00) which is the negotiated cost for WSDOT Preliminary Engineering and Submittal Review (2.5% of the Base Design-Build Contract) for the Utility Work.

In the event the SR 509 Design-Builder's Notice to Proceed is delayed past March 31, 2021 or the Project Utility Scope of Work (Exhibit A) is cancelled entirely, WSDOT shall be required to refund any portion of the Lump Sum Payment relating to Utility Work not completed unless an alternative project schedule is negotiated and approved between the Parties.

4.3. The Parties acknowledge and agree that WSDOT does not have the legal authority to advance state funds for the Utility's Utility Work under this Agreement. Should the Utility fail to make payment according to the terms of this Agreement, WSDOT shall have the right to terminate this Agreement, charging the Utility for all associated costs of termination, including non-cancellable items, as well as associated Project delay and contractor claims. Such termination shall not relieve the Utility's obligation to timely relocate its facilities.

5. Change in Utility Work or Cost Increase

5.1. Increase in Cost: WSDOT is authorized on behalf of the Utility to negotiate and approve change orders with the DB Contractor related to the Utility Work up to a contingency of fifteen percent (15%) of the Lump Sum Cost Estimate identified in Section 1.7. This contingency will not be used for Utility requested elective changes. If unforeseen causes require the cost of the Utility's Work to exceed the authorized fifteen percent (15%) contingency amount, this Agreement shall be modified and amended by the Parties thorough a supplemental agreement covering the increased cost for the Utility Work.

5.2. The Utility agrees that asbestos cement material (AC) owned by the Utility that conflicts with the Project's construction shall be removed or abandoned in place by WSDOT's Design-Build contractor. The Utility has identified all known locations of AC materials in Exhibits A (Scope of Utility Work) and Exhibit B (Conceptual Plans) with the cost for its removal reflected in Exhibit D (Lump Sum Cost Estimate). If additional AC material is discovered resulting in a change in the cost of the Utility Work, the Utility will reimburse WSDOT for all costs of removing and abating or abandoning in place any conflicting AC material owned by the Utility. These costs will be considered a change as defined in Section 5.1.

5.3. If WSDOT determines that additional Utility Work or a change in the Utility Work scope described in Exhibit A is required, prior written concurrence must be secured from the Utility; however, where the change is required to mitigate a Project emergency or safety threat to the traveling public, WSDOT will direct the change without the Utility's prior approval. WSDOT will notify the Utility of such change as soon as possible thereafter.

The Utility agrees to respond by either concurring, not concurring or requesting additional information to all WSDOT change order requests in writing and within seven (7) calendar days, exclusive of the day of notification. WSDOT notification shall not be required for Utility-requested changes. If additional Utility Work or changes in the Utility Work are the direct result of the Utility's failure to timely respond as required, the Utility agrees to pay all reasonable costs associated with the changed Utility Work, including the costs of Project or Utility Work delays and/or subsequent contractor claims directly resulting from the Utility's delay.

Utility shall not be responsible for costs associated with any changed Work caused by or resulting from WSDOT's actions or conduct or the responsibility for such changed Work has been assigned to WSDOT by contract or other agreement of the Parties.

5.4. The Utility may request additions to the Utility Work through WSDOT in writing. WSDOT will implement the requested changes as elective changes, provided that a change does not negatively impact WSDOT's transportation system and complies with the standard specifications, Project permits, state and/or federal law, applicable rules and/or regulations,

and/or WSDOT design policies, and does not unreasonably delay critically scheduled Project contract activities.

5.5. All elective changes to the Utility Work shall be approved in writing by the Utility before WSDOT directs the contractor to implement the changes, even if an executed change order is not required by the Project contract. The Utility agrees to pay for the increases in cost, if any, for such elective changes in accordance with this Section 5.

5.6. WSDOT will make available to the Utility all change order documentation related to the Utility Work.

5.7. In the event WSDOT reduces their project scope causing a material reduction in the Project Utility Scope of Work (Exhibit A), the Parties agree to negotiate and modify Exhibit D to include such reasonable cost reduction.

6. Franchise or Permit

6.1. Upon completion of the Utility Work, the Utility shall apply for a permit, franchise or an amendment to its current franchise for those new or modified Utility facilities that will be located within WSDOT's right of way. After receiving the application, WSDOT will issue the Utility a permit or a new or amended franchise. The franchise fees identified in WAC 468-34 are included in the Lump Sum Cost Estimate.

6.2. Upon completion of the Utility Work covered under this Agreement, the Utility agrees to prepare, execute and deliver to WSDOT a quit claim deed for all existing easement, fee title, or court finding of prescriptive right, which will be vacated as a result of the relocation of Utility facilities and as identified in Exhibit A.

6.3. In exchange for the quit claim deed, WSDOT agrees to grant or issue the Utility an easement, permit, or franchise, as defined in Exhibit A, for those Utility facilities which will remain on or which cross WSDOT's property or right of way and for which the Utility had an easement, fee title or court finding of prescriptive right. The terms of any easement granted by WSDOT to replace a fee interest, easement or prescriptive right released by the Utility under Section 6.2 shall be as favorable as the terms of any fee interest, easement or prescriptive right relinquished by the Utility.

7. Right of Entry

7.1. The Utility agrees to arrange for rights of entry upon all privately owned lands not acquired by WSDOT, upon which the Utility has a claimed property right and which are necessary to perform the Utility Work. The Utility also agrees to obtain all necessary permissions for WSDOT to perform the Utility Work on such lands, which may include reasonable use restrictions on those lands. The Utility agrees to provide the rights of entry and applicable permissions under this section to WSDOT within ninety (90) calendar days of entering into this Agreement. Upon completion of the Utility Work on such lands, the rights of entry and permissions shall terminate.

8. General Provisions

8.1. Indemnification: To the extent authorized by law, the Utility and WSDOT shall indemnify and hold harmless one another and their employees, officials and/or officers from and shall process and defend at its own expense any and all claims, demands, suits at law or equity, actions, penalties, losses, damages (both to persons and/or property), or costs, of whatsoever kind or nature, brought against the one Party arising out of, in connection with, or incident to the other Party's performance or failure to perform any aspect of this Agreement, provided, however, that if such claims are caused by or result from the concurrent negligence of (a) the Utility and (b) WSDOT, their respective employees, officials and/or officers, or involves those actions covered by RCW 4.24.115, this indemnity provision shall be valid and enforceable only to the extent of the negligence of the Utility or WSDOT, and provided

further, that nothing herein shall require the Utility or WSDOT to hold harmless or defend the other or its employees and/or officers from any claims arising from that Party's sole negligence or that of its employees and/or officers.

The Parties agree that their obligations under this section extend to any claim, demand, and/or cause of action brought by, or on behalf of, any of their officers, officials, employees or agents. For this purpose only, the Parties, by mutual negotiation, hereby waive, with respect to each other only, any immunity that would otherwise be available against such claims under the Industrial Insurance provisions of Title 51 RCW. This indemnification and waiver will survive the termination of this Agreement.

8.2. Disputes: If a dispute occurs between the Utility and WSDOT at any time during the prosecution of the Utility Work, the Parties agree to negotiate at the Representative level to resolve any issues. Should such negotiations fail to produce a satisfactory resolution, the Parties agree to enter into arbitration and/or mediation before proceeding to any other legal remedy. Each Party shall be responsible for its own fees and costs. The Parties agree to equally share the cost of a mediator or arbiter.

8.3. Venue: In the event that any Party deems it necessary to institute legal action or proceedings to enforce any right or obligation under this Agreement, the Parties hereto agree that any such action or proceedings shall be brought in a court of competent jurisdiction situated in King County, Washington. Each Party shall be responsible for its own attorney's fees and costs.

8.4. Termination:

8.4.1. Unless otherwise provided herein, the Utility may terminate this Agreement upon thirty (30) calendar days written notice to WSDOT. If this Agreement is terminated by the Utility prior to the fulfillment of the terms stated herein, the Utility shall reimburse WSDOT for all actual direct and related indirect expenses and costs that have not been paid in accordance with the initial and balance payment terms stated herein, including design reviews, mobilization, construction engineering, contract administration and overhead costs, incurred up to the date of termination associated with the Utility Work, as well as the cost of non-cancelable obligations, including any redesign, reengineering or re-estimating, if necessary, to delete the Utility Work, and contractor claims associated with Utility Work, if any, from payment in accordance with Section 4. Further, the Utility acknowledges and agrees that should it terminate this Agreement, such termination shall not relieve the Utility from its responsibility to design, remove, relocate and/or add its facilities so as not to delay or conflict with WSDOT's Project. WSDOT agrees to provide to the Utility all Utility Work-related documents upon final payment by the Utility.

8.4.2. Unless otherwise provided herein, WSDOT may terminate this Agreement upon thirty (30) calendar days' written notice to the Utility. The Utility acknowledges and agrees that should WSDOT terminate this Agreement, such termination shall not relieve the Utility from its responsibility to design, remove, relocate and/or construct its facilities so as not to delay or conflict with WSDOT's Project. WSDOT agrees to provide to the Utility all Utility Work-related documents upon termination of the Agreement.

8.4.3. If this Agreement is terminated by either Party subsequent to Utility's lump sum payment to WSDOT for Utility Work to be performed by WSDOT on behalf of the Utility, WSDOT shall reimburse the payment amount included in Exhibit D – Lump Sum Cost Estimate for Utility Work not performed.

8.5. Amendments: This Agreement may be amended by the mutual agreement of the Parties. Such amendments or modifications shall not be binding unless put in writing and signed by persons authorized to bind each of the Parties.

8.6. Independent Contractor: Both Parties shall be deemed independent contractors for all purposes, and the employees of each Party and any of its contractors, subcontractors, consultants, and the employees thereof, shall not in any manner be deemed to be the employees of the other Party.

8.7. Audit and Records: During the progress of the Utility Work and for a period of not less than six (6) years from the date of physical completion, both Parties shall maintain the records and accounts pertaining to the Utility Work and shall make them available during normal business hours and as often as necessary, for inspection and audit by the other Party, State of Washington, and/or Federal Government and copies of all records, accounts, documents or other data pertaining to the Utility Work will be furnished upon request. The requesting Party shall pay the cost of copies produced. If any litigation, claim or audit is commenced, the records and accounts along with supporting documentation shall be retained until any litigation, claim or audit finding has been resolved even though such litigation, claim or audit continues past the six-year retention period.

8.8. Calendar Days: Calendar days for this Agreement are defined as any day on the calendar including Saturdays, Sundays, and legal holidays, beginning and ending at midnight.

In Witness Whereof, the parties hereto have executed this Agreement as of the day and year last written below.

Requesting Entity	**Washington State Department of Transportation**
By: Matt Everett	By:
Printed: Matt Everett	Printed:
Title: General Manager	Title:
Date: 6/19/20	Date:
Approved as to Form Requesting Entity	**Approved as to Form Washington State Department of Transportation**
By: Eric Frimodt	By:
Printed: Eric Frimodt	Printed:
Title: Attorney	Title:
Date: 6/17/20	Date:

8.6. Independent Contractor: Both Parties shall be deemed independent contractors for all purposes, and the employees of each Party and any of its contractors, subcontractors, consultants, and the employees thereof, shall not in any manner be deemed to be the employees of the other Party.

8.7. Audit and Records: During the progress of the Utility Work and for a period of not less than six (6) years from the date of physical completion, both Parties shall maintain the records and accounts pertaining to the Utility Work and shall make them available during normal business hours and as often as necessary, for inspection and audit by the other Party, State of Washington, and/or Federal Government and copies of all records, accounts, documents or other data pertaining to the Utility Work will be furnished upon request. The requesting Party shall pay the cost of copies produced. If any litigation, claim or audit is commenced, the records and accounts along with supporting documentation shall be retained until any litigation, claim or audit finding has been resolved even though such litigation, claim or audit continues past the six-year retention period.

8.8. Calendar Days: Calendar days for this Agreement are defined as any day on the calendar including Saturdays, Sundays, and legal holidays, beginning and ending at midnight.

In Witness Whereof, the parties hereto have executed this Agreement as of the day and year last written below.

Requesting Entity	Washington State Department of Transportation
By:	By:
Printed:	Printed: JOHN H. WHITE
Title:	Title: DEPUTY PROGRAM ADMINISTRATOR
Date:	Date: 25 JUNE 2020
Approved as to Form Requesting Entity	**Approved as to Form Washington State Department of Transportation**
By:	By:
Printed:	Printed: James Nelson
Title:	Title: AAG
Date:	Date: 25 June 2020

EXHIBIT A

SCOPE OF WORK (WORK ELEMENTS)

Description of Work

The Work proposed in this agreement includes the design and construction by the Washington State Department of Transportation (WSDOT) for the Highline Water District (Utility) water main facilities, including additions/relocations/removals as part of the SR 509 Completion Project Stage 1. The proposed water main facilities will be constructed at various locations between the proposed SR 516 and SR 99 Bridges, I-5 MP 148.40 to SR 509 MP 21.24 (See **Exhibit B** – Conceptual Plans).

Stage 1a:

1. Utility will contract directly with a third- party to construct the temporary replacement/relocations SR 99 Bridge construction.
2. UI-1, UI-2, UI-3 –Utility may abandon temporary the water mains in place provided they are asbestos free. WSDOT will remove water mains as an incidental expense during SR 509 excavation.
3. WSDOT has provided the SR 99 Bridge Contractor a Temporary Construction Airspace lease to be used for access by Utility/Third Party throughout the duration of the Stage 1a construction.

Stage 1b:

Water Main Design and General Construction Criteria

1. Utility will provide Conceptual Plans (**Exhibit B**) for relocated water mains. These plans are for use by WSDOT and the Utility to develop water main cost estimates and for use by the Design-Build (DB) Contractor to develop final design documents. These plans include:
   1.1. Water main design criteria, including type of pipe, size and connections
   1.2. Notes explaining major design assumptions
   1.3. Horizontal and vertical location of the water main route
   1.4. Location of possible conflicts with other utilities and underground structures
   1.5. Approximate location of valves, service connections and fire hydrants, including the totals of each category
   1.6. Width of trench or typical trenching section
   1.7. Confirmation that location is within acquired right of way or easements
   1.8. Confirmation that the water main route avoids known sensitive areas.
2. WSDOT's DB Contractor will design and construct water mains in accordance with the standards listed in **Exhibit C** – WSDOT Standard Specifications and Utility Special Provisions and Standard Details and any Utility water main design criteria.
3. WSDOT and/or its DB Contractor shall apply and secure all necessary permits by agencies with authority for the Utility work including, but not limited to City ROW permitting, NPDES Coverage, NEPA/SEPA/EIS, WSDOT approvals, if required. All work shall be in compliance with said permitting requirements.
4. WSDOT shall provide Utility with an electronic copy of the SR 509 Stage 1b Design Builder preliminary and final Plans, Specifications and Working Drawings related to Work reference in Agreement (Contract Documents) for review and comment.
5. WSDOT shall endeavor to resolve all Utility comments and obtain Utility approval on

preliminary and final contract documents before Release for Construction Contract Documents are issued.

6. All water mains shall be designed at a depth as indicated in the Conceptual Plans or as approved by the Utility. In no case shall mains be installed greater than eight feet (8') of the final surface grade unless directed by WSDOT and approved by the Utility.
7. If the DB Contractor presents a concept that requires more than one move of the water main or appurtenances, the DB Contractor shall be responsible for the interim moves at their expense.
8. The DB Contractor will provide final engineered and stamped Contract Documents to the Utility prior to construction.

Water Pipe Abandonment and Removal

1. All pipe and appurtenances to be decommissioned upon completion of the project shall be removed and lawfully disposed by the DB Contractor.
2. AC water mains shall be removed, hauled and lawfully disposed of in accordance with all federal, state and local regulations by a contractor's personnel certified for AC handling procedures.
3. Utility will be responsible for the cost to remove and dispose of said AC mains currently located within City right of way. WSDOT will be responsible for costs to remove and dispose of said AC mains located within easements owned by Utility.
4. Utility has identified the location of all known AC pipe materials within the SR 509 construction area. (See **Exhibit B- Conceptional Plans** for a diagram of the SR 509 construction area and depicted locations of water mains to be removed.)
5. The costs to remove AC pipe deemed the responsibility of the Utility is included in the cost estimates of this Agreement based on the locations identified by Utility.

Location Specific Project Assumptions

UI-74 12" Water Main under S. 208th Street and under a Private Easement Assumptions

1. Utility and WSDOT agree to share the estimated cost of a new 12" UI-74 construction and the existing U1-74 abandonment, with WSDOT paying 50% of the estimated cost and Utility paying 50% of the estimated cost.
2. UI-74 shall be replaced by a 16" ductile iron restrained joint water main and Utility will pay 100% of the cost of upsizing UI-74 from a 12" water main to a 16" water main.
3. A new UI-74 water main will be constructed on the south side of the SR 509 right of way by WSDOT as part of the SR 509 Stage 1b Design-Build contract.
4. An access driveway shall be constructed on the south side of the SR 509 right of way from S. 208th Street to Utility's existing pump station driveway located at 20850 S. 30th Ave S. Utility's conceptual design for U-74 shall place the 16" water main along the east side of the access driveway, providing adequate separation between the water main and the relocated storm drain.
    - 4.1. WSDOT shall pave the access driveway with a surface course of ~ six inches (6") ACP. The access driveway will be ~15' wide. The access driveway geometric design will accommodate the turning radius of SU-30 vehicle.
    - 4.2. Maintenance of the access driveway will be by Sound Transit and Utility and the Maintenance terms will be established under a separate agreement between Sound Transit and Utility.
    - 4.3. WSDOT will grant at no cost to Utility a 20' wide permanent nonexclusive permanent easement for the placement of the new UI-74 water main and the new access

driveway. Easement will be prepared using the Utility's Standard Easement Document.

4.4. Utility will grant at no cost to WSDOT a 50' by 65' temporary construction easement for constructing a connection between the new access driveway and the existing pump station driveway.

5. The new UI-74 water main will connect to existing mains on S. 208th St. west of SR 509 and to existing main near the Utility pump station.
6. The existing UI41 will be capped west and south of SR 509 right of way limits
7. Decommissioned portions of the existing UI-74 that contain Asbestos pipe material shall be removed by WSDOT. The cost of Asbestos pipe material removal shall be cost shared between Utility and WSDOT. The Asbestos pipe material removal will be from existing S. 208th St connection, along S. 208th St, along a private easement, to existing junction near pump station as shown on **Exhibit B** – Conceptual Plans

UI-41 8" Water Main under S. 208th Street and under Private Easement

1. Utility and WSDOT agree to share the estimated cost of the new UI-41 water main construction and the existing UI-41 water main abandonment with WSDOT paying 34% of the estimated cost of the water main replacement/relocation and Utility paying 66% of the estimated cost of the water main replacement/relocation.
2. A new UI-41 water main will be constructed within the S. 206th right of way (relocated S. 208th Street) by WSDOT as part of the SR 509 Stage 1b Design-Build contract.
3. The S. 206th Street Line is within WSDOT right of way that will be turned back to City of SeaTac at the completion of SR 509 Stage 1b.
4. WSDOT will construct new UI-41 with 8" diameter ductile iron restrained joint pipe.
5. The new UI-41 water main will also connect to existing mains at S. 208th Street and on property owned by Willow Lake Apartments.
6. The decommissioned piping within the SR 509 ROW will be removed as part of the Project work.

UI-243 30" Water Main under 34th Ave S.

1. The existing 30" water main is located within existing easements and WSDOT ROW along the alignment. It is not anticipated this main will need relocation; however, in the event of encumbrance effects the proper performance or maintenance of said main, the main may require relocation.
2. Utility is 100% responsible for the estimated cost of the UI-243 water main relocation associated with the new 34th Avenue S work within the existing WSDOT right of way.
3. WSDOT is 100% responsible for the estimate cost of the UI-243 water main relocation that is within existing Utility easements on property to be acquired or impacted by WSDOT.
4. A new relocated UI-243 water main will be constructed within the WSDOT right of way by WSDOT as part of the SR 509 Stage 1b Design-Build contract.
5. The 34th Avenue S right of way will be acquired by WSDOT and will be turned back to City of SeaTac at the completion of SR 509 Stage 1b Design-Build contract.
6. WSDOT will construct relocated UI-243 with 24" ductile iron Restrained joint pipe.
7. The existing water main will remain active until the relocated section is commissioned and cutover is activated.
8. The Utility's existing easement rights along 34th Ave S shall survive the completion of the project and remain a condition of the new right-of-way dedicated to the City of SeaTac in perpetuity.

UI-245/UI-224/UI-202 New 8" Water Main under 34th Ave S and S 204th St.

1. Utility is 100% responsible for the estimated cost of the new 8" water main, including fire service connections and hydrants, constructed within the new 34th Ave S right of way (new 34th Ave S.) and east end of S 204th St.
2. The 34th Ave S alignment is within WSDOT acquired right of way that will be turned back to City of SeaTac at the completion of SR 509 Stage 1b Design-Build contract.
3. WSDOT will construct new UI-245 with 8" ductile iron restrained joint pipe.
4. The new UI-245 water main will connect to existing mains at S. 208th St and in S 204th Street.

UI-157/UI-66 30" Water Main Replacement/Relocation under S. 211 St

1. Sound Transit Federal Way Link Light Rail project will build a UI-157 water main within the SR 509 right of way, hereby called the ST_UI-157 water main, according to an agreement between Utility and Sound Transit. This main will be temporary to accommodate the future excavation by WSDOT in the general area of the permanent location of UI-157.
2. Portions of ST_UI-157 water main will be abandoned, and a new UI-157 water main will be constructed, hereby called UI-157, by WSDOT as part of the SR 509 Stage 1b Design-Build at Utility's expense.
3. Utility has 100% responsible for the estimated cost of the new UI-157 construction and the estimated cost of the existing UI-157 and ST_UI-157 abandonment.
4. Utility will provide WSDOT red line or as-built plan of ST_UI-157 no later than 90 days after the construction of ST_UI-157.
5. WSDOT will construct UI-157 with 24" ductile iron restrained joint pipe within a steel casing under new road alignment
6. The New UI-157 water main will connect to existing ST_UI-157 main east of Sound Transit's guideway right of way and existing main east of SR 509 right of way.
7. ST_UI-157 will be capped within five (5) feet of new connections to existing mains.
8. Abandoned portions of existing UI-157 and ST_UI-157 that are free of hazardous material and are in the WSDOT SR 509 right of way may be abandoned in place and/or removed as an incidental expense of the SR 509 excavation. Any hazardous pipe material shall be removed, and the cost of that removal shall be 100% the Utility's expense and reflected in the cost estimate for this location.

UI-33 18" Water main under S. 216th Street Bridge

1. Utility is 100% responsible for the estimated cost of the UI-133 water main construction associated with the new S. 216th Street replacement bridge.
2. WSDOT's conceptual plan builds the south side of S. 216th Street bridge replacement first. The current (before construction) water main on the north side of the S. 216th Street Bridge remains active until the permanent main is placed into service on the south side of the new S. 216th Street Bridge. After the south side of the S. 216th Street Bridge is complete and the new permanent water main is active, WSDOT will demolish the north side of the existing S. 216th Street bridge and construct the new north side of this bridge.
3. The existing water main will remain active until a replacement/relocation water main (either temporary or permanent) is commissioned and active.
4. A new 18-inch ductile iron restrained joint water main will connect to the existing main on west side of new bridge and connect to 33rd Ave S and Military Road.
5. New main will be affixed permanently to the bridge by proposal from the DB Contractor in accordance with WSDOT design criteria and reviewed and approved by the Utility.

6. Utility will coordinate with Sound Transit for temporary/permanent relocation necessary on the west side of the existing bridge to accommodate the Federal Way Light Rail Extension.

UI-160 New 12" Water Main near S 232ND PL

1. Utility is 100% responsible for the estimated cost of the new 12" ductile iron restrained joint water main constructed under the new V alignment between Military Road and VL line intersections by WSDOT as part of the SR 509 Stage 1b Design-Build contract.
2. The new UI-160 water main will connect to existing mains at Military Road and Kent Des Moines Road.
3. WSDOT will grant a utility permit for the portion of UI-160 that is within WSDOT Limited Access right of way.

UI-59 8" Hydrant relocation under S. 208th St near STA 26+00.

1. Utility is 100% responsible for the estimated cost of the UI-59 hydrant assembly relocation associated with the new S. 208th Street sidewalk construction.
2. The Utility will utilize their own forces to relocate the hydrant. There is no provision for the relocation costs in this Agreement.
3. DB Contractor will give Utility 30-day notice to relocate the hydrant assembly.

UI-54 Private Fire Suppression Service and Hydrants for WSDOT ROW.

1. WSDOT is required to provide fire hydrants and fire suppression adjacent to the highway crossings near I-5 and SR 509 in accordance to Fire Code and other applicable regulations.
2. DB Contractor must determine hydrant locations, pipe sizes and required fire flow to serve said hydrants within WSDOT ROW using restrained joint pipe and fittings in general accordance to the Utility's standards as modified and supplemented by WSDOT.
3. DB Contractor will design and install a tap from the Utility's existing water main along S 216th St and install a Double Detector Check Valve Assembly (DDCVA) of size to be determined inside a vault near the Utility's existing facilities.
4. The DDCVA, vault and all piping downstream including hydrants and appurtenances shall be privately owned and maintained by WSDOT. The Utility will own and operate piping upstream of the DDCVA vault.
6. WSDOT is responsible for all costs associated with design and construction of required improvements necessary to serve fire suppression along WSDOT ROW and any future maintenance of privately-owned infrastructure.
7. The Utility will bill a monthly standby fire charge to WSDOT for the DDCVA serving the private fire line based on standard rates established by the Utility.
8. WSDOT will provide a Right of Entry to the Utility for access to the DDCVA vault on the Utility's Standard Form.
9. The DDCVA shall be a Department of Health approved cross connection device and tested in accordance to DOH and WAC requirements.
10. The private fire system is authorized for fire suppression only. No other domestic or commercial use or consumption will be authorized by the Utility.

Water Main Cost Estimates and Cost Sharing

1. Cost estimates and breakdown of any cost sharing based on the assumptions defined herein are provided in **Exhibit D -** Lump Sum Cost Estimate.
2. Estimates include mutually agreed breakdowns for missing bid items, temporary erosion and sediment control, maintenance of traffic, mobilization, Design-Builder engineering, Design-

Builder contract administration, Design-Builder engineering mobilization, WSDOT construction engineering, WSDOT standard Contingency, Sales Tax, WSDOT CEVP risk analysis cost, WSDOT preliminary engineering, WSDOT CEVP estimated escalation.

3. The cost estimate shall include state sales tax per WAC 458-20-170 on the portion of UI-74 that is within the WSDOT limited access. WAC 458-20-171 shall apply to the portion of UI-74 that is outside limited access.
4. The WSDOT conceptual plans and Utility preliminary plans were used to estimate the cost of the Utility water main replacement/relocations. All cost estimates were estimated by Utility using WSDOT provided template and verified by WSDOT. WSDOT and Utility agree these fixed costs and/or percentages accurately reflect the true opinion of probable project costs regardless of design changes implemented by the DB Contractor.
5. Design Builder may alter WSDOT's conceptual and Utility's preliminary plan upon approval of WSDOT and Utility, which shall not be unreasonably withheld, at no additional cost to the Utility.
6. For project locations not identified in this Agreement that arise during construction, the parties agree to negotiate a modified Scope of Work and cost estimate for the work that is not in scope or seek a change order proposal from the DB Contractor.

HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
PROJECT NO. 18-2

Sheet List Table

SHEET NUMBER	SHEET TITLE
W-1	COVER SHEET
W-2	MAP INDEX
W-3	UI33 PLAN
W-4	UI33 DETAILS
W-5	UI41 PLAN AND PROFILE
W-6	UI41 PLAN AND PROFILE
W-7	UI41 PLAN AND PROFILE
W-8	UI74 PLAN AND PROFILE
W-9	UI74 PLAN AND PROFILE
W-10	UI74 & UI157 AC PIPE REMOVAL PLAN
W-11	UI157 PLAN AND PROFILE
W-12	UI245 PLAN AND PROFILE
W-13	UI245 PLAN AND PROFILE
W-14	UI245 PLAN AND PROFILE
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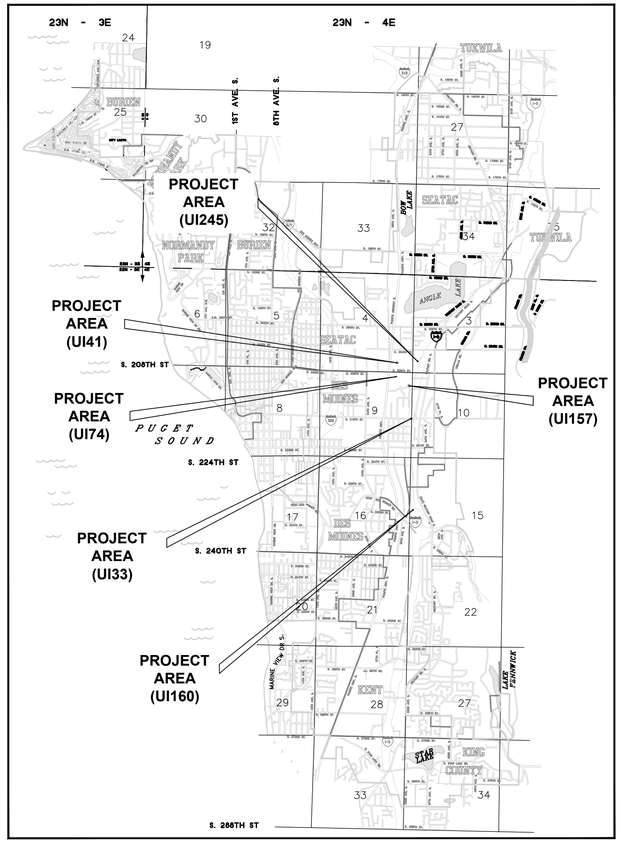
W-16	UI245 PLAN AND PROFILE
W-17	UI245 PLAN AND PROFILE
W-18	UI160 PLAN AND PROFILE
W-19	UI160 PLAN AND PROFILE
W-20	UI160 PLAN AND PROFILE
W-21	UI160 PLAN AND PROFILE
W-22	UI160 PLAN AND PROFILE
W-23	HIGHLINE WATER DISTRICT DETAILS
W-24	HIGHLINE WATER DISTRICT DETAILS
W-25	DES MOINES STANDARD DETAILS
W-26	KENT AND SEATAC STANDARD DETAILS



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Kent, WA 98089
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Power & Gas

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Bellevue, WA 98004
24-hour Emergency Phone: 1-(888) 225-5773

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City of SeaTac
Public Works
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SeaTac, WA 98188
Phone: (206) 973-4720

Police Department
4800 S. 188 Street
SeaTac, WA 98188
Phone: (206) 973-4900

Fire

Puget Sound Fire
Station 45
3011 S 200 St
SeaTac, WA 98198
Phone: (253) 856-4300

DISTRICT OFFICIALS

TODD FULTZ	COMMISSIONER
DAN JOHNSON	COMMISSIONER
KATHLEEN QUONG-VERMEIRE	COMMISSIONER
VINCE KOESTER	COMMISSIONER
POLLY DAIGLE	COMMISSIONER
MATT EVERETT	GENERAL MANAGER
JEREMY DELMAR, P.E.	ENGINEERING/OPERATIONS MANAGER

UTB 1363
Exhibit B

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PACE PROJECT NO. 18434
SHEET **W-1**

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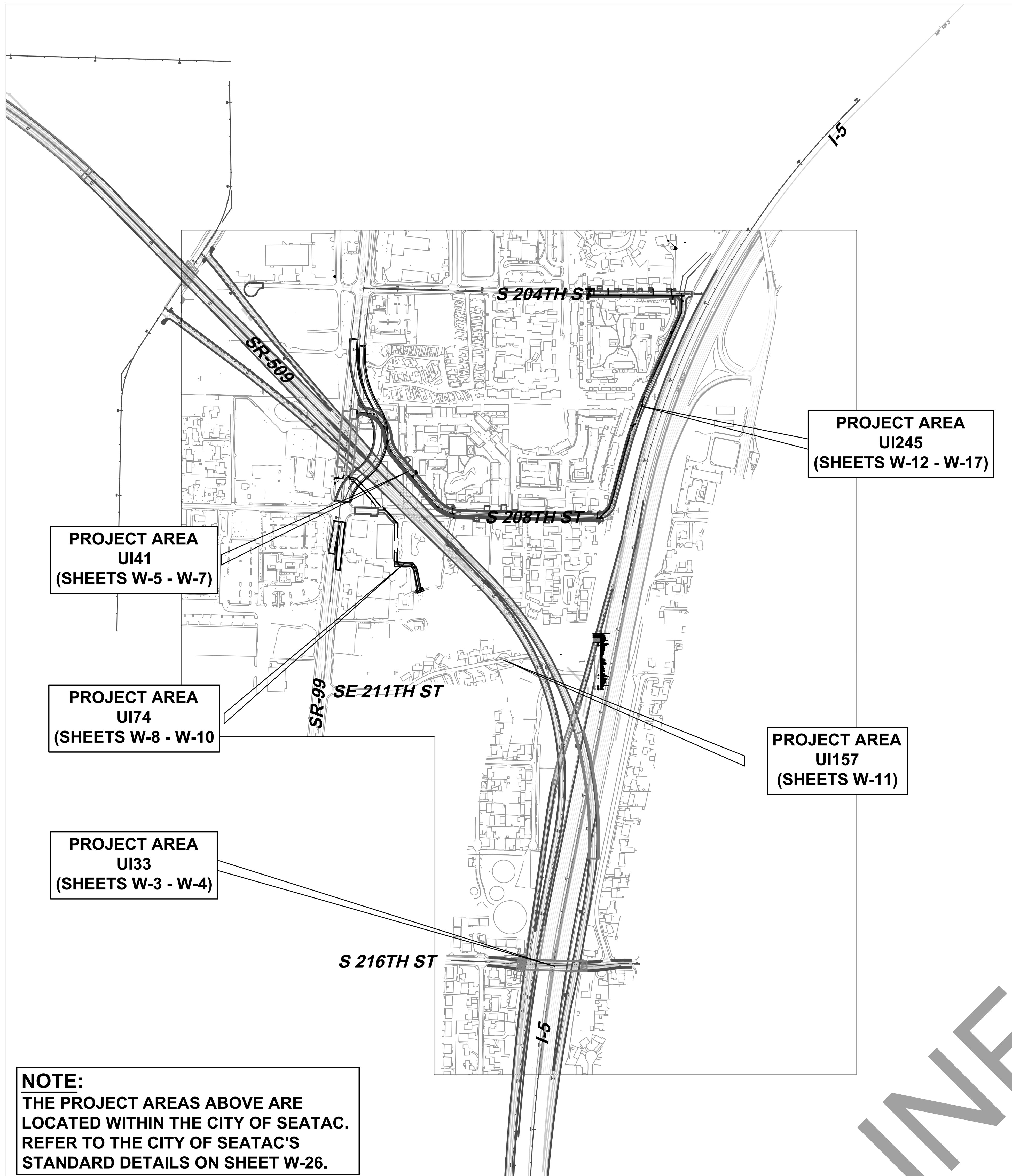
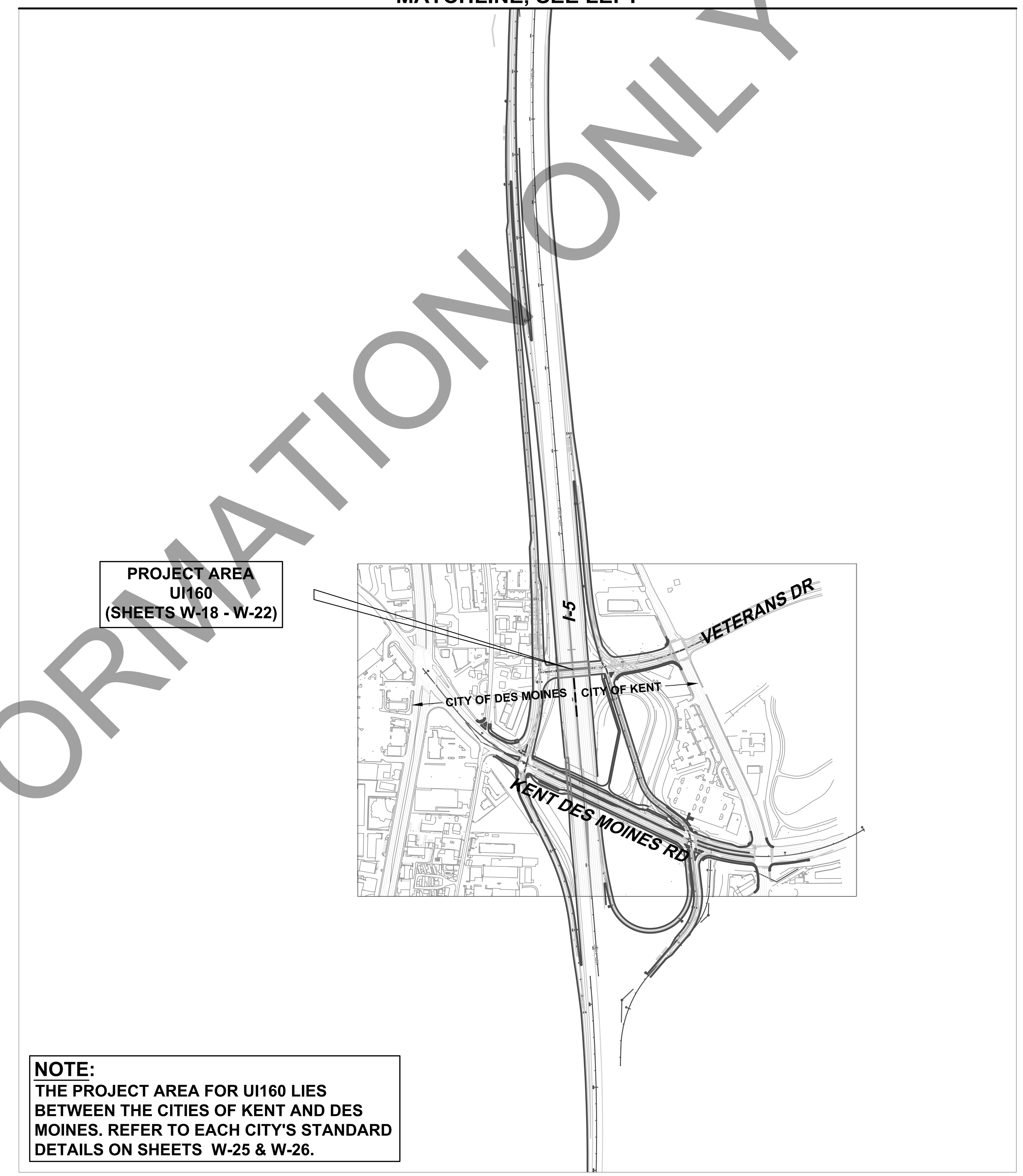


NOTE:
THE PROJECT AREAS ABOVE ARE LOCATED WITHIN THE CITY OF SEATAC. REFER TO THE CITY OF SEATAC'S STANDARD DETAILS ON SHEET W-26.

MATCHLINE, SEE SHEET RIGHT

MATCHLINE, SEE LEFT



NOTE:
THE PROJECT AREA FOR UI160 LIES BETWEEN THE CITIES OF KENT AND DES MOINES. REFER TO EACH CITY'S STANDARD DETAILS ON SHEETS W-25 & W-26.

FOR INFORMATION ONLY

NOTES:

1. THESE PLANS ARE 30% AND INTENDED TO SHOW THE GENERAL CONCEPT OF THE HIGHLINE WATER DISTRICT (HWD) WATER MAIN IMPROVEMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PREPARING AND IMPLEMENTING FINAL DESIGNS, IN COORDINATION WITH HWD, AND FOR RESOLVING ANY PLAN AND MAPPING DISCREPANCIES BETWEEN THESE DRAWINGS AND OTHERS PRODUCED BY OTHER ENTITIES.
2. HYDRANT SPACING IS 600' IN SINGLE-FAMILY RESIDENTIAL ZONES; 300' IN MULTI-FAMILY AND COMMERCIAL ZONES.
3. ALL DESIGN & CONSTRUCTION WORK SHALL BE IN COMPLIANCE WITH THE LATEST EDITIONS OF THE WASHINGTON DOH WATER SYSTEM DESIGN MANUAL, HWD DESIGN STDS, HWD 2016 COMP WATER SYSTEM PLAN HWD STANDARD SPECIFICATIONS, SPECIAL PROVISIONS & STD. DETAILS & WSDOT UTILITY MANUAL.
4. ALL DESIGN & CONSTRUCTION WITHIN CITY ROW SHALL BE IN ACCORDANCE WITH CITY PERMIT CONDITIONS.
5. ALL PIPE & FITTINGS TO BE FULLY MECHANICALLY RESTRAINED.
6. ALL RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GOVERNING JURISDICTION. BACKFILL FOR ALL PIPE SHALL BE 100% CRUSHED SURFACING ROCK. STANDARD CITY DETAILS PROVIDED IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY.

N

HORIZ. 0 250 500 1000
Scale In Feet

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STATE OF WASHINGTON
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REGISTERED PROFESSIONAL ENGINEER
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VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DATE 4/3/2020
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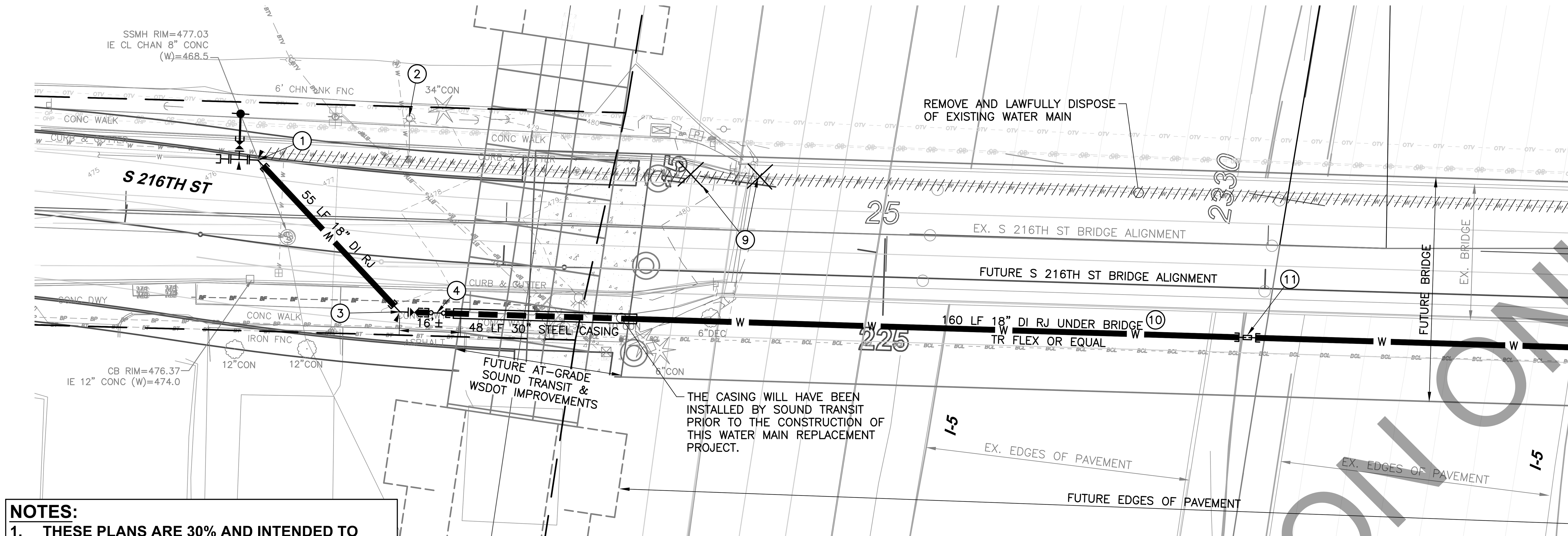
HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
MAP INDEX

PACE PROJECT NO. 18434
DWG NAME: P18434_CVR
SHEET W-2 OF 26

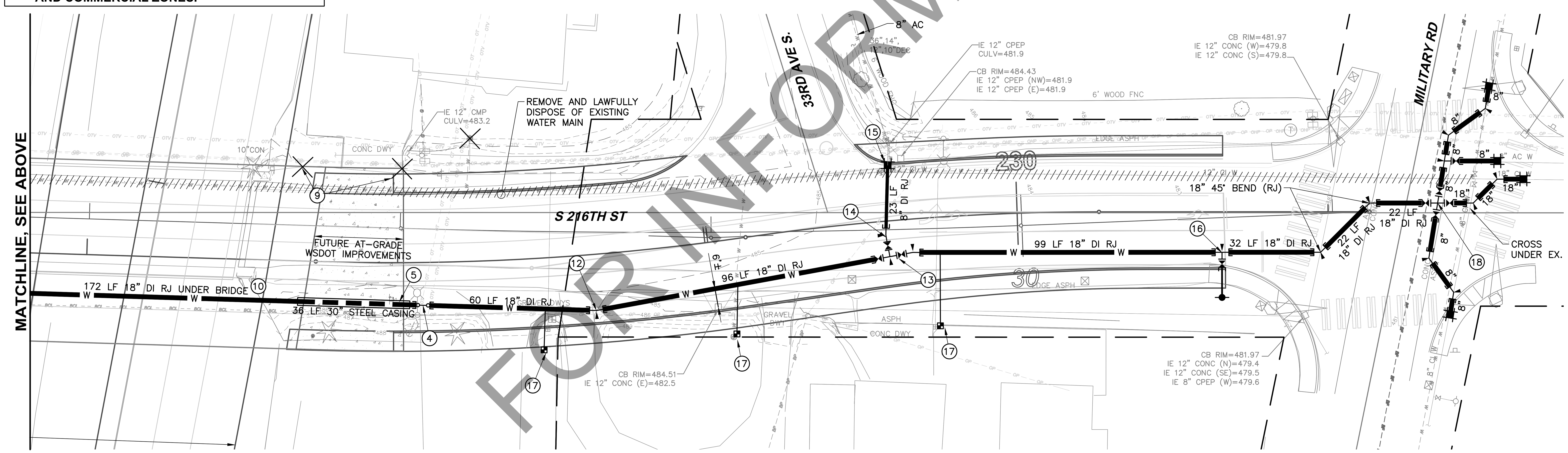


PLAN VIEW

RELOCATE WATER MAIN WHEN THE NEW S 216TH ST BRIDGE OVER I–5 IS COMPLETE. ENCASE (2) SECTIONS OF WATER MAIN WHERE AT–GRADE CONCRETE PAVEMENT OVER THE (2) BRIDGE ABUTMENTS AND WHERE SOUND TRANSIT IMPROVEMENTS WOULD BE INSTALLED. ALL PIPE & FITTINGS TO BE FULLY MECHANICALLY RESTRAINED.

NOTES:

1. **THESE PLANS ARE 30% AND INTENDED TO SHOW THE GENERAL CONCEPT OF THE HIGHLINE WATER DISTRICT (HWD) WATER MAIN IMPROVEMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PREPARING AND IMPLEMENTING FINAL DESIGNS, IN COORDINATION WITH HWD, AND FOR RESOLVING ANY PLAN AND MAPPING DISCREPANCIES BETWEEN THESE DRAWINGS AND OTHERS PRODUCED BY OTHER ENTITIES.**
2. **HYDRANT SPACING IS 600' IN SINGLE-FAMILY RESIDENTIAL ZONES; 300' IN MULTI-FAMILY AND COMMERCIAL ZONES.**



PLAN VIEW - PHASE II

HORIZ. 0 10 20 40 Scale In Feet

GENERAL NOTES

1. WATER MAIN ALIGNMENT IS CONCEPTUAL, FINAL DESIGN SHALL BE APPROVED BY THE DISTRICT.
2. WATER PIPE SHALL BE DIP CLASS 52 WITH RESTRAINED JOINTS. ALL PIPE & FITTINGS TO BE FULLY MECHANICALLY RESTRAINED.
3. WATER MAINS SHALL BE VERTICALLY SUPPORTED (SEE DETAIL) BY CAST–IN–PLACE BURKE HI–TENSILE THREADED INSERTS, GALVANIZED ALL–THREAD ROD, AND ANVIL FIG 171 SINGLE PIPE ROLLERS, 18' OC MAX. FINAL LOCATIONS SHALL BE APPROVED BY THE DISTRICT.
4. WATER MAINS SHALL BE HORIZONTALLY SUPPORTED BY CAST–IN–PLACE BURKE HI–TENSILE THREADED INSERTS, ATTACHMENT PLATE AND DUAL–STRUT HINGE CONNECTORS (SEE DETAIL), 18' OC MAX. LOCATIONS AND DESIGN SHALL BE APPROVED BY THE DISTRICT.
5. THE ROLL HANGERS AND OTHER PIPE SUPPORTS SHALL RECEIVE A SHOP COAT PRIMER OF A ZINC–RICH AROMATIC URETHANE (TNEMEC 90–97, TNEME–ZINC), 3.5 MILS DRY–FILM THICKNESS, ON ALL SURFACES, ROLL HANGERS AND OTHER PIPE SUPPORTS SHALL BE COATED WITH AN ALIPHATIC ACRYLIC POLYURETHANE (TNEMEC SERIES 73, ENDURA–SHIELD), MIN. 5.0 MILS DRY–FILM THICKNESS OR OTHERWISE APPROVED COATING SYSTEM BY THE DISTRICT.
6. 24–INCHES OF WORKING CLEARANCE SHALL BE PROVIDED AROUND WATER MAINS AT ALL LOCATIONS OTHER THAN CROSSINGS WITH BRIDGE ABUTMENTS, GIRDER PIERS, AND GIRDER DIAPHRAGMS UNLESS OTHERWISE APPROVED BY THE DISTRICT.
7. WATER MAIN SHALL BE INSULATED BETWEEN BRIDGE ABUTMENTS WITH 3–INCH THICK STYROFOAM. A "SUREFIT" SMOOTH TEXTURED 0.0240" ALUMINUM COVER BY PABCO METAL CORP OR APPROVED EQUAL SHALL BE PROVIDED. COLOR AND MATERIAL SPECIFICATIONS SHALL BE APPROVED BY THE DISTRICT.
8. MODULAR SEALS SHALL BE FLEX SEALS OR APPROVED EQUAL.
9. WORK SHOULD BE COORDINATED WITH SOUND TRANSIT AND KIEWIT.

CONSTRUCTION KEYNOTES

1. CONNECT TO EX 18" CI:
   1 – 18"x6" TEE (FLxFL)
   1 – 18" ADAPTER (FLxRJ)
   1 – 18" 45° BEND (FLxRJ)
   1 – FIRE HYDRANT ASSEMBLY
   W/ 2 THRUST BLOCKS (DEADMAN BLOCK)
   VERIFY PIPE SIZE AT THE POINT OF CONNECTION. INSTALL AN 18"x12" RJxFL REDUCER (TO REPLACE THE LISTED 18" ADAPTER) IF NECESSARY.
2. REMOVE AND PROPERLY DISPOSE OF EX. FIRE HYDRANT AND GATE VALVE.
3. 1 – 18" SPOOL, LENGTH AS REQUIRED
   1 – 18" BUTTERFLY VALVE (RJxFL)
   1 – 18" 45° BEND (FLxRJ)
   W/ THRUST BLOCK
4. 1 – 18" DOUBLE BALL FLEXIBLE EXPANSION JOINTS, FLEX–TEND 418M20 OR EQUAL (RJxRJ)
5. PIPE WITHIN STEEL CASING UNDERNEATH FUTURE IMPROVEMENTS. MINIMIZE EXPOSING STEEL CASING UNDERNEATH THE BRIDGE. REFER TO STEEL CASING DETAIL ON SHEET W–24.
6. NOT USED.
7. NOT USED.
8. NOT USED.
9. REMOVE AND LAWFULLY DISPOSE OF WATER MAIN SECTION UNDERNEATH THE OLD BRIDGE AND AFFECTED SERVICE LINES NEARBY.
10. REFER TO BRIDGE ATTACHMENT DETAILS ON SHEET W–4.
11. 1 – 18" LINEAR EXPANSION JOINT (RJxRJ) (MIN. 8" EXPANSION)
12. 1 – 18" 11.25° BEND (RJxRJ)
    W/ THRUST BLOCK
13. 1 – 18" 11.25° BEND (RJxFL)
    1 – 18" BUTTERFLY VALVE (FLxFL)
    1 – 18"x8" TEE (FLxFL)
    1 – 8" GATE VALVE (FLXFL)
    1 – 18" BUTTERFLY VALVE (FLxRJ)
    2 – THRUST BLOCKS
14. 1 – 8" 11.25° BEND (FLxRJ)
    W/ THRUST BLOCK
15. REMOVE ALL FITTINGS & CONNECT TO EX 8" AC:
    1 – 8" TRANSITION COUPLING
16. 1 – 18"x6" TEE (MJxFL)
    1 – FIRE HYDRANT ASSEMBLY
    W/ THRUST BLOCK
17. CONFIRM ACQUISITION OF PROPERTY. IF PROPERTY IS ACQUIRED, REMOVE AND PROPERLY DISPOSE OF AFFECTED SERVICE LINES AND METERS; OTHERWISE, REMOVE & REPLACE AFFECTED EX. SERVICE LINE & METER.
18. CONNECT TO EX 8" CI, 8" AC & 18" CI:
    1 – 18"x8" TEE (FL)
    2 – 18" BUTTERFLY VALVES (FLXRJ)
    2 – 8" GATE VALVES (FLXRJ)
    2 – 18" 45° BENDS (RJ)
    3 – 18" SPOOLS
    1 – 18" SLEEVE (RJXMJ)
    1 – 8" TEE (RJXFL)
    1 – 8" GATE VALVE (FLXRJ)
    RJ VERT BENDS & SPOOLS TO MATCH 8" AC GRADE
    1 – 8" TRANS COUPLING, DI TO AC
    4 – 8" 45° BENDS (RJ)
    7 – 8" SPOOLS
    2 – 8" SLEEVES (MJ)
    W/ 7 THRUST BLOCKS

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SYM	REVISION	DATE	BY	APP'D	

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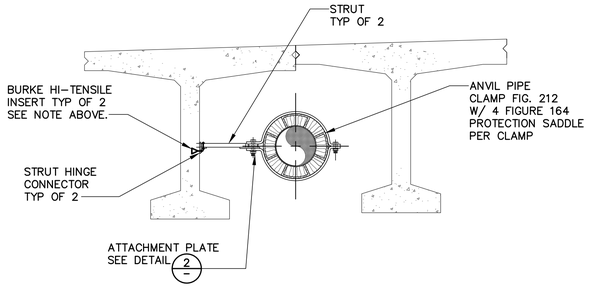
HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI33 PLAN

PACE PROJECT NO. **18434**
DWG NAME: P18434_UI33_WA-PP1
SHEET W-3 OF 26

NOTE:
INSERTS SHALL BE CAST INTO GIRDERS, DRILLING WILL NOT BE ACCEPTABLE. THE CONTRACTOR SHALL SUBMIT A SUPPORT PLAN FOR REVIEW AND APPROVAL. THE CONTRACTOR'S DESIGN PLAN AND CALCULATIONS SHALL BE BY STATE OF WASHINGTON CIVIL OR STRUCTURAL ENGINEER. THE INSERTS SHALL BE TIED INTO THE GIRDER REINFORCEMENT IF RECOMMENDED BY INSERT MANUFACTURER.



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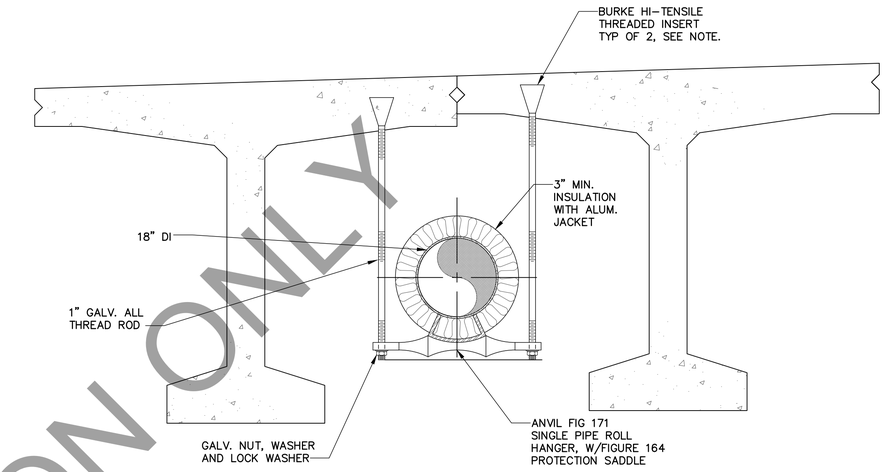
NTS



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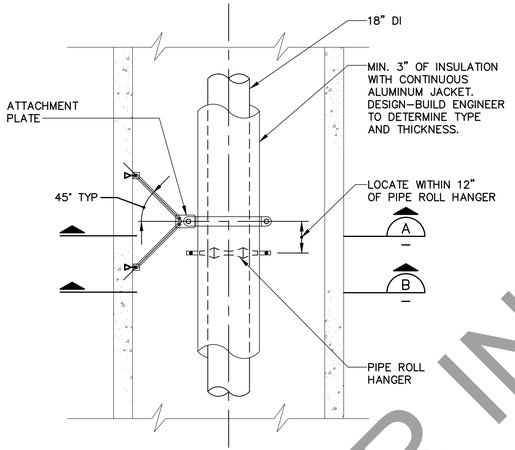
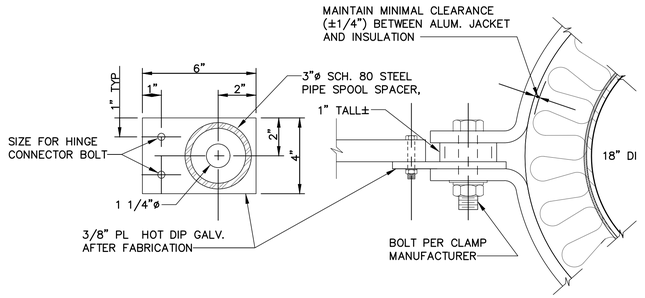


1 PLAN DETAIL
NTS

ALL RESTRAINED JOINT PIPE & FITTINGS ON BRIDGE SHALL BE U.S. PIPE TR FLEX OR APPROVED EQUAL.



2 ATTACHMENT PLATE DETAIL
NTS

NOTE:
THESE DETAILS ARE FOR GENERAL CONCEPT ONLY. DESIGN AND SIZING OF ALL PIPE SUPPORT MEMBERS AND PRODUCTS TO BE DETERMINED BY DESIGN-BUILD STRUCTURAL ENGINEER.

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SYM	REVISION	DATE	BY	APP'D

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HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI33 DETAILS

PACE PROJECT NO. 18434
DWG NAME: P18434_DET
SHEET W-4 OF 26

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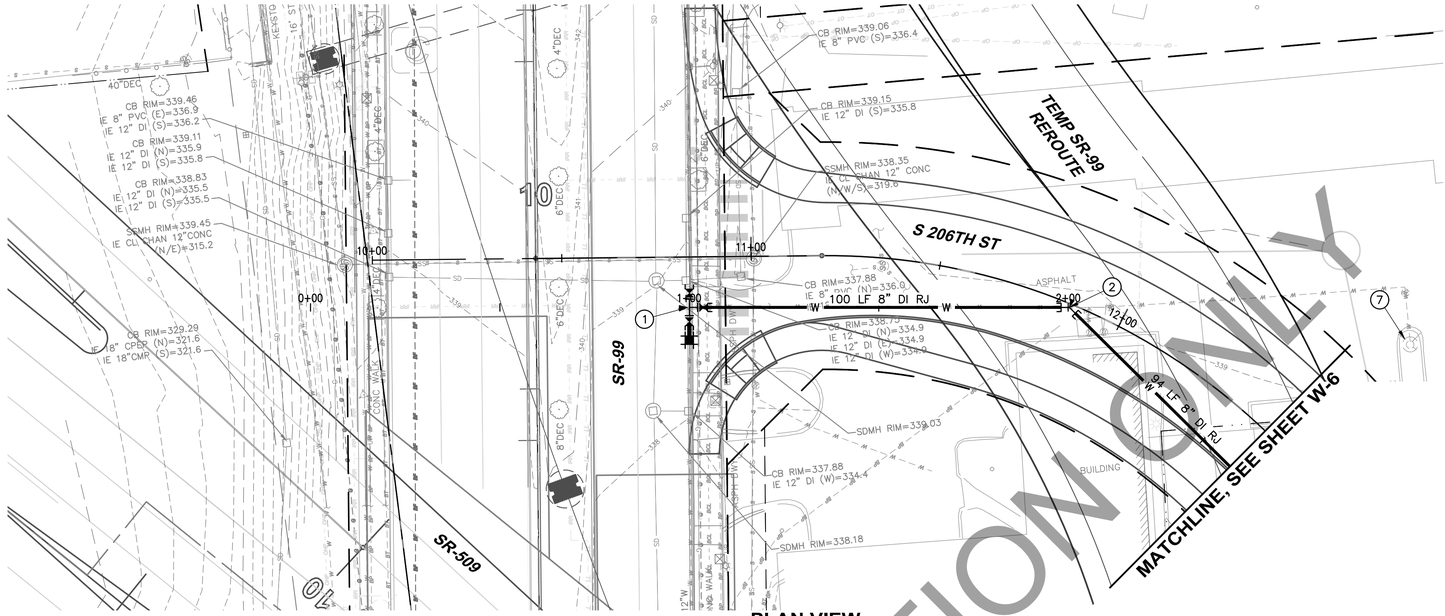
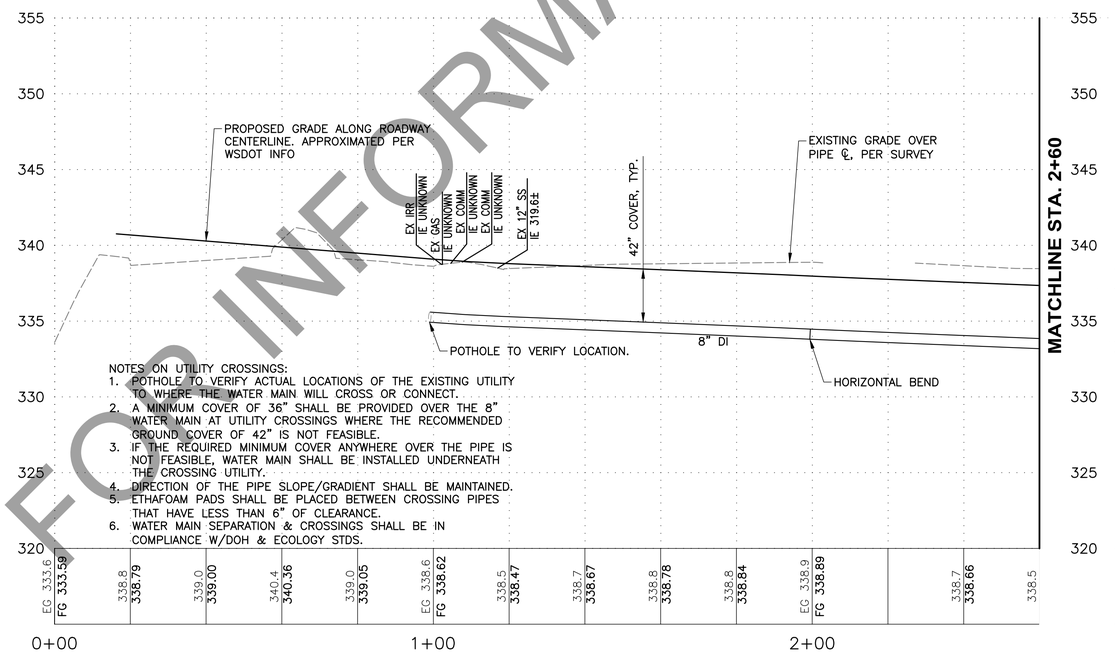


PLAN VIEW



PROFILE VIEW

NOTES:

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2. HYDRANT SPACING IS 600' IN SINGLE-FAMILY RESIDENTIAL ZONES; 300' IN MULTI-FAMILY AND COMMERCIAL ZONES. CONTRACTOR TO POTHOLE EX. UTILITY TO VERIFY LOCATION & DEPTH.
3. CONTRACTOR TO POTHOLE EX. UTILITY TO VERIFY LOCATION & DEPTH.

CONSTRUCTION KEYNOTES

1. CONNECT TO EXISTING 12" C.I.:
   1 – 12"x8" TEE (FLxFL)
   2 – 12" GATE VALVES (FLxRJ)
   1 – 12" DI SPOOL, LENGTH AS REQUIRED
   1 – 12" SLEEVE (RJ)
   1 – 8" GATE VALVE (FLxRJ)
   W/ THRUST BLOCK
2. 1 – 8" 45° BEND (RJ)
   W/ THRUST BLOCK
3. 1 – 8" 22.5° BEND (RJ)
   W/ THRUST BLOCK
4. 1 – 8"x6" TEE (FLxFL)
   1 – FH ASSEMBLY
   1 – 8" ADAPTER (FLxRJ)
   1 – 8" 45° BEND (FLxRJ)
   W/ 2 THRUST BLOCKS
5. 1 – 8" TEE (FL)
   3 – 8" GATE VALVE (FLxRJ)
   W/ THRUST BLOCK
6. CONNECT TO EXISTING 8" CI:
   1 – 8" COUPLING (RJ)
   1 – 8" DI SPOOL (RJ), LENGTH AS REQUIRED
7. REMOVE AND SALVAGE EXISTING FIRE HYDRANT AND GATE VALVE.
8. NOT USED.
9. CONNECT TO EXISTING 8" DI:
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   1–8" SPOOL (RJ), LENGTH AS REQUIRED
10. 1 – 8"x6" TEE (RJxFL)
    1 – FH ASSEMBLY
    W/ THRUST BLOCK

HORIZ. 0 10 20 40 Scale In Feet
VERT. 0 2.5 5 10 Scale In Feet

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HANS D. PAULSEN STATE OF WASHINGTON 43695 REGISTERED PROFESSIONAL ENGINEER PRELIMINARY NOT FOR CONSTRUCTION

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HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI41 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME:P18434_UI41_WA-PP
SHEET W-5 OF 26

FILE NAME: P:\P\18434 SR-509 CROSSING WM RELOCATION\CAD\ENGINEERING\SHEETS\P18434_UI41_WA-PP.DWG
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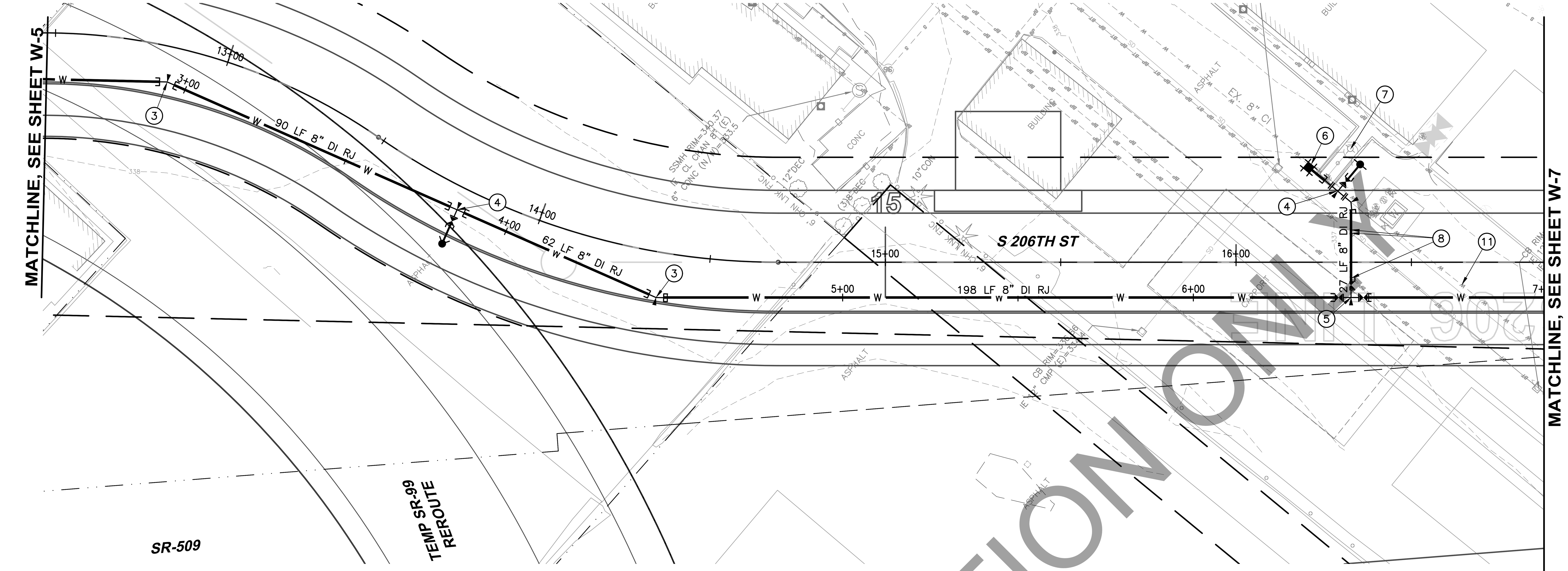
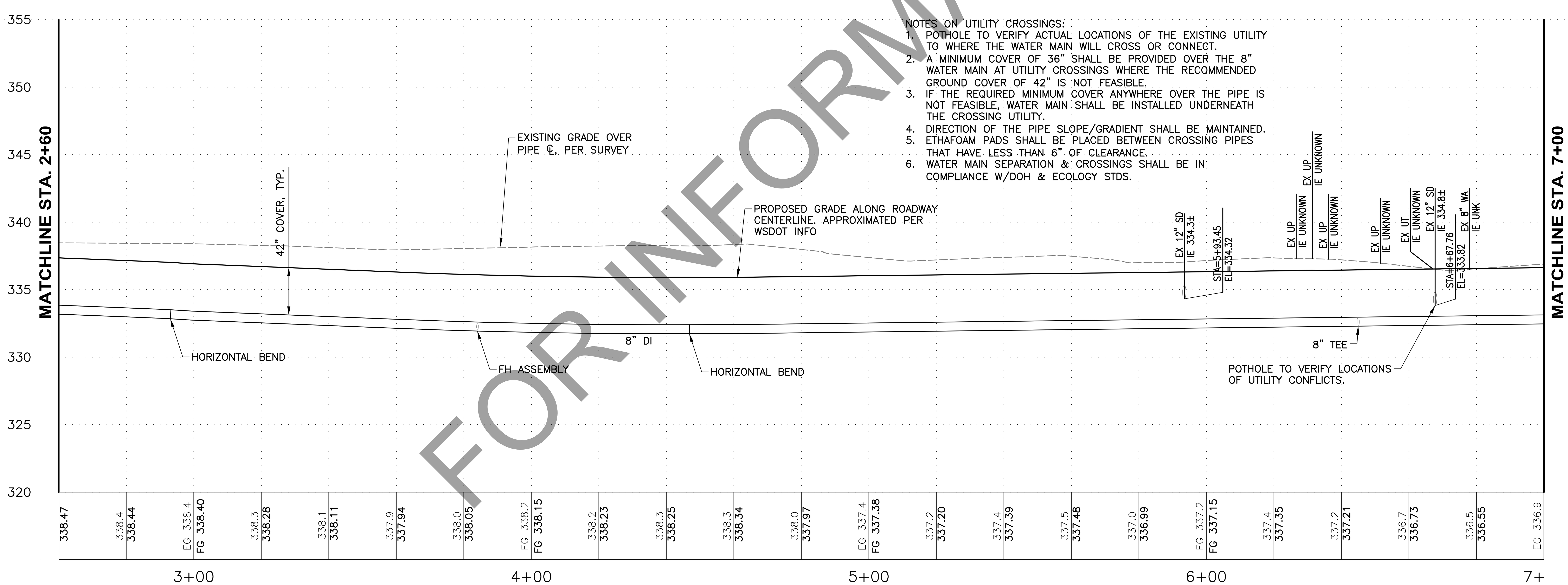


PLAN VIEW



PROFILE VIEW

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11. REMOVE & LAWFULLY DISPOSE OF EX. WATER MAIN.

HORIZ. 0 10 20 40 Scale In Feet

VERT. 0 2.5 5 10 Scale In Feet

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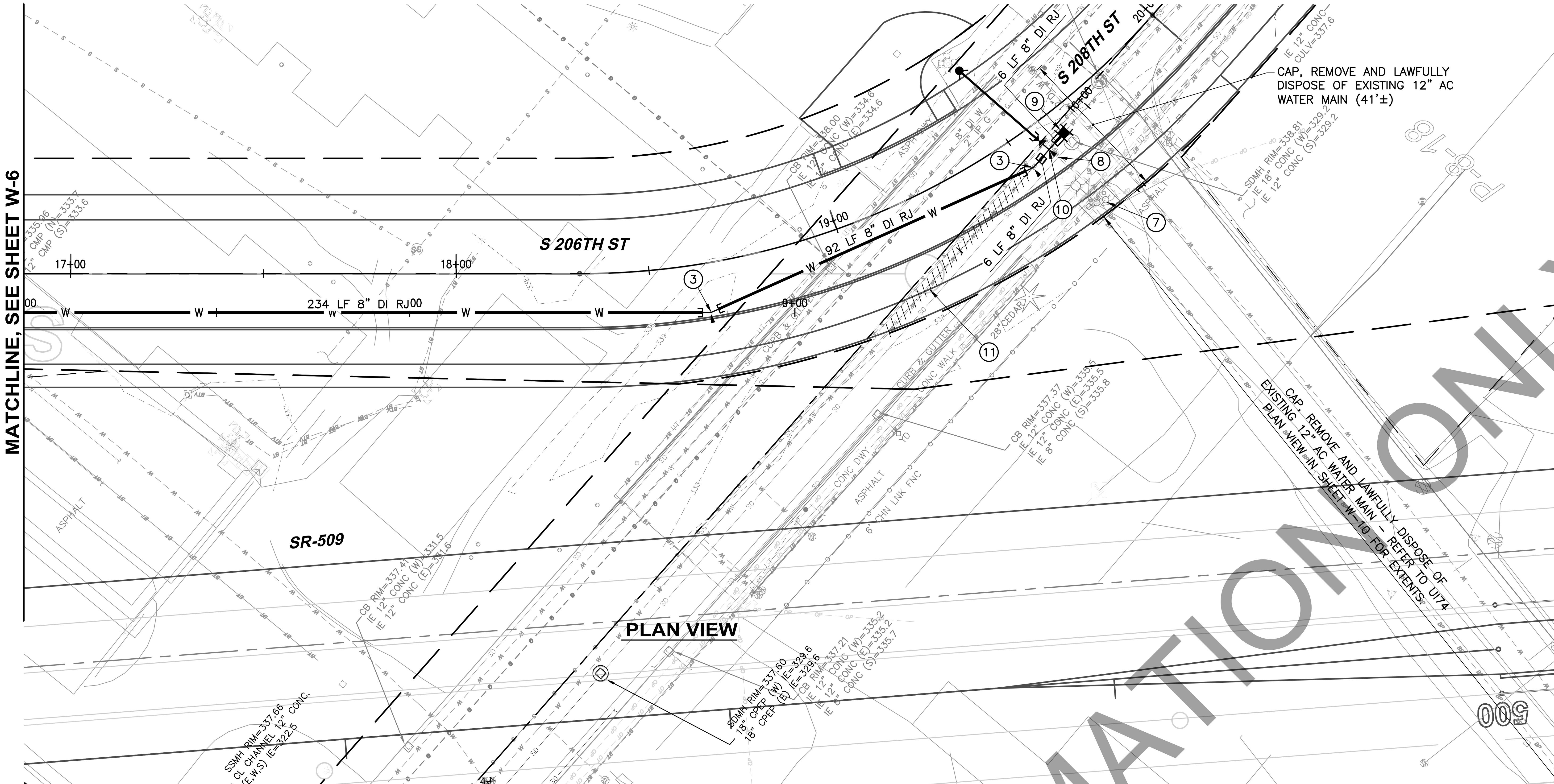
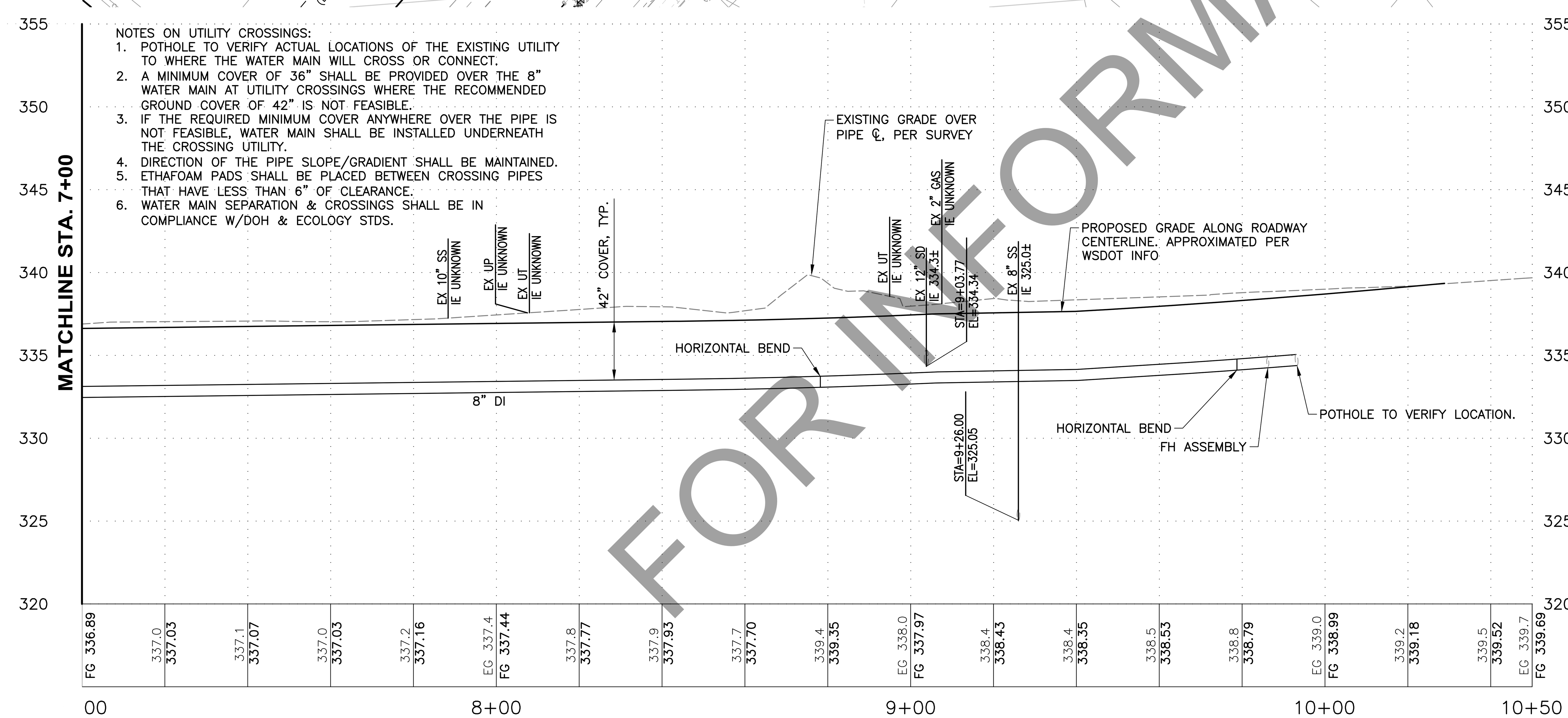
SR-509 WATERMAIN RELOCATIONS
UI41 PLAN AND PROFILE

PACE PROJECT NO. **18434**
DWG NAME: P18434_UI41_WA-PP



PLAN VIEW



PROFILE VIEW

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11. REMOVE & LAWFULLY DISPOSE OF EX. WATER MAIN.

HORIZ. 0 10 20 40 Scale In Feet
VERT. 0 2.5 5 10 Scale In Feet

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HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI41 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME: P18434_UI41_WA-PP
SHEET W-7 OF 26

FILE NAME: P:\P18\18434 SR-509 CROSSING WM RELOCATION\CAD\ENGINEERING\SHEETS\P18434_UI41_WA-PP.DWG
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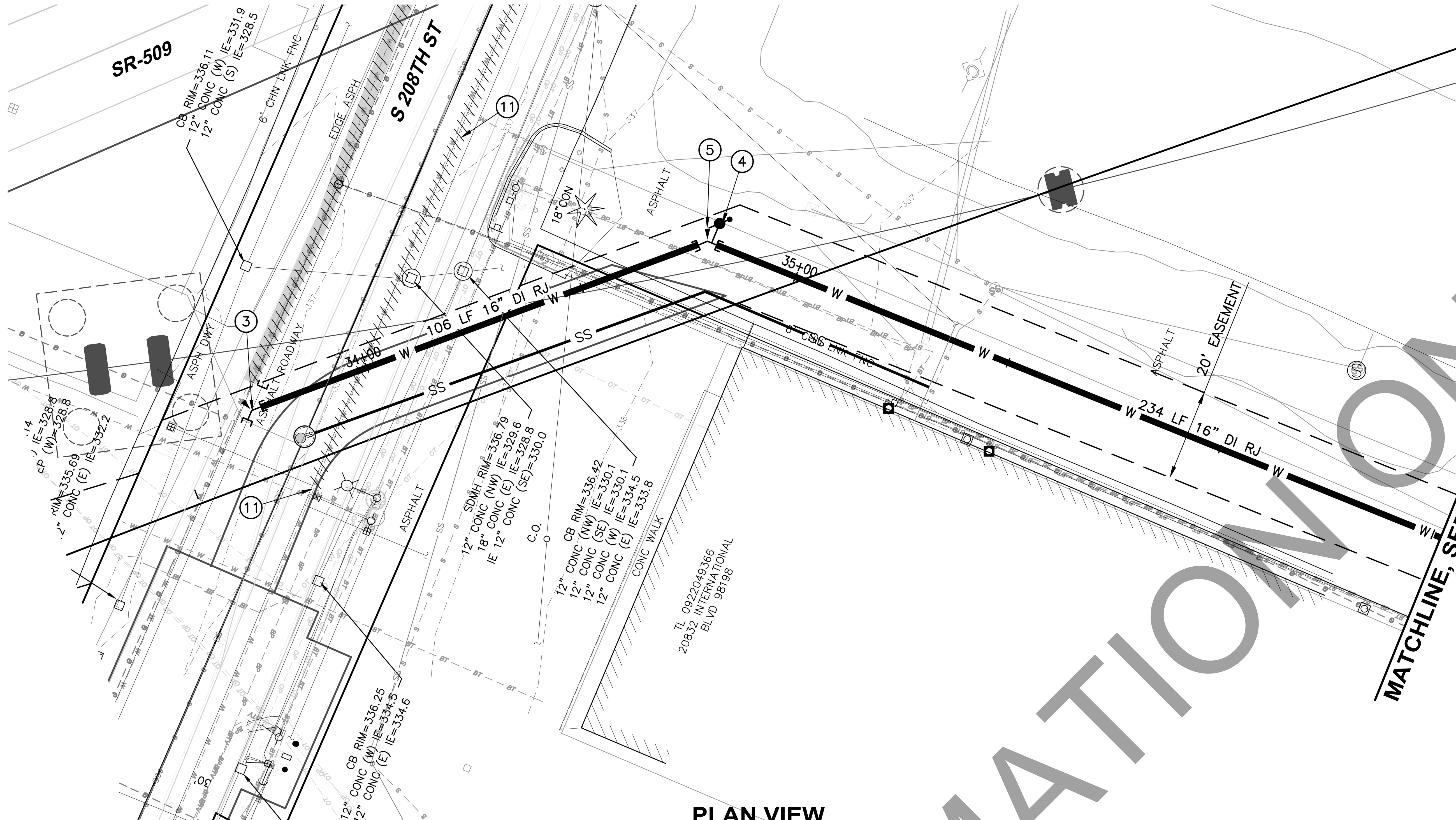

PLAN VIEW

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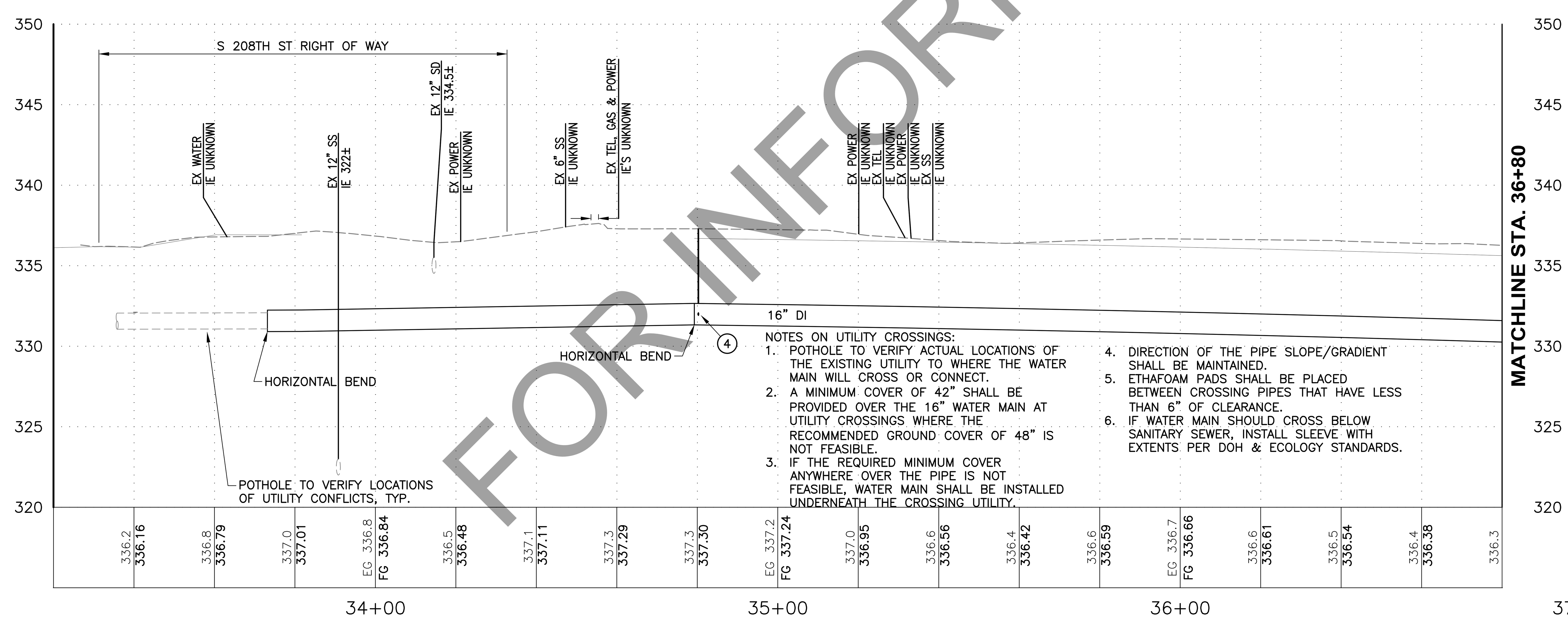
2. HYDRANT SPACING IS 600' IN SINGLE-FAMILY RESIDENTIAL ZONES; 300' IN MULTI-FAMILY AND COMMERCIAL ZONES.

UI74 SITE INDEX MAP

CONSTRUCTION KEYNOTES

1. NOT USED.
2. NOT USED.
3. CONNECT TO EX. 12" DI:
   1 – 12" 45° BEND (RJxFL)
   1 – 16"x12" REDUCER (RJxFL) – NOT SHOWN FOR CLARITY
   W/ THRUST BLOCK
4. 1 – 3" AIR & VACUUM VALVE
5. 1 – 16" 45° BEND (RJxRJ)
   W/ THRUST BLOCK
6. 1 – 16" 22.5° BEND (RJxRJ)
   W/ THRUST BLOCK
7. 1 – 16" 11.25° BEND (RJXRJ)
   W/ THRUST BLOCK
8. CONNECT TO EXISTING 12" DI
   1 – 16" TEE (FLxFL)
   1 – 16" GATE VALVE (FLxRJ)
   1 – 16" SPOOL, LENGTH AS REQUIRED
   1 – 16" GATE VALVE (FLxFL)
   1 – 16"x12" REDUCER (FLxRJ)
   1 – 16"x12" REDUCER (FLxFL)
   1 – 12" GATE VALVE (FLxRJ)
   2 – 12" SPOOLS, LENGTHS AS REQUIRED
   2 – 12" SLEEVES (RJ)
   W/ THRUST BLOCK
9. WATER MAIN SHALL BE INSTALLED AFTER SEWER LINE HAS BEEN DEACTIVATED – COORDINATE WITH MIDWAY SEWER DISTRICT.
11. REMOVE & LAWFULLY DISPOSE OF EX. WATER MAIN.
12. CAP/PLUG AND BLOCK WM AT EX. FH TEE



NOTES ON UTILITY CROSSINGS:

1. POTHOLE TO VERIFY ACTUAL LOCATIONS OF THE EXISTING UTILITY TO WHERE THE WATER MAIN WILL CROSS OR CONNECT.
2. A MINIMUM COVER OF 42" SHALL BE PROVIDED OVER THE 16" WATER MAIN AT UTILITY CROSSINGS WHERE THE RECOMMENDED GROUND COVER OF 48" IS NOT FEASIBLE.
3. IF THE REQUIRED MINIMUM COVER ANYWHERE OVER THE PIPE IS NOT FEASIBLE, WATER MAIN SHALL BE INSTALLED UNDERNEATH THE CROSSING UTILITY.
4. DIRECTION OF THE PIPE SLOPE/GRADIENT SHALL BE MAINTAINED.
5. ETHAFOAM PADS SHALL BE PLACED BETWEEN CROSSING PIPES THAT HAVE LESS THAN 6" OF CLEARANCE.
6. IF WATER MAIN SHOULD CROSS BELOW SANITARY SEWER, INSTALL SLEEVE WITH EXTENTS PER DOH & ECOLOGY STANDARDS.

PROFILE VIEW

HORIZ. 0 10 20 40 Scale In Feet

VERT. 0 2.5 5 10 Scale In Feet

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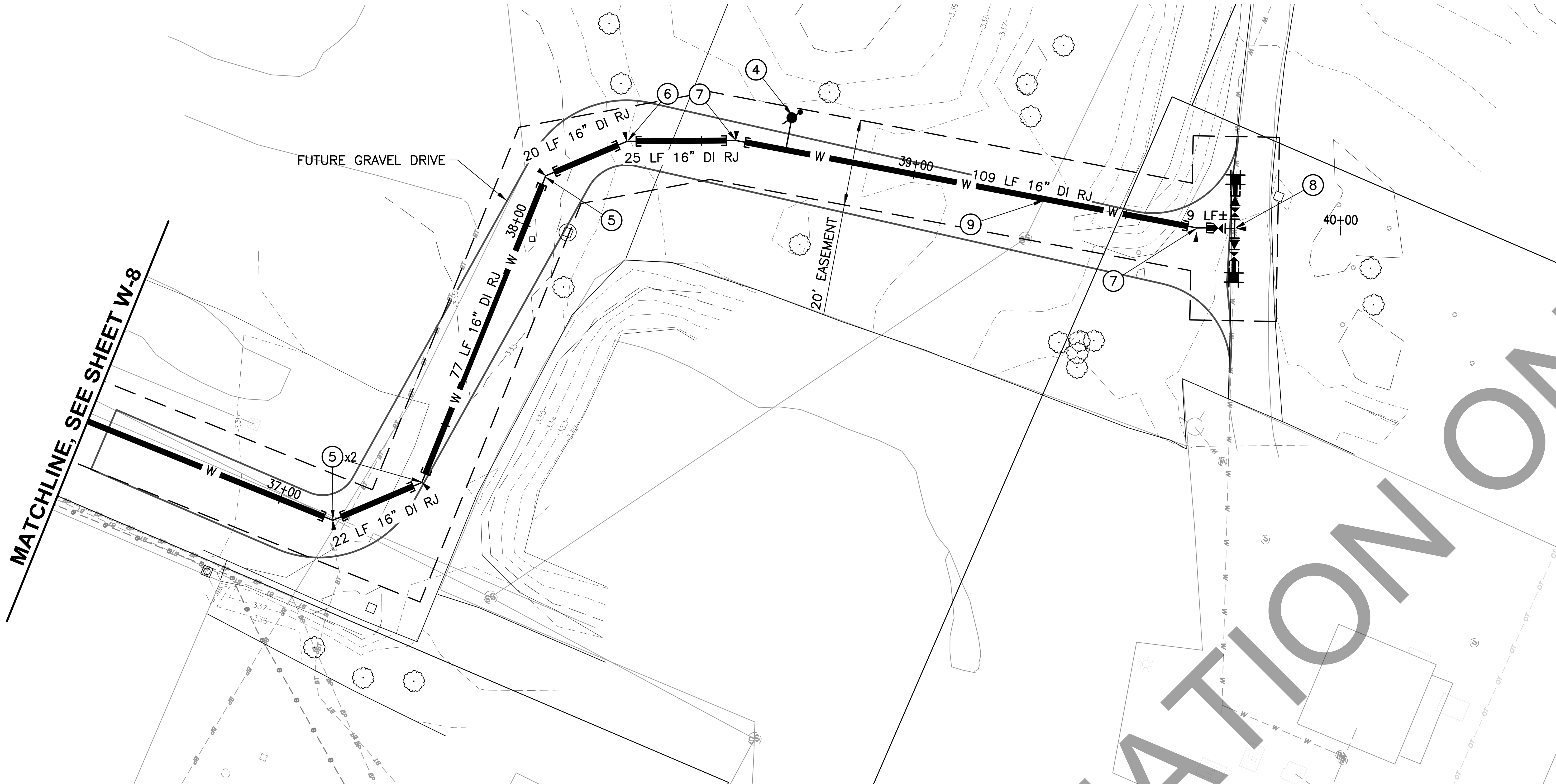
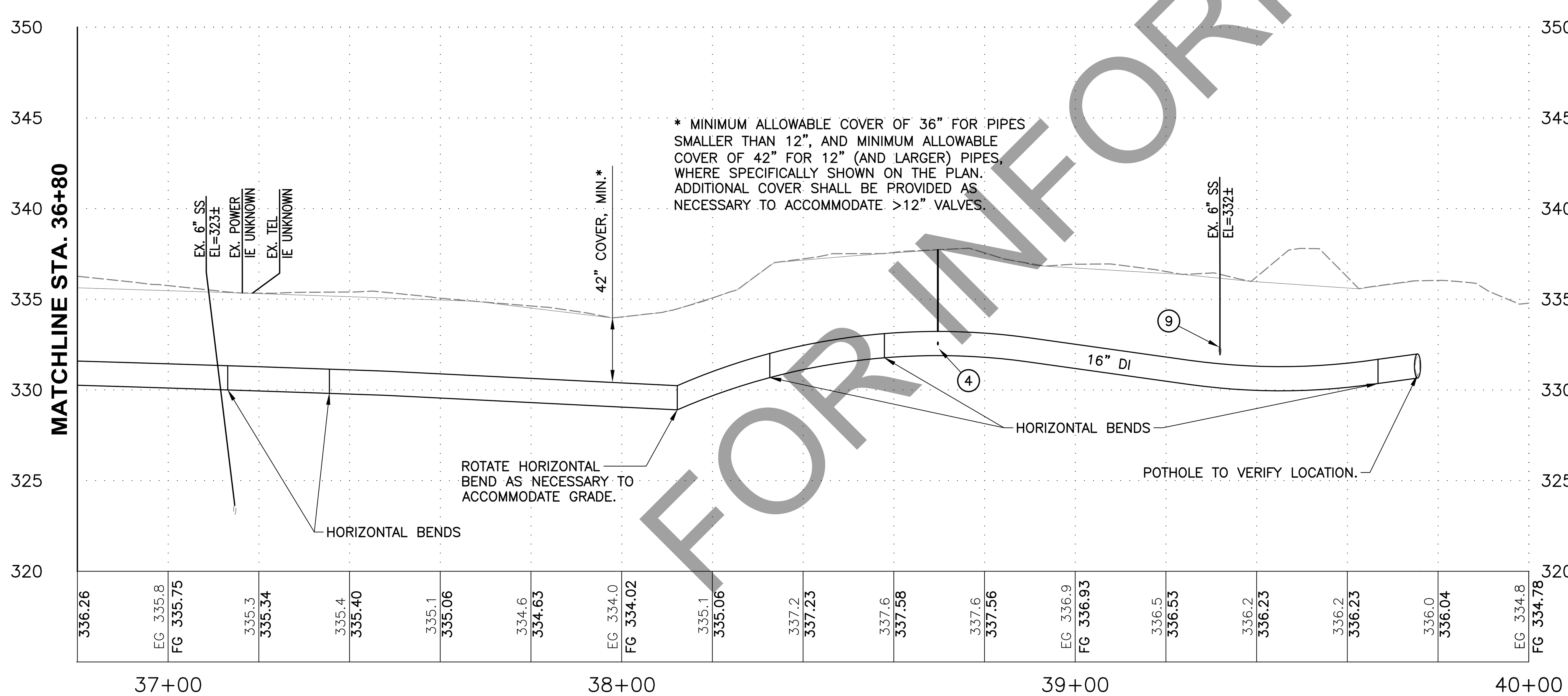
HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI74 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME: P18434_UI74_WA-PP
SHEET W-8 OF 26



PLAN VIEW



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UI74 SITE INDEX MAP

CONSTRUCTION KEYNOTES

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HORIZ. 0 10 20 40 Scale In Feet

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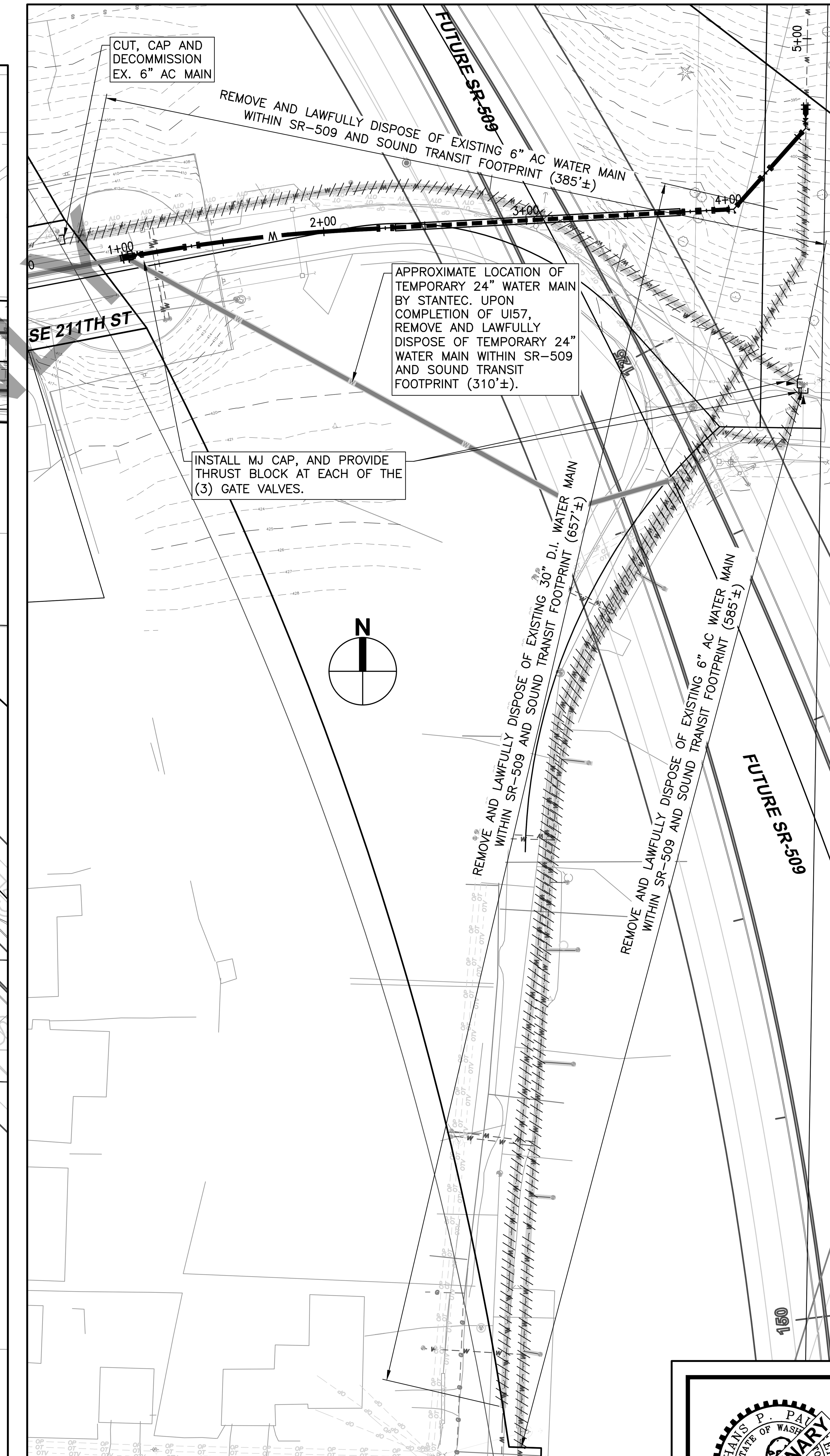
HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI74 PLAN AND PROFILE

PACE PROJECT NO. **18434**
DWG NAME: P18434_UI74_WA-PP
SHEET W-9 OF 26

UI74 PLAN VIEW

HORIZ. 0 20 40 80
Scale In Feet



UI57 PLAN VIEW

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DATE 4/3/2020
SCALE AS SHOWN

HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI74 & UI157 AC PIPE REMOVAL PLAN

PACE PROJECT NO. 18434
DWG NAME: P18434_UI74_WA-PP
SHEET W-10 OF 26

FILE NAME: P:\P18\18434 SR-509 CROSSING WM RELOCATION\CAD\ENGINEERING\SHEETS\P18434_UI74_WA-PP.DWG
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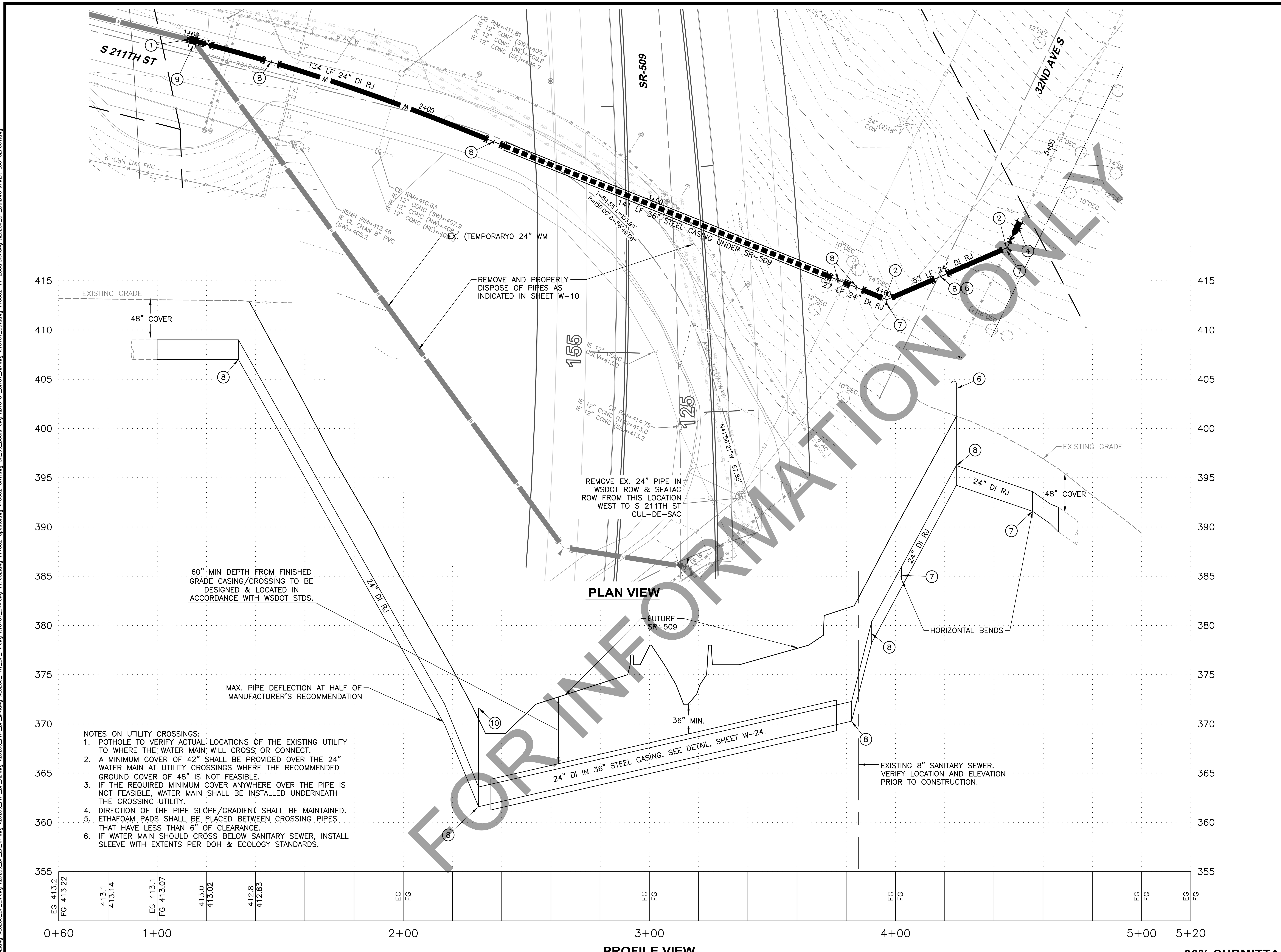

NOTES:

1. THESE PLANS ARE 30% AND INTENDED TO SHOW THE GENERAL CONCEPT OF THE HIGHLINE WATER DISTRICT (HWD) WATER MAIN IMPROVEMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PREPARING AND IMPLEMENTING FINAL DESIGNS, IN COORDINATION WITH HWD, AND FOR RESOLVING ANY PLAN AND MAPPING DISCREPANCIES BETWEEN THESE DRAWINGS AND OTHERS PRODUCED BY OTHER ENTITIES.
2. HYDRANT SPACING IS 600' IN SINGLE-FAMILY RESIDENTIAL ZONES; 300' IN MULTI-FAMILY AND COMMERCIAL ZONES.

 # CONSTRUCTION KEYNOTES

1. CONNECTION TO EX. 24" SOUND TRANSIT WATER MAIN:
   1 – 24" COUPLING (RJ)
   1 – 24" SPOOL, (RJ) LENGTH AS REQUIRED
   1 – 24" BUTTERFLY VALVE (RJ)
2. 1 – 24" 45° BEND (RJ) W/ THRUST BLOCK
3. NOT USED.
4. CONNECT TO EXISTING 30" DI:
   1 – DEADMAN BLOCK
   1 – 30"x24" REDUCER (RJxFL)
   1 – 24" BUTTERFLY VALVE (FLxFL)
   1 – 24" SPOOL, LENGTH AS REQUIRED
   THE DEADMAN BLOCK SHALL BE SIZED FOR THE EXISTING 30" PIPE. SHACKLE ALL FITTINGS TO THE DEADMAN BLOCK. DESIGN-BUILD CONTRACTOR TO FURNISH DESIGN OF DEADMAN BLOCKING AND OTHER BLOCKING AS REQUIRED TO THE DISTRICT FOR APPROVAL PRIOR TO CONSTRUCTION.
5. REMOVE EX. MAIN.
6. PROVIDE 4" AIR & VACUUM VALVE AT HIGH POINT.
7. ROTATE HORIZONTAL BEND TO ACHIEVE GRADE.
8. PROVIDE VERTICAL BENDS & VERTICAL BLOCKING WHERE REQUIRED.
9. CUT EX. 24" AND REMOVE EX. BEND. INSTALL DEADMAN BLOCK SIZED FOR EX. 24". DESIGN-BUILD CONTRACTOR TO FURNISH DESIGN OF DEADMAN BLOCKING AND OTHER BLOCKING AS REQUIRED TO THE DISTRICT FOR APPROVAL PRIOR TO CONSTRUCTION.
10. 1-6" BLOW-OFF ASSEMBLY.

SR-509 CROSSING NOTES:

1. DESIGN/BUILDER TO MODIFY CROSSING LOCATION AS APPROPRIATE TO MINIMIZE BENDS AND TO MAXIMIZE FUTURE ACCESS. ADDITIONAL GRADING MAY BE REQUIRED TO PROVIDE ACCESS TO CASING ENDS.
2. DESIGN/BUILDER TO GRADE AS APPROPRIATE TO PROVIDE TYPICAL 60" TO 84" COVER OVER 24" MAIN.
3. DESIGN/BUILDER TO VERIFY THAT FINAL DESIGN ACCOMMODATES FUTURE SR-509 EXPANSION PLANS.

HORIZ. 0 10 20 40 Scale In Feet
VERT. 0 2.5 5 10 Scale In Feet

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HANS P. PACE, STATE OF WASHINGTON, 43695, REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

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SYM	REVISION	DATE	BY	APP'D	

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KENT, WA 98032
206-824-0375

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HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI157 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME: P18434_UI157_WA-PP
SHEET W-11 OF 26

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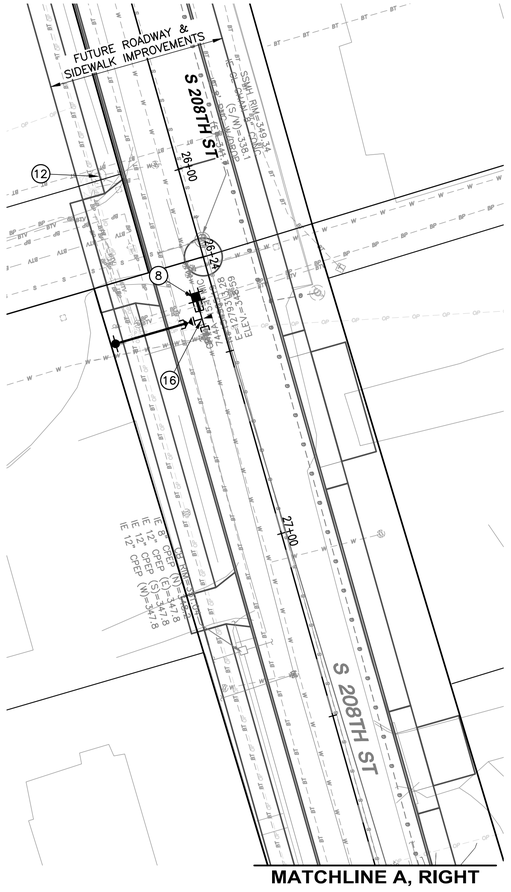

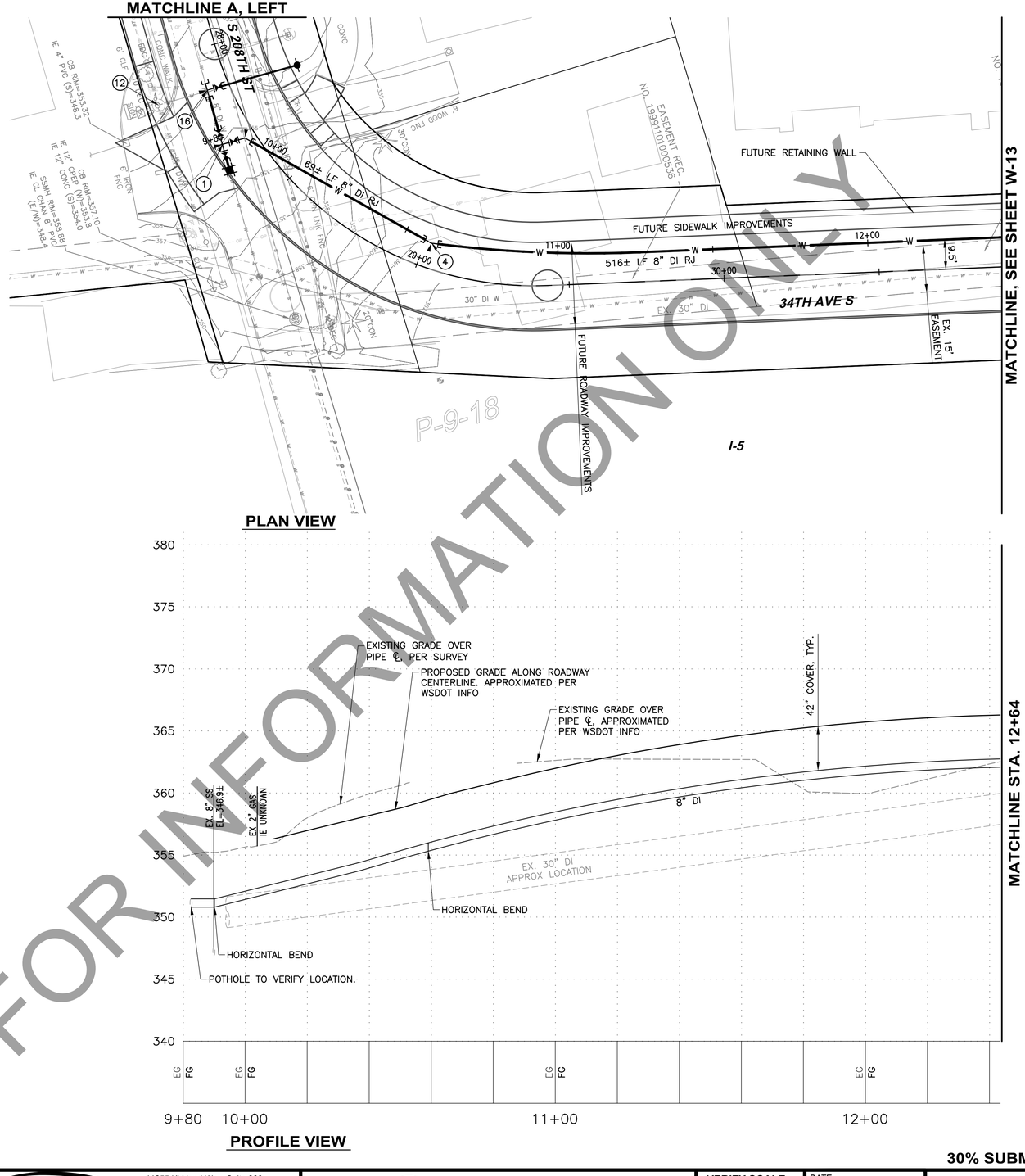

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2. HYDRANT SPACING IS 600' IN SINGLE-FAMILY RESIDENTIAL ZONES; 300' IN MULTI-FAMILY AND COMMERCIAL ZONES.

CONSTRUCTION KEYNOTES

1. CONNECT TO EX. 8" DI:
   1 – 8"x8" TEE (FLxFL)
   2 – 8" GATE VALVES (FLxRJ)
   1 – 8" GATE VALVE (FLxFL)
   1 – 8" 45° BEND (FLxRJ)
   1 – 8" DI SPOOL, LENGTH AS REQUIRED
   1 – 8" COUPLING
   W/ 2 THRUST BLOCKS
2. 1 – 8" 45° BEND (RJxFL)
   1 – 8"x6" TEE (FLxFL)
   1 – 8" GATE VALVE (FLxRJ)
   1 – FH ASSEMBLY
   W/ 2 THRUST BLOCKS
3. 1 – 8" 45° BEND (RJxRJ)
   W/ THRUST BLOCK
4. 1 – 8" 22.5° BEND (RJxRJ)
   W/ THRUST BLOCK
5. 1 – 8"x6" TEE (FLxFL)
   1 – 8" ADAPTER (FLxRJ)
   1 – 8" GATE VALVE (FLxRJ)
   1 – FH ASSEMBLY
   W/ THRUST BLOCK
6. 1 – 8"x8" TEE (FLxFL)
   2 – 8" GATE VALVES (FLxRJ)
   1 – 8" ADAPTER (FLxRJ)
   1 – 8" DI SPOOL, LENGTH AS REQUIRED
   W/ THRUST BLOCK
7. CONNECT TO EX. 8" CI:
   1 – 8" 45° BEND (RJxRJ)
   W/ THRUST BLOCK
   REMOVE SECTION OF C.I. PIPE ALL THE WAY PAST THE CROSSING LOCATION.
8. 1 – 8" SLEEVE (RJ)
9. PLUG & BLOCK EX TEE:
   1 – 8" BLIND FLANGE
   W/ THRUST BLOCK
10. REMOVE & LAWFULLY DISPOSE OF EX. WATER MAIN.
11. RECONNECT SERVICE LINE TO EXISTING METER
12. REMOVE AND SALVAGE EXISTING HYDRANT AND GATE VALVE
13. REMOVE AND REPLACE SERVICE LINE AND METER.
14. 1 – 8"x8" TEE (RJxFL)
    1 – 8" GATE VALVE (FLxRJ)
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15. 1 – 8"x8" TEE (RJxFL)
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16. 1 – 8"x6" TEE (RJxFL)
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    W/ THRUST BLOCK
17. 1 – 8"x8" TEE (FLxFL)
    1 – 8" GATE VALVE (FLxRJ)
    1 – 8" ADAPTER (FLxRJ)
    1 – FH ASSEMBLY
    W/ THRUST BLOCK

HORIZ. 0 10 20 40 Scale In Feet
VERT. 0 2.5 5 10 Scale In Feet

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HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI245 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME: P18434_UI(34TH)_WA-PP
SHEET W-12 OF 26

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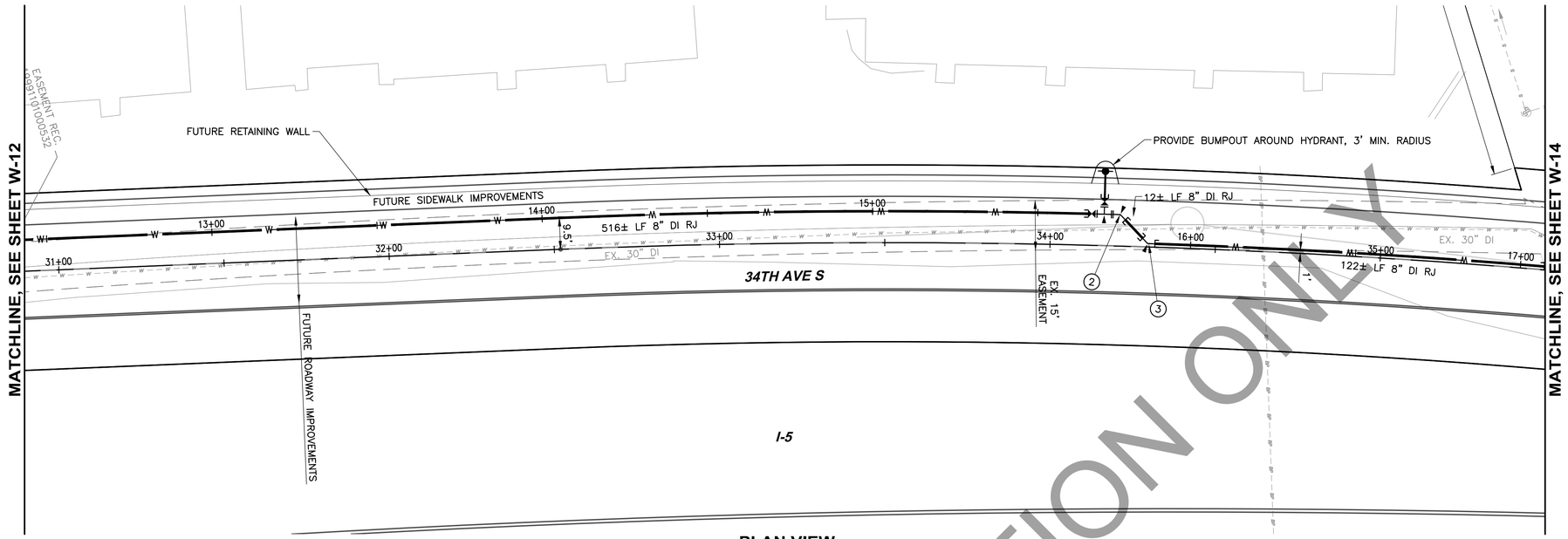
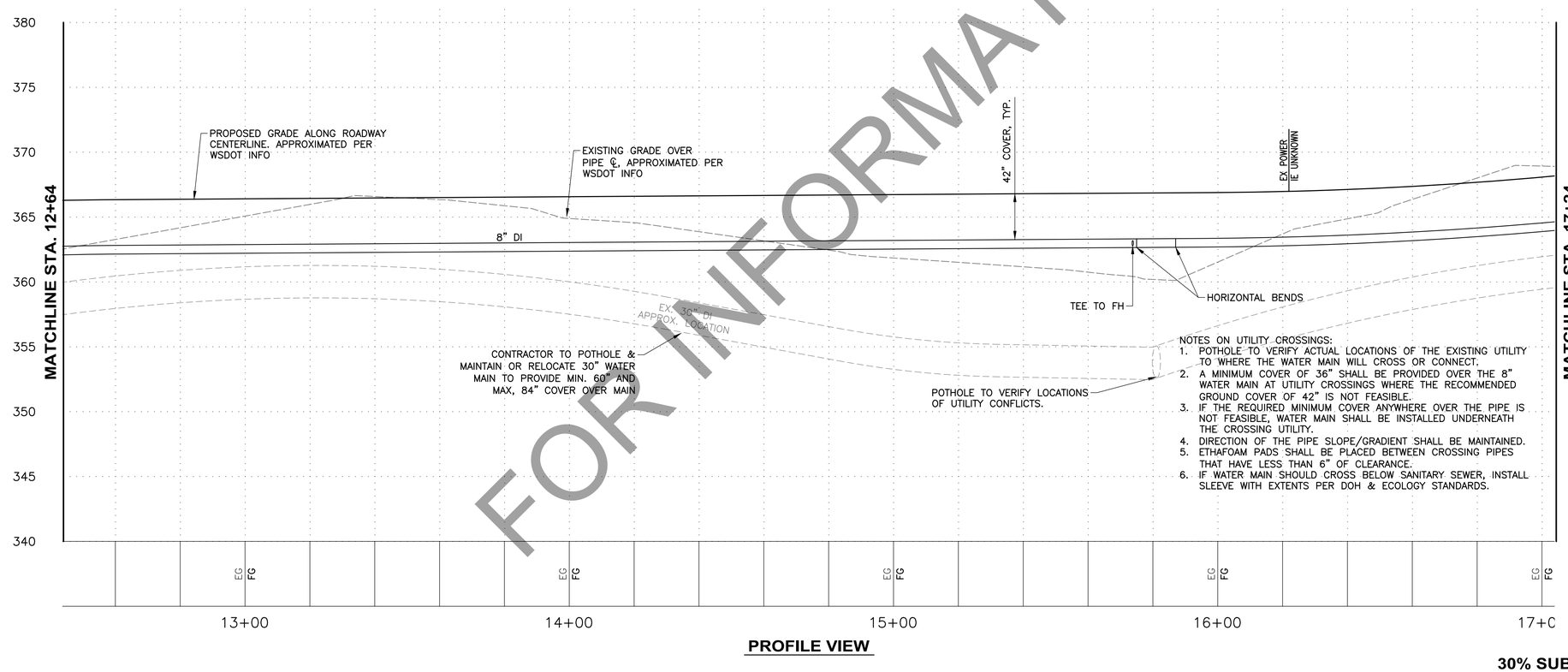


PLAN VIEW



PROFILE VIEW

NOTES ON UTILITY CROSSINGS:
1. POTHOLE TO VERIFY ACTUAL LOCATIONS OF THE EXISTING UTILITY TO WHERE THE WATER MAIN WILL CROSS OR CONNECT.
2. A MINIMUM COVER OF 36" SHALL BE PROVIDED OVER THE 8" WATER MAIN AT UTILITY CROSSINGS WHERE THE RECOMMENDED GROUND COVER OF 42" IS NOT FEASIBLE.
3. IF THE REQUIRED MINIMUM COVER ANYWHERE OVER THE PIPE IS NOT FEASIBLE, WATER MAIN SHALL BE INSTALLED UNDERNEATH THE CROSSING UTILITY.
4. DIRECTION OF THE PIPE SLOPE/GRADIENT SHALL BE MAINTAINED.
5. ETHAFOAM PADS SHALL BE PLACED BETWEEN CROSSING PIPES THAT HAVE LESS THAN 6" OF CLEARANCE.
6. IF WATER MAIN SHOULD CROSS BELOW SANITARY SEWER, INSTALL SLEEVE WITH EXTENTS PER DOH & ECOLOGY STANDARDS.

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   1 – 8" GATE VALVE (FLxFL)
   1 – 8" 45° BEND (FLxRJ)
   1 – 8" DI SPOOL, LENGTH AS REQUIRED
   1 – 8" COUPLING
   W/ 2 THRUST BLOCKS
2. 1 – 8" 45° BEND (RJxFL)
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VERT. 0 2.5 5 10 Scale In Feet

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HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI245 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME: P18434_UI(34TH)_WA-PP
SHEET W-13 OF 26

FILE NAME: P:\P18\18434_SR-509_CROSSING_WM_RELOCATION\04D ENGINEERING\SHEETS\P18434_UI(34TH)_WA-PP.DWG
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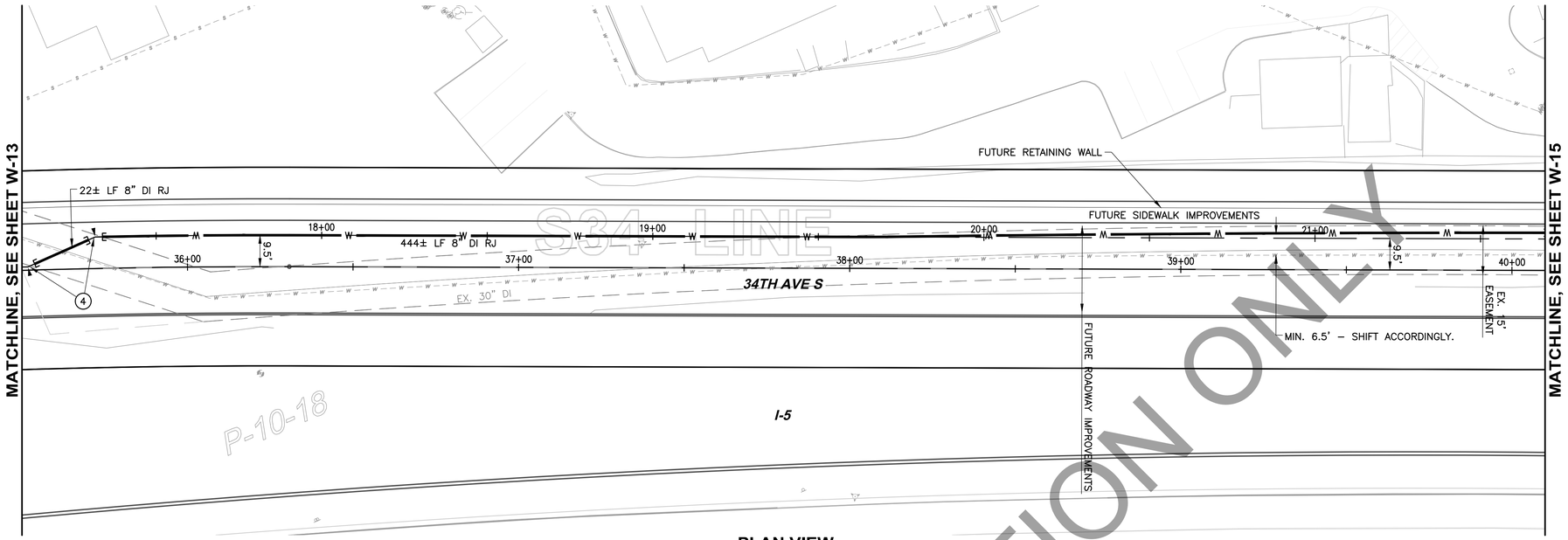
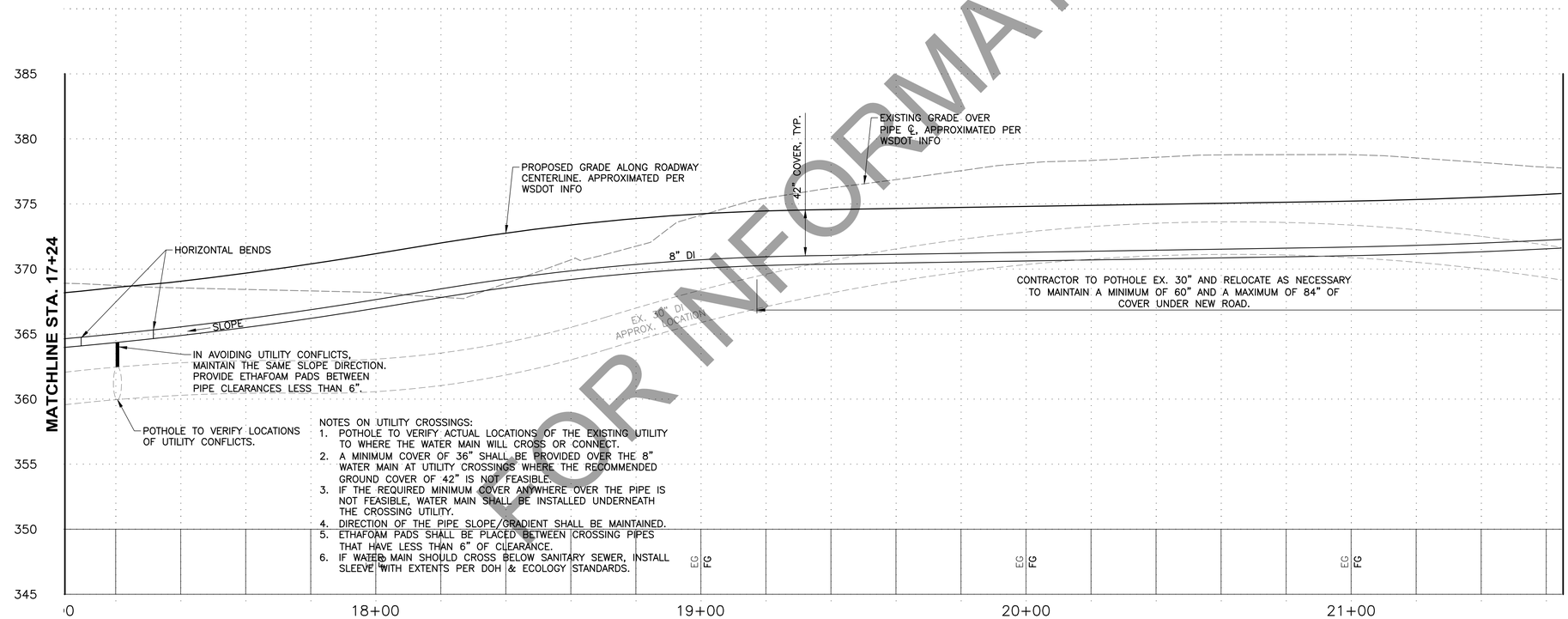


PLAN VIEW



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PROFILE VIEW

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8. 1 – 8" SLEEVE (RJ)
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HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI245 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME: P18434_UI(34TH)_WA-PP
SHEET W-14 OF 26

FILE NAME: P:\P18\18434_SR-509_CROSSING_WM_RELOCATION\CAD\ENGINEERING\SHEETS\P18434_UI(34TH)_WA-PP.DWG
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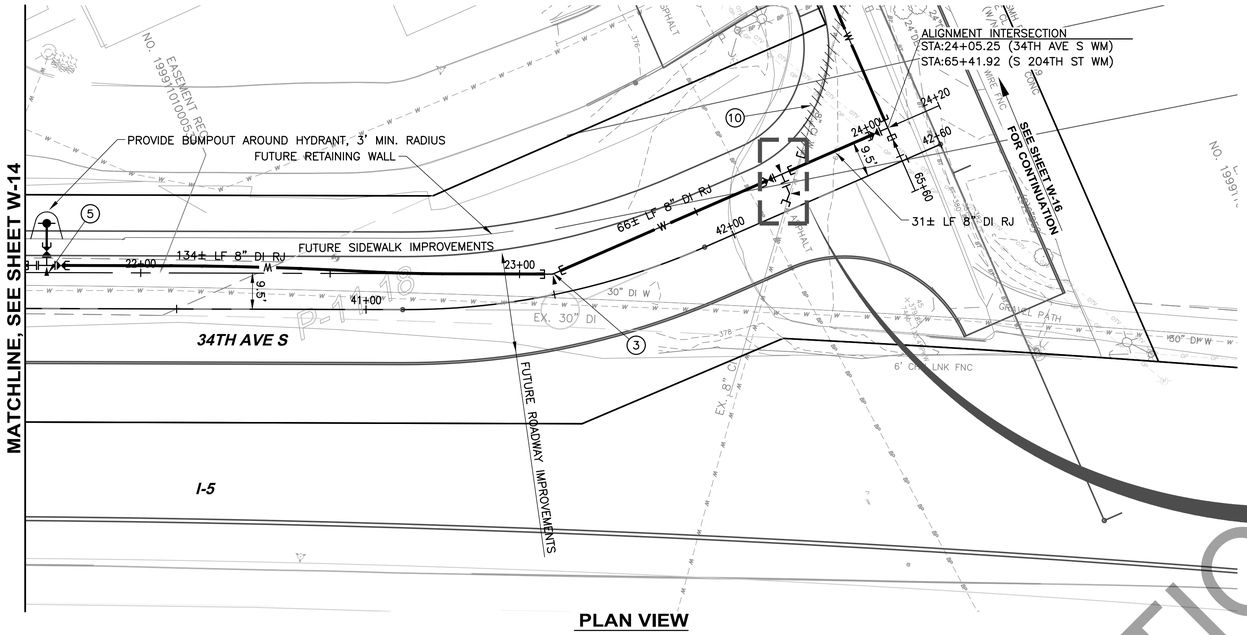
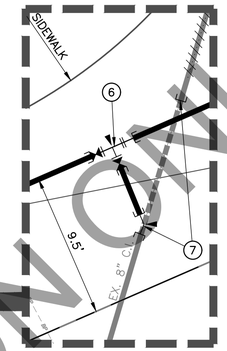
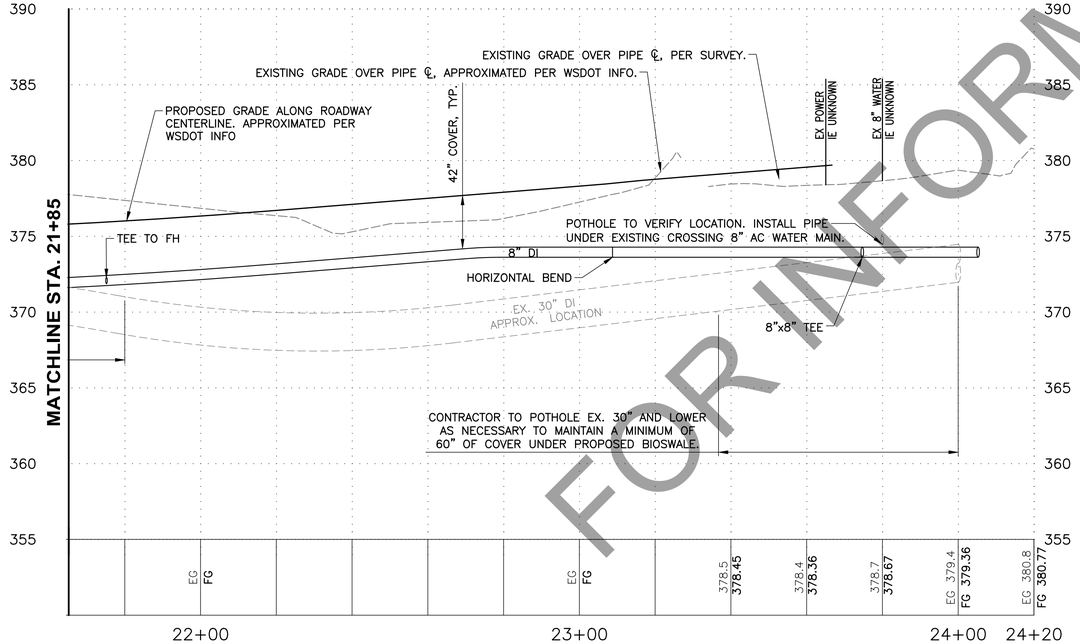


PLAN VIEW



PLAN VIEW DETAIL
SCALE: 1"=5'



PROFILE VIEW

NOTES:

1. THESE PLANS ARE 30% AND INTENDED TO SHOW THE GENERAL CONCEPT OF THE HIGHLINE WATER DISTRICT (HWD) WATER MAIN IMPROVEMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PREPARING AND IMPLEMENTING FINAL DESIGNS, IN COORDINATION WITH HWD, AND FOR RESOLVING ANY PLAN AND MAPPING DISCREPANCIES BETWEEN THESE DRAWINGS AND OTHERS PRODUCED BY OTHER ENTITIES.
2. HYDRANT SPACING IS 600' IN SINGLE-FAMILY RESIDENTIAL ZONES; 300' IN MULTI-FAMILY AND COMMERCIAL ZONES.

ⓝ CONSTRUCTION KEYNOTES

1. CONNECT TO EX. 8" DI:
   1 – 8"x8" TEE (FLxFL)
   2 – 8" GATE VALVES (FLxRJ)
   1 – 8" GATE VALVE (FLxFL)
   1 – 8" 45° BEND (FLxRJ)
   1 – 8" DI SPOOL, LENGTH AS REQUIRED
   1 – 8" COUPLING
   W/ 2 THRUST BLOCKS
2. 1 – 8" 45° BEND (RJxFL)
   1 – 8"x6" TEE (FLxFL)
   1 – 8" GATE VALVE (FLxRJ)
   1 – FH ASSEMBLY
   W/ 2 THRUST BLOCKS
3. 1 – 8" 45° BEND (RJxRJ)
   W/ THRUST BLOCK
4. 1 – 8" 22.5° BEND (RJxRJ)
   W/ THRUST BLOCK
5. 1 – 8"x6" TEE (FLxFL)
   1 – 8" ADAPTER (FLxRJ)
   1 – 8" GATE VALVE (FLxRJ)
   1 – FH ASSEMBLY
   W/ THRUST BLOCK
6. 1 – 8"x8" TEE (FLxFL)
   2 – 8" GATE VALVES (FLxRJ)
   1 – 8" ADAPTER (FLxRJ)
   1 – 8" DI SPOOL, LENGTH AS REQUIRED
   W/ THRUST BLOCK
7. CONNECT TO EX. 8" CI:
   1 – 8" 45° BEND (RJxRJ)
   W/ THRUST BLOCK
   REMOVE SECTION OF C.I. PIPE ALL THE WAY PAST THE CROSSING LOCATION.
8. 1 – 8" SLEEVE (RJ)
9. PLUG & BLOCK EX TEE:
   1 – 8" BLIND FLANGE
   W/ THRUST BLOCK
10. REMOVE & LAWFULLY DISPOSE OF EX. WATER MAIN.
11. RECONNECT SERVICE LINE TO EXISTING METER
12. REMOVE AND SALVAGE EXISTING HYDRANT AND GATE VALVE
13. REMOVE AND REPLACE SERVICE LINE AND METER.
14. 1 – 8"x8" TEE (RJxFL)
    1 – 8" GATE VALVE (FLxRJ)
    W/ THRUST BLOCK
15. 1 – 8"x8" TEE (RJxFL)
    1 – 8" GATE VALVE (FLxRJ)
    1 – 8" PLUG (RJ)
    W/ 2 THRUST BLOCKS
16. 1 – 8"x6" TEE (RJxFL)
    1 – 8" SPOOL
    1 – FH ASSEMBLY
    W/ THRUST BLOCK
17. 1 – 8"x8" TEE (FLxFL)
    1 – 8" GATE VALVE (FLxRJ)
    1 – 8" ADAPTER (FLxRJ)
    1 – FH ASSEMBLY
    W/ THRUST BLOCK

HORIZ. 0 10 20 40 Scale In Feet
VERT. 0 2.5 5 10 Scale In Feet

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SYM	REVISION	DATE	BY	APP'D

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HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI245 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME:P18434_UI(34TH)_WA-PP
SHEET W-15 OF 26

FILE NAME: P:\P18\18434_SR-509 CROSSING HWM RELOCATION\DATA\ENGINEERING\SHEETS\P18434_UI(34TH)_WA-PP.DWG
SAVE TIME: 4/2/2020 5:15:48 PM PLOT TIME: 4/3/2020 1:51 PM
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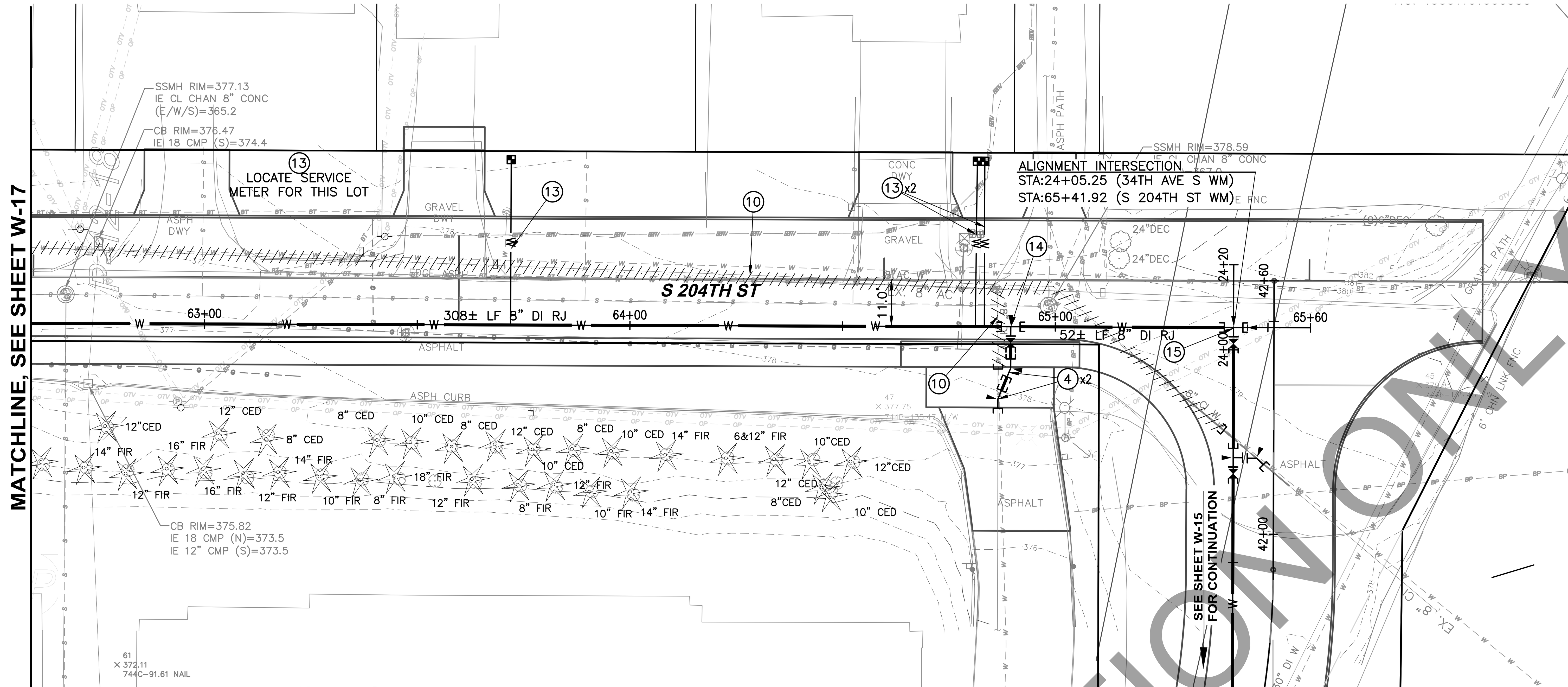
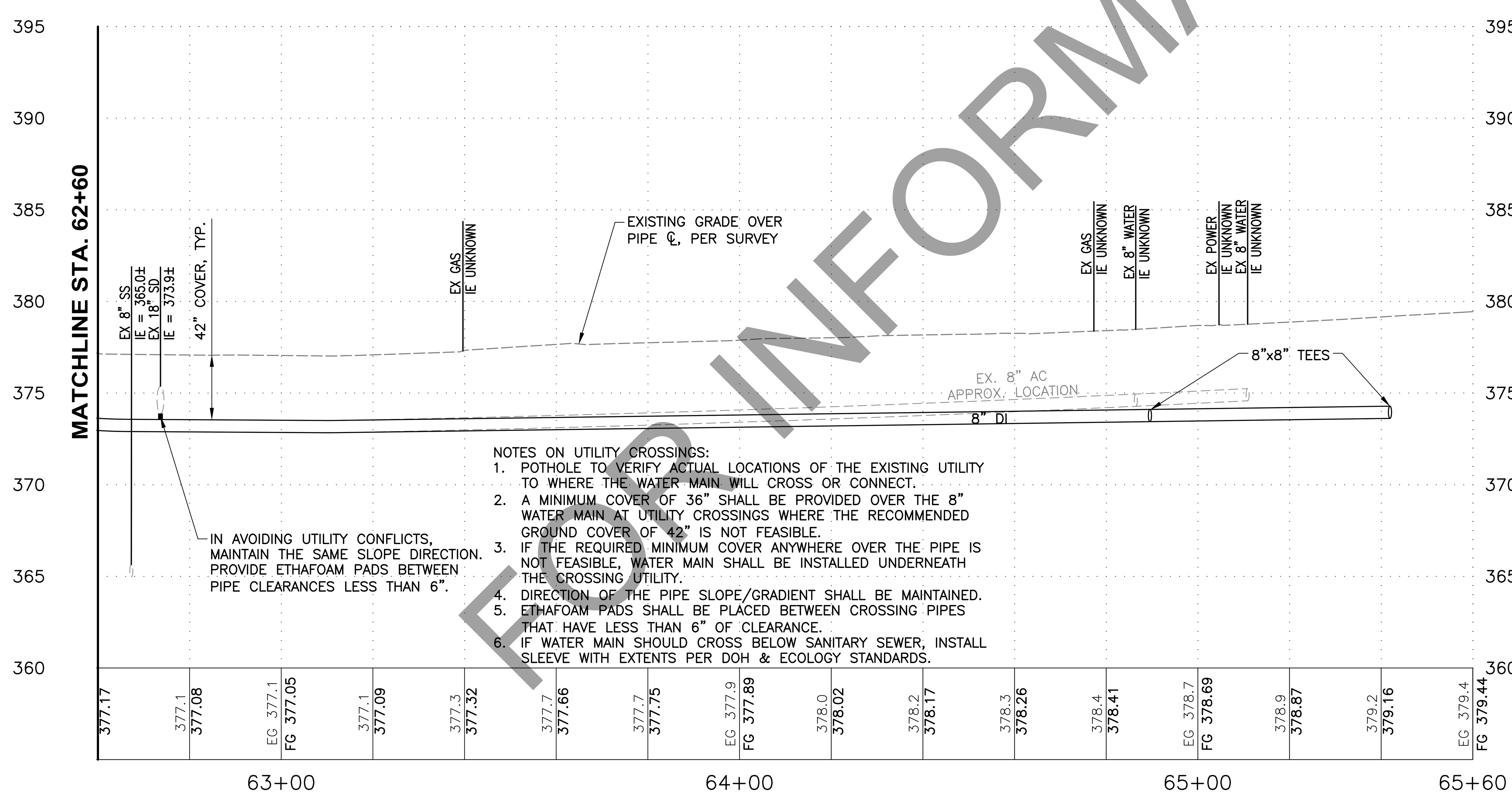
XREF FILES: P18434_BASE.dwg XLS289_BP_CV.dwg XLS289_BP_UT.dwg XLS289_PH1_BP_AL.dwg XLS289_PH1_BP_MK.dwg XLS289_PH1_BP_PV.dwg X18434_SRW.dwg V17092.dwg V17092-update.dwg V18092-SRW.dwg SR_99_Detour.dwg XD18434_UI(34TH)_WA.dwg X18434_BRK.dwg V18092-11-20thNSRW.dwg XLS289_BP_BG.DWG xrMEA-105-SEP001.dwg



PLAN VIEW



PROFILE VIEW

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   1 – 8" COUPLING
   W/ 2 THRUST BLOCKS
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   1 – 8" DI SPOOL, LENGTH AS REQUIRED
   W/ THRUST BLOCK
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N

HORIZ. 0 10 20 40 Scale In Feet

VERT. 0 2.5 5 10 Scale In Feet

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CHECKED	

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DATE 4/3/2020
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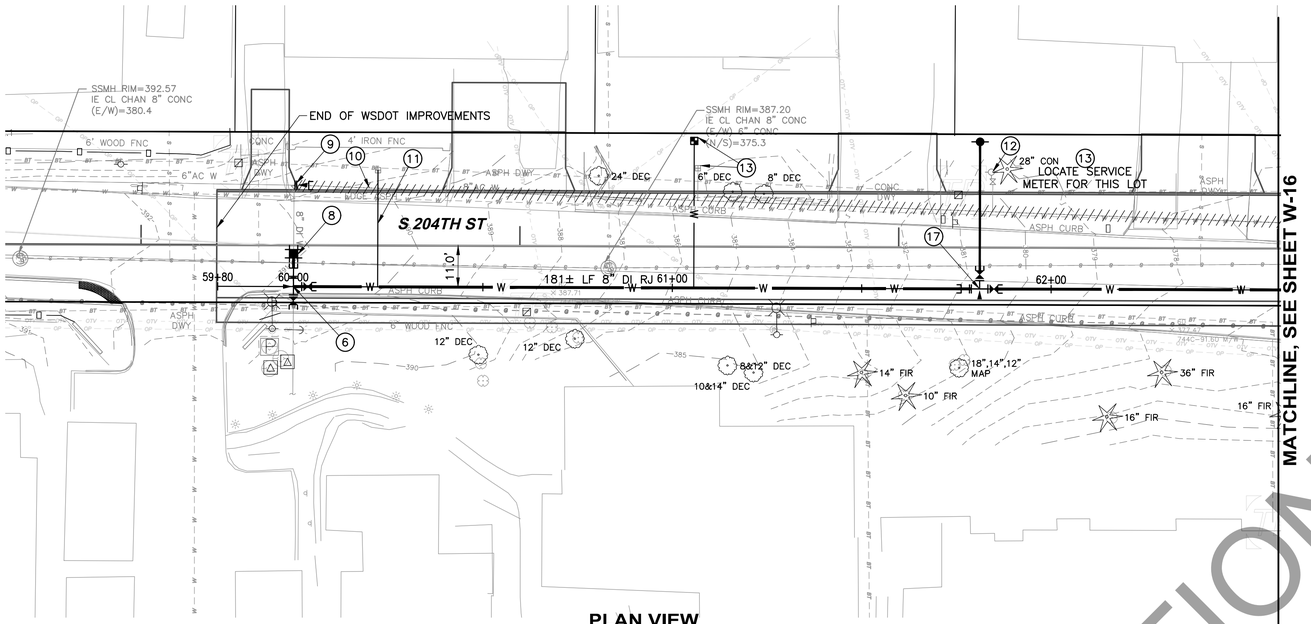
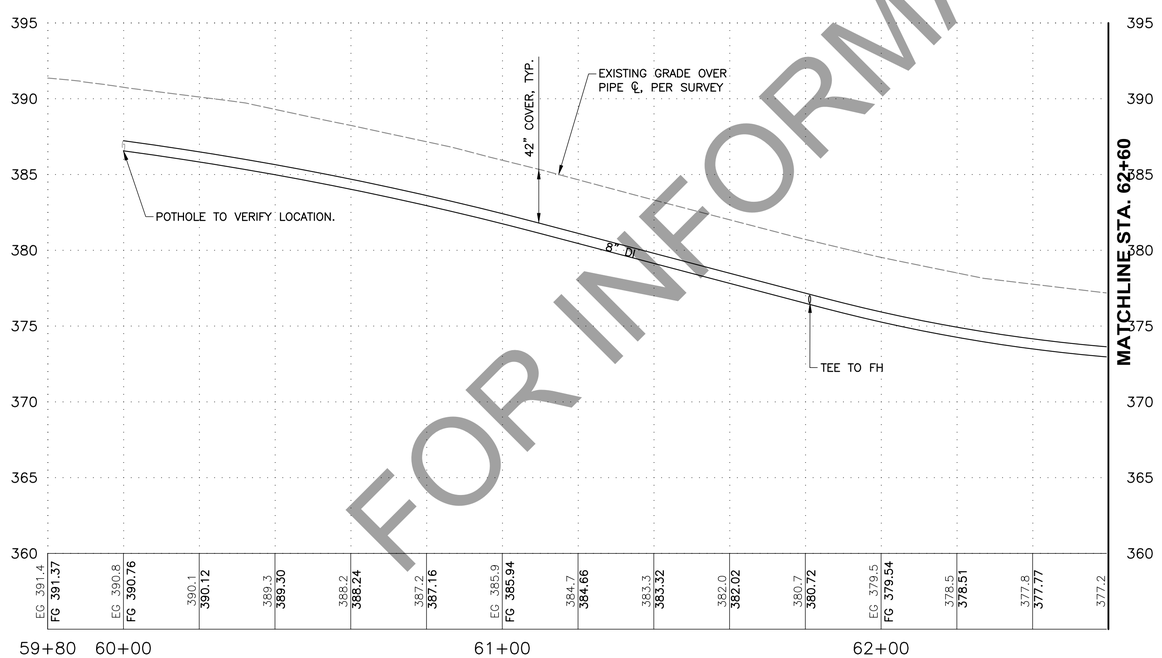
HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI245 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME: P18434_UI(34TH)_WA-PP
SHEET W-16 OF 26

FILE NAME: P:\P18\18434 SR-509 CROSSING WM RELOCATION\CAD\ENGINEERING\SHEETS\P18434_UI(34TH)_WA-PP.DWG
SAVE TIME: 4/2/2020 5:15:48 PM PLOT TIME: 4/3/2020 1:52 PM



PLAN VIEW



PROFILE VIEW

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    1 – FH ASSEMBLY
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N

HORIZ. 0 10 20 40 Scale In Feet

VERT. 0 2.5 5 10 Scale In Feet

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HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI245 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME:P18434_UI(34TH)_WA-PP
SHEET W-17 OF 26

FILE NAME: P:\P18\18434_SR-509_CROSSING_WM_RELOCATION\04\ENGINEERING\SHEETS\P18434_UI(34TH)_WA-PP.DWG
SAVE TIME: 4/2/2020 5:15:48 PM
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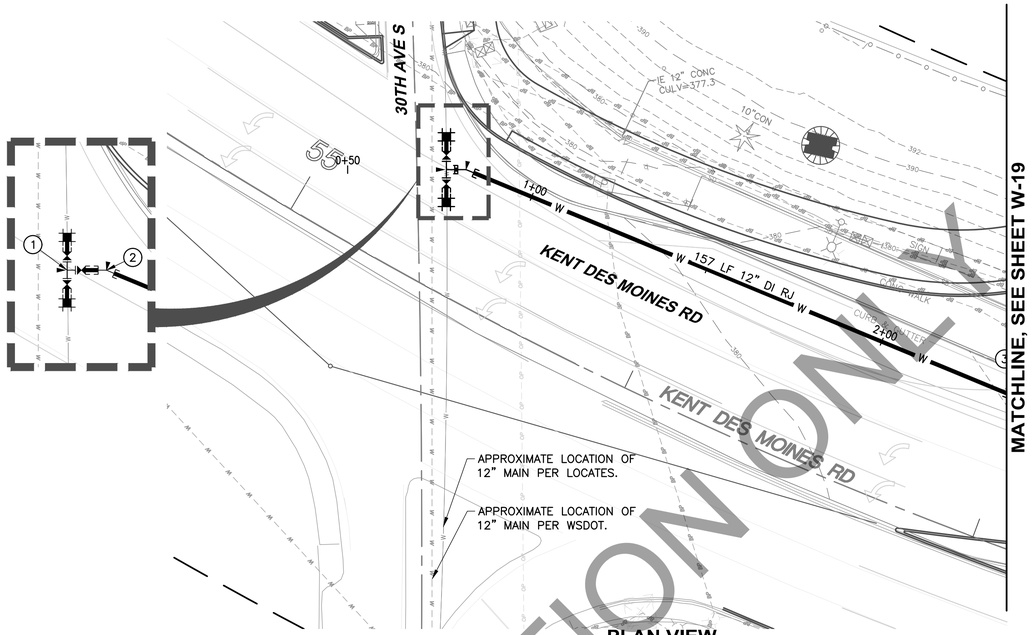
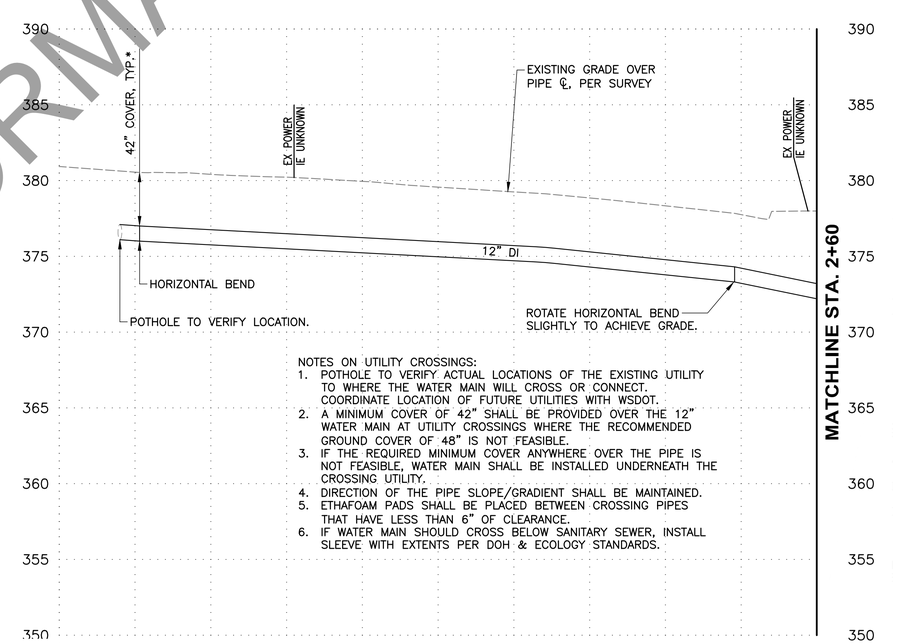
XREF FILES: X18434_BASE.dwg X15289_BP_CV.dwg X15289_BP_FV_UT.dwg X15289_PH1_BP_AL.dwg X15289_PH1_BP_MK.dwg X15289_PH1_BP_PV.dwg X18434_SRV.dwg V17092.dwg V17092-update.dwg V18092-SRV.dwg SR_99_Detour.dwg XD18434_UI(34TH)_WA.dwg X18434_BSRV.dwg V18092--11--20thNSRV.dwg XL5289_BP_BG.DWG xPWEA-105-SEP001.dwg



PLAN VIEW



PROFILE VIEW

NOTES ON UTILITY CROSSINGS:
1. POTHOLE TO VERIFY ACTUAL LOCATIONS OF THE EXISTING UTILITY TO WHERE THE WATER MAIN WILL CROSS OR CONNECT. COORDINATE LOCATION OF FUTURE UTILITIES WITH WSDOT.
2. A MINIMUM COVER OF 42" SHALL BE PROVIDED OVER THE 12" WATER MAIN AT UTILITY CROSSINGS WHERE THE RECOMMENDED GROUND COVER OF 48" IS NOT FEASIBLE.
3. IF THE REQUIRED MINIMUM COVER ANYWHERE OVER THE PIPE IS NOT FEASIBLE, WATER MAIN SHALL BE INSTALLED UNDERNEATH THE CROSSING UTILITY.
4. DIRECTION OF THE PIPE SLOPE/GRADIENT SHALL BE MAINTAINED.
5. ETHAFOAM PADS SHALL BE PLACED BETWEEN CROSSING PIPES THAT HAVE LESS THAN 6" OF CLEARANCE.
6. IF WATER MAIN SHOULD CROSS BELOW SANITARY SEWER, INSTALL SLEEVE WITH EXTENTS PER DOH & ECOLOGY STANDARDS.

NOTES:
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   1 – 12" TEE (FLxFL)
   3 – 12" GATE VALVES (FLxRJ)
   3 – 12" SPOOLS, LENGTHS AS REQUIRED
   2 – 12" TRANSITION COUPLINGS
   W/ THRUST BLOCK
2. 1 – 12" 22.5° BEND (RJ)
   W/ THRUST BLOCK
3. 1 – 12" 45° BEND (RJ)
   W/ THRUST BLOCK
4. 1 – 12"x6" TEE (FLxRJ)
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   1 – 12" ADAPTER (FLxRJ)
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   1 – 12" SLEEVE (RJ)
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7. 1 – 12"x6" TEE (RJxRJ)
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   PLACE GATE VALVE (RJxRJ) WITHIN SHOULDER AREA
8. 1 – 12" GATE VALVE (RJxRJ)
   1 – 12" SPOOL
9. 1 – 12"x6" TEE (RJxFL)
   1 – FH ASSEMBLY
   W/ THRUST BLOCK

N

HORIZ. 0 10 20 40 Scale In Feet

VERT. 0 2.5 5 10 Scale In Feet

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30% SUBMITTAL - NOT FOR CONSTRUCTION

SYM	REVISION	DATE	BY	APP'D

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DATE 4/3/2020
SCALE AS SHOWN

HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI160 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME: P18434_UI(VDT)_WA-PP
SHEET W-18 OF 26

FILE NAME: P:\P18\18434_SR-509_CROSSING_WM_RELOCATION\CAD\ENGINEERING\SHEETS\P18434_UI(VDT)_WA-PP.DWG
SAVE TIME: 4/6/2020 4:38:12 PM
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XREF FILES: X18434_BASE.dwg X15289_BP_EX.dwg X15289_BP_DI_UT.dwg X15289_PH1_BP_AL.dwg X15289_PH1_BP_MK.dwg X15289_PH1_BP_PX.dwg X18434_SRX.dwg V17082.dwg V17082-update.dwg V18092-SRX.dwg SR_99_Detour.dwg XD18434_UI(VDT)_WA.dwg V18434_BDR.dwg V18092-11-208thSRX.dwg X15289_BP_BG.DWG xPWEA-105-SEP001.dwg
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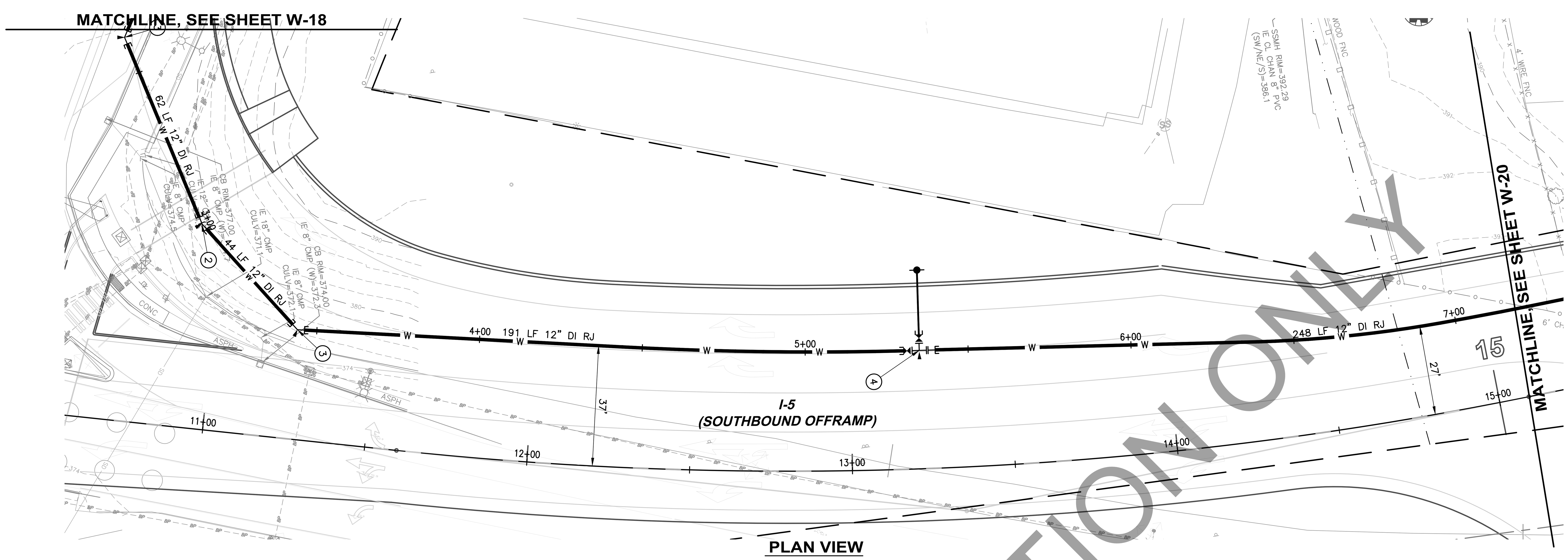
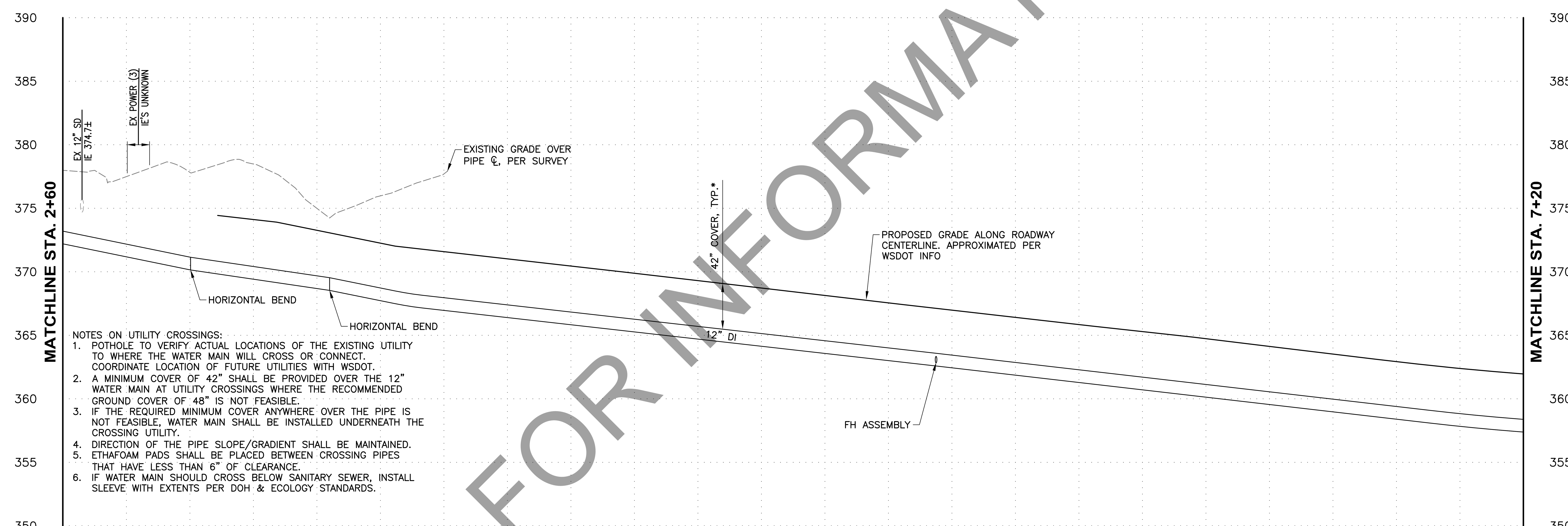


PLAN VIEW



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PROFILE VIEW

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6. CONNECT TO EXISTING 12" DI:
   1 – 12" TEE (FLxFL)
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HORIZ. 0 10 20 40 Scale In Feet

VERT. 0 2.5 5 10 Scale In Feet

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UNDERGROUND SERVICE (USA)

PRELIMINARY — HANS P. PACE, STATE OF WASHINGTON, 43695, REGISTERED PROFESSIONAL ENGINEER

FOR INFORMATION ONLY

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DESIGNED VAR
DRAWN MWP
CHECKED

SYM	REVISION	DATE	BY	APP'D

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HIGHLINE WATER DISTRICT
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KENT, WA 98032
206-824-0375

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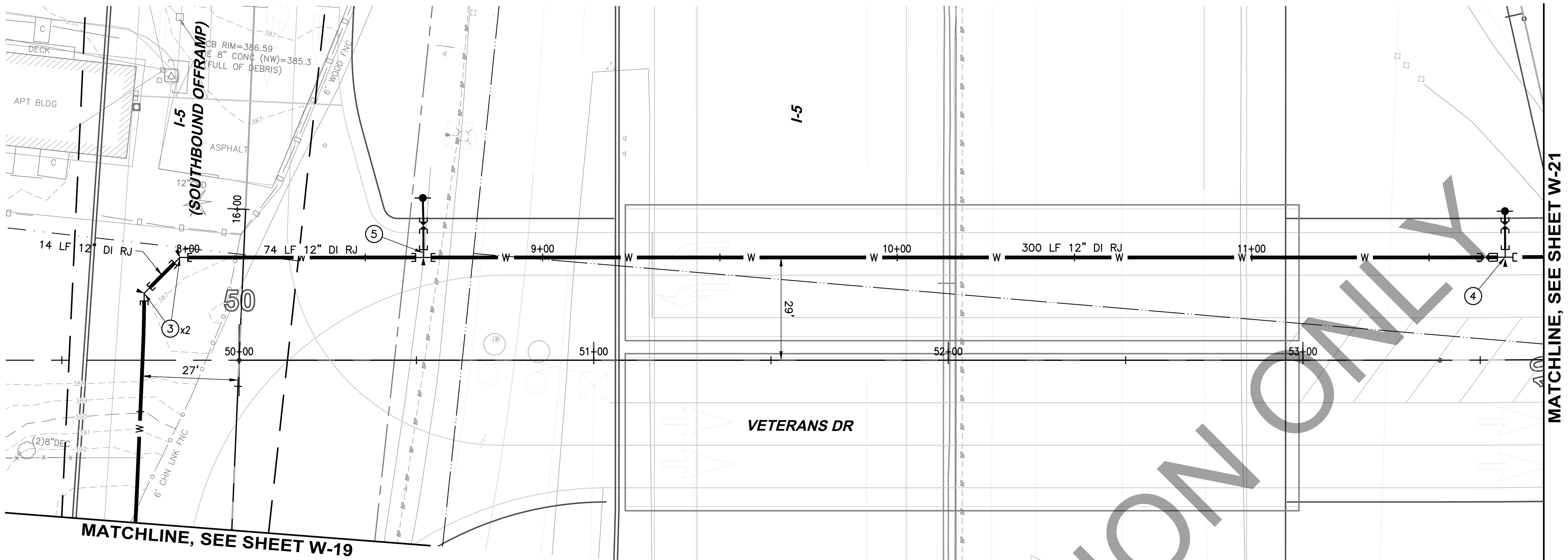
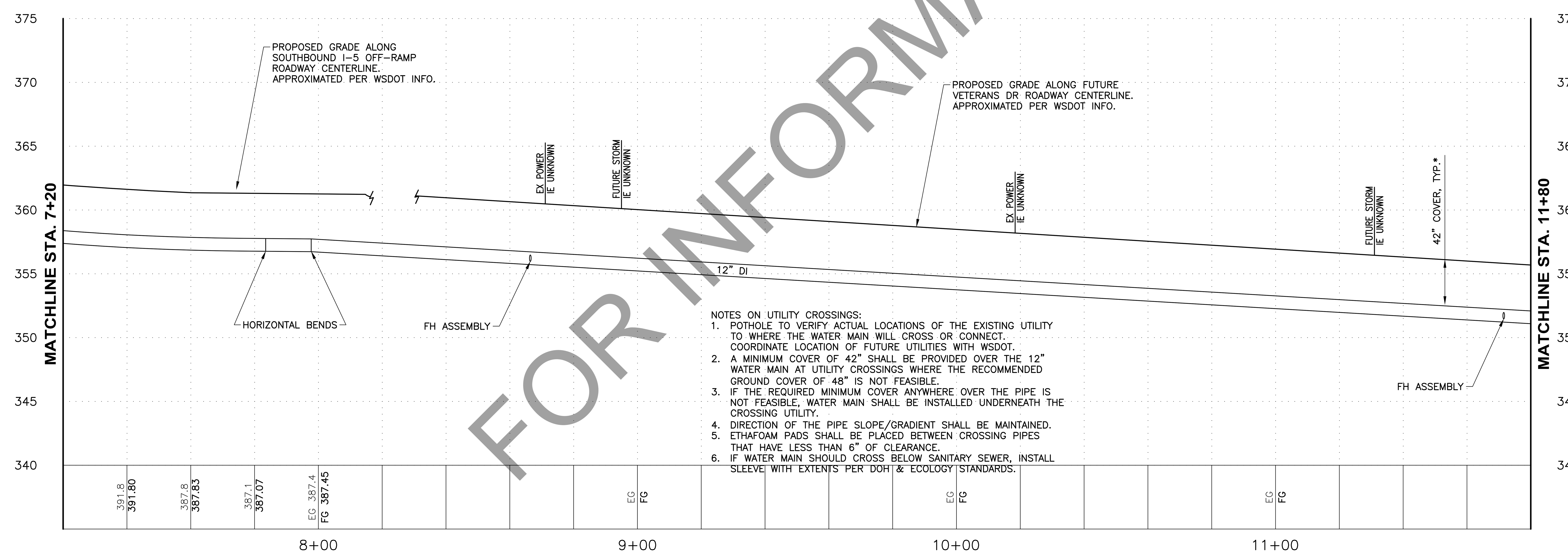
DATE 4/3/2020
SCALE AS SHOWN

HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI160 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME: P18434_UI(VDT)_WA-PP
SHEET W-19 OF 26



PLAN VIEW



NOTES ON UTILITY CROSSINGS:
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PROFILE VIEW

NOTES:
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N

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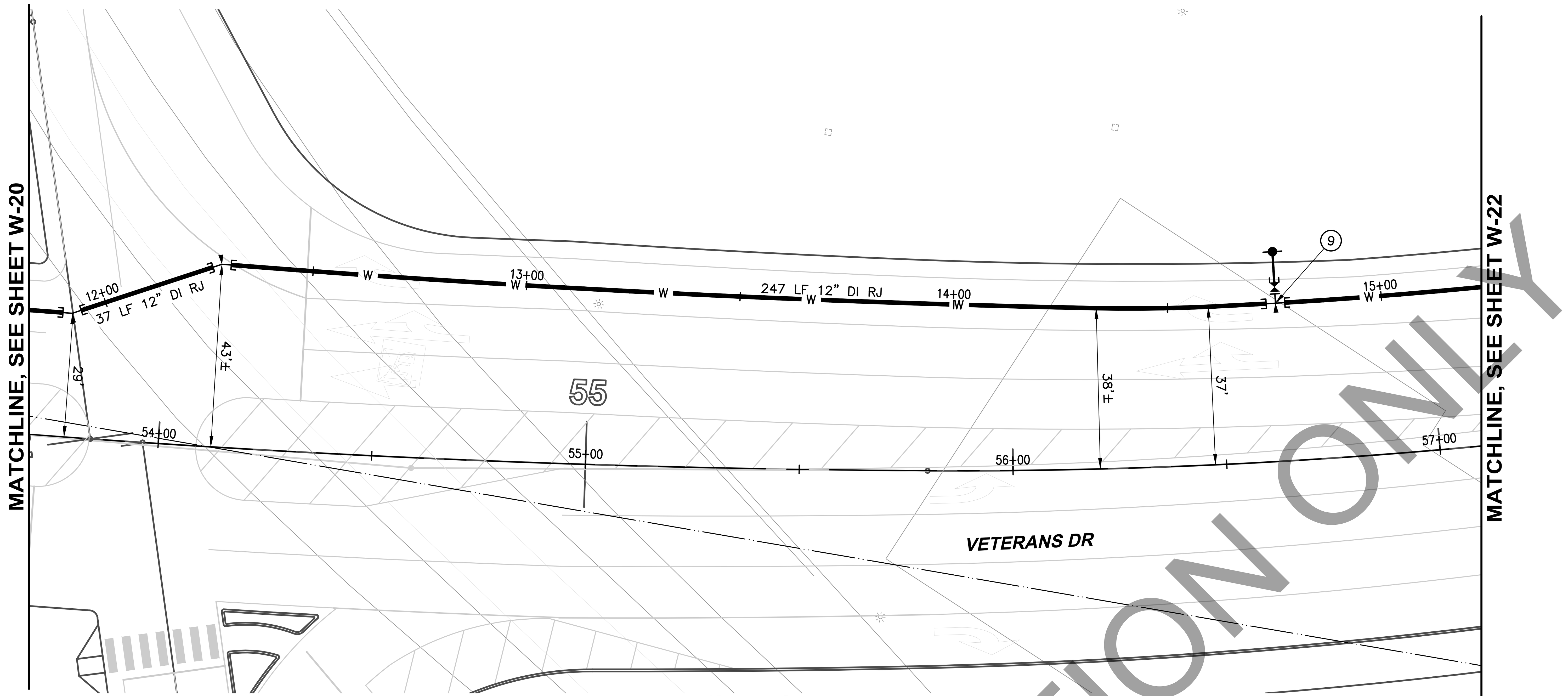
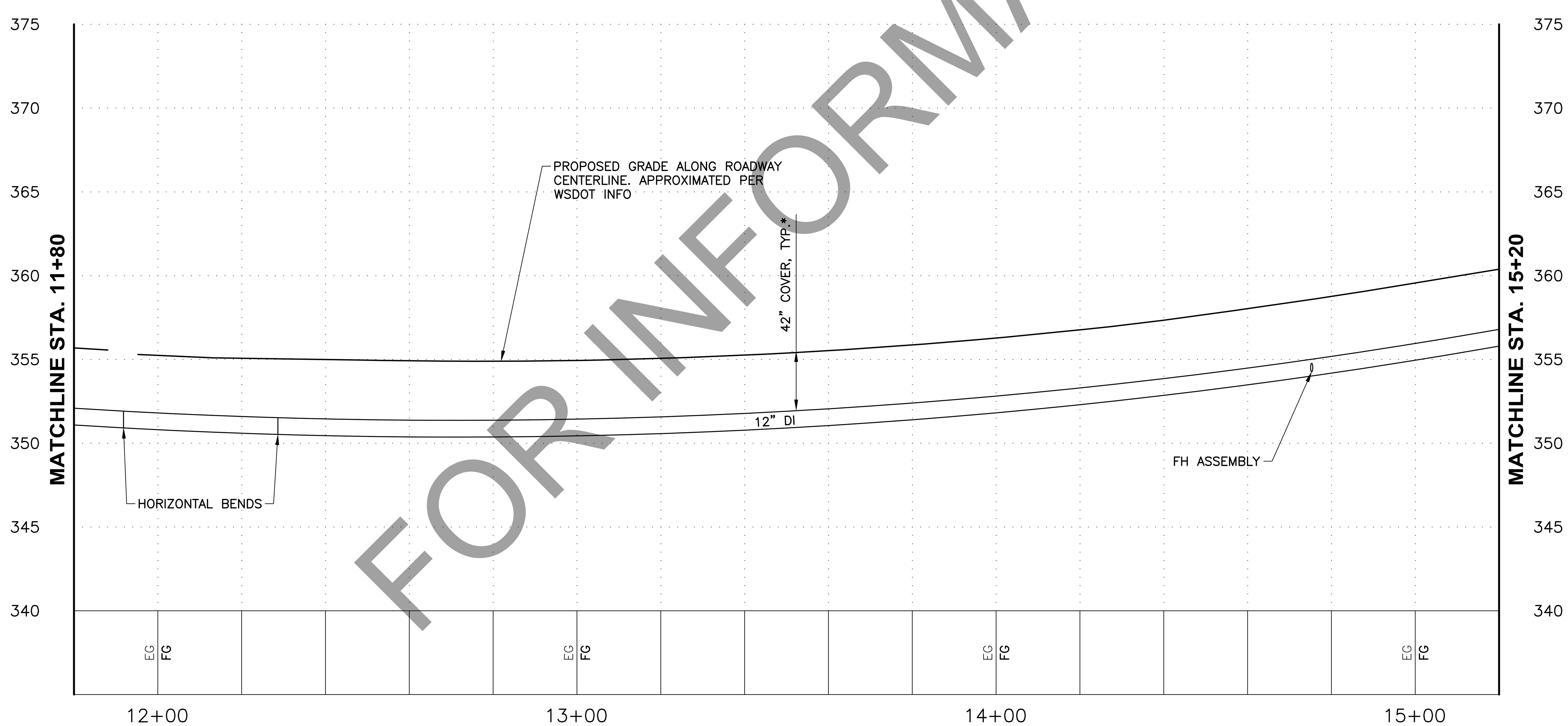
SR-509 WATERMAIN RELOCATIONS
UI160 PLAN AND PROFILE

PACE PROJECT NO. 18434
DWG NAME: P18434_UI(VDT)_WA-PP
SHEET W-20 OF 26



PLAN VIEW



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SR-509 WATERMAIN RELOCATIONS
UI160 PLAN AND PROFILE

PACE PROJECT NO. **18434**
DWG NAME: P18434_UI(VDT)_WA-PP
SHEET W-21 OF 26

FILE NAME: P:\P18\18434 SR-509 CROSSING WM RELOCATION\CAD\ENGINEERING\SHEETS\P18434_UI(VDT)_WA-PP.DWG
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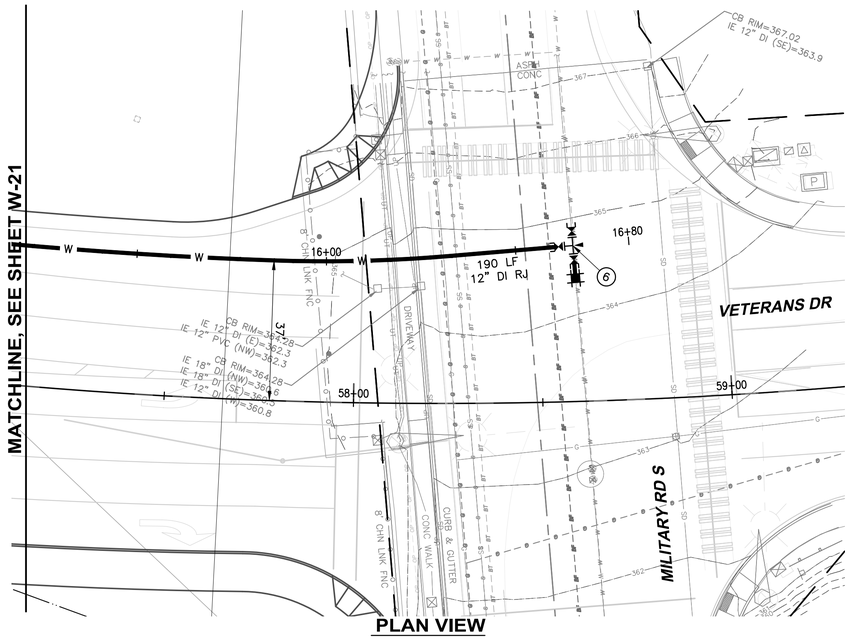
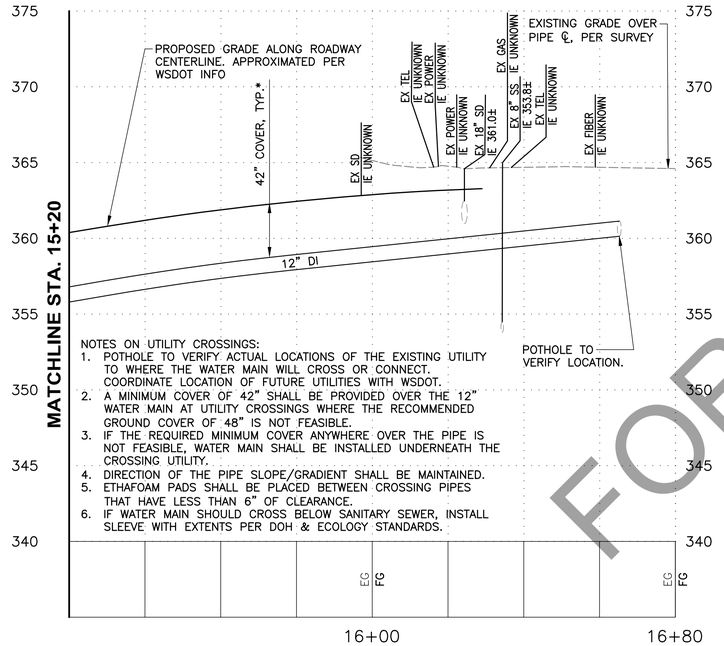
USER NAME: PETER PAULSEN
XREF FILES: X18434_BASE.dwg XL5289_BP_EX.dwg XL5289_BP_EX_UT.dwg XL5289_PH1_BP_AL.dwg XL5289_PH1_BP_MK.dwg XL5289_PH1_BP_PV.dwg X18434_SRV.dwg V17082.dwg V17082-update.dwg V18082-SRV.dwg SR_99_Detour.dwg XD18434_UI(VDT)_WA.dwg X18434_BDR.dwg V18082-11-208thSRV.dwg XL5289_BP_BG.DWG xFWEA-L05-SEP001.dwg



PLAN VIEW



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HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
UI160 PLAN AND PROFILE

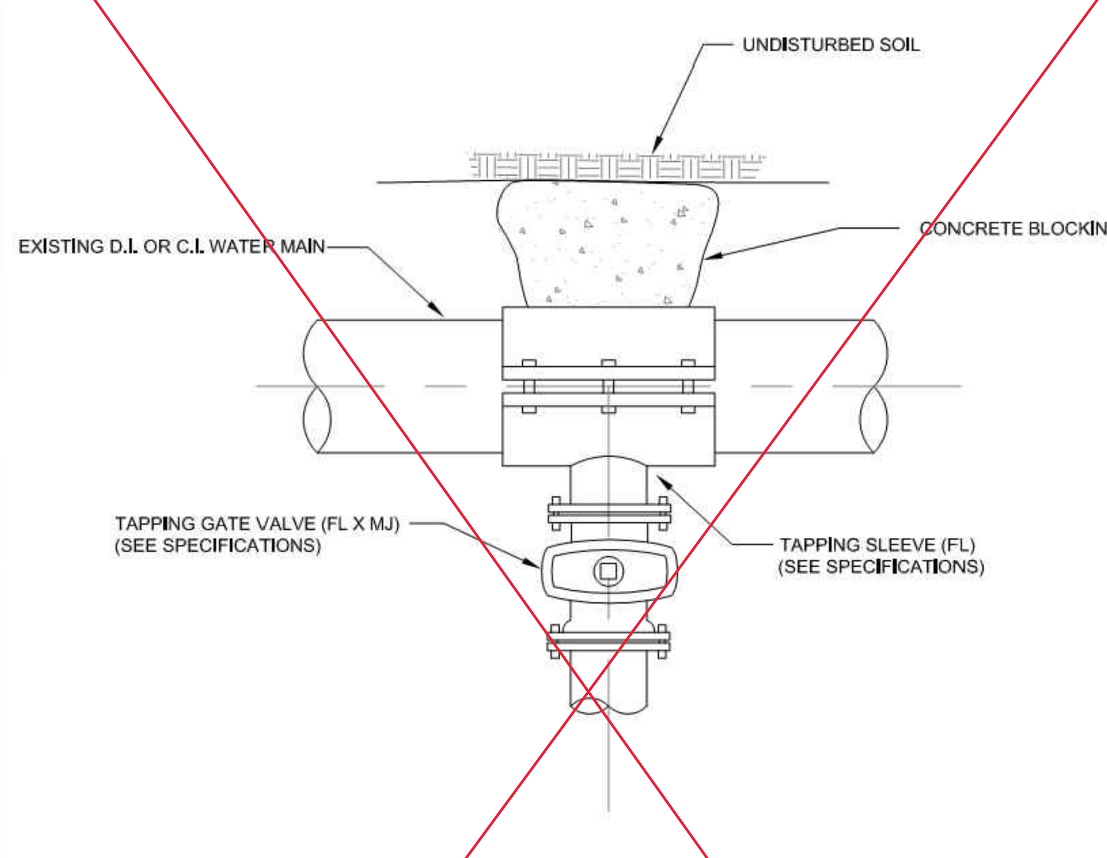
PACE PROJECT NO. 18434
DWG NAME: P18434_UI(VDT)_WA-PP
SHEET W-22 OF 26

FILE NAME: P:\P18434 SR-509 CROSSING WM RELOCATION\CAD\ENGINEERING\SHEETS\P18434_UI(VDT)_WA-PP.DWG
SAVE TIME: 4/6/2020 4:38:12 PM
PLOT TIME: 4/7/2020 2:06 PM
USER NAME: PETER PAULSEN
XREF FILES: X18434_BASE.dwg X15289_BP_EX.dwg X15289_BP_DI_UT.dwg X15289_PH1_BP_AL.dwg X15289_PH1_BP_MK.dwg X15289_PH1_BP_PV.dwg X18434_SRK.dwg V17082.dwg V17082-update.dwg V18082-SRK.dwg SR_99_Detour.dwg XD18434_UI(VDT)_WA.dwg X18434_BDR.dwg V18082-11-208NSRK.dwg X15289_BP_BS.DWG -PWEA-L05-SEP001.dwg

BACKFILL FOR ALL PIPE IN ALL JURISDICTIONS SHALL BE 100% CRUSHED SURFACING. NO NATIVE BACKFILL MATERIAL WILL BE ACCEPTED. TYPE OF CRUSHED SURFACING VARIES WITH AGENCY HAVING JURISDICTION.

001

LIVE TAP MAINS



NOTE: ALL CONNECTIONS TO EXISTING MAINS WILL BE MADE WITH HWD AFTER REQUIRED TESTING.

HIGHLINE WATER DISTRICT ONLY ALLOWS LIVE TAPS TO ASBESTOS CEMENT (AC) WATER MAINS GREATER THAN 8" DIAMETER. SEE CUT-IN DETAIL(S).

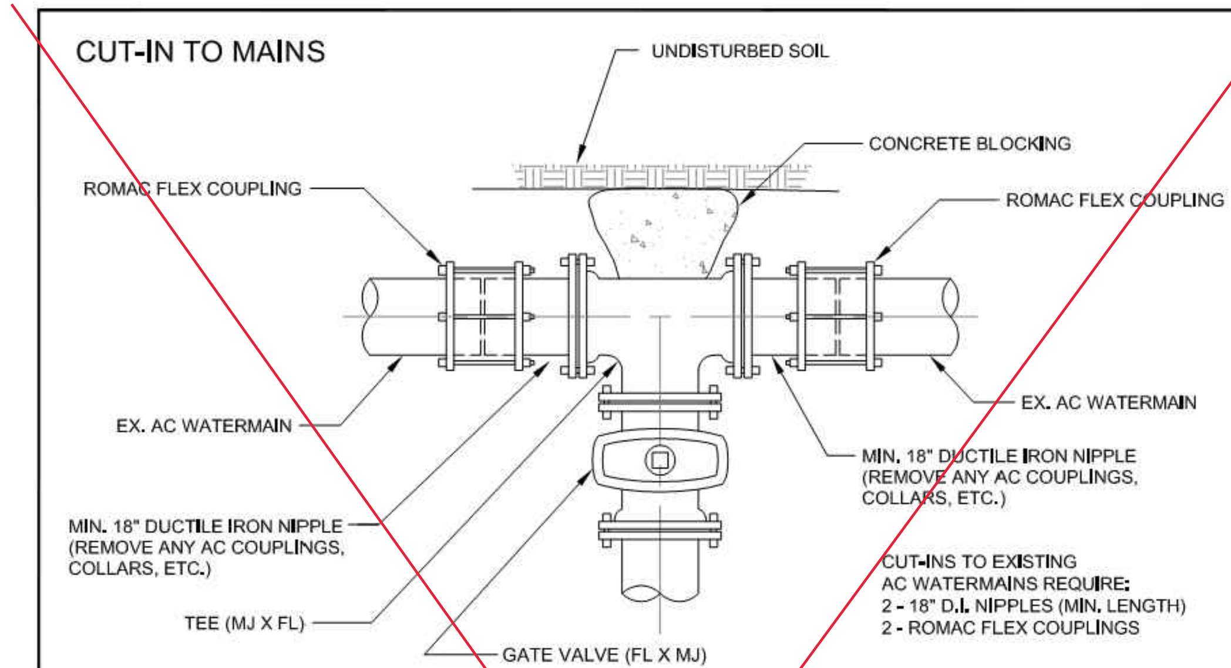
VALVE MARKER POST REQUIRED PER HWD STANDARD DETAIL #10.

PROVIDE SUPPORT BLOCK UNDER TAPPING VALVE.

LIVE TAP — NTS — REVISION DATE 1/5/04 — DRAWN SED — CHECKED TDK — DISTRICT APPROVED TDK — PLOTTING SCALE NTS — FILE NAME F:\DWGS\DETAILS-2004\HWD-001 — DATE APPROVED 3/1/04 — 1

001

CUT-IN TO MAINS



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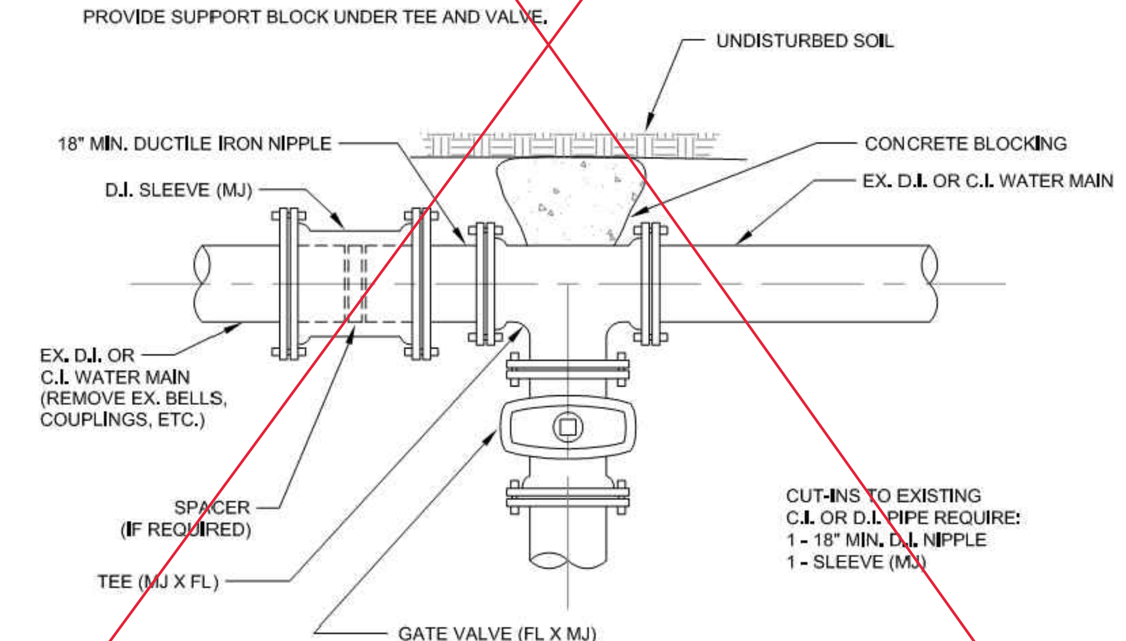
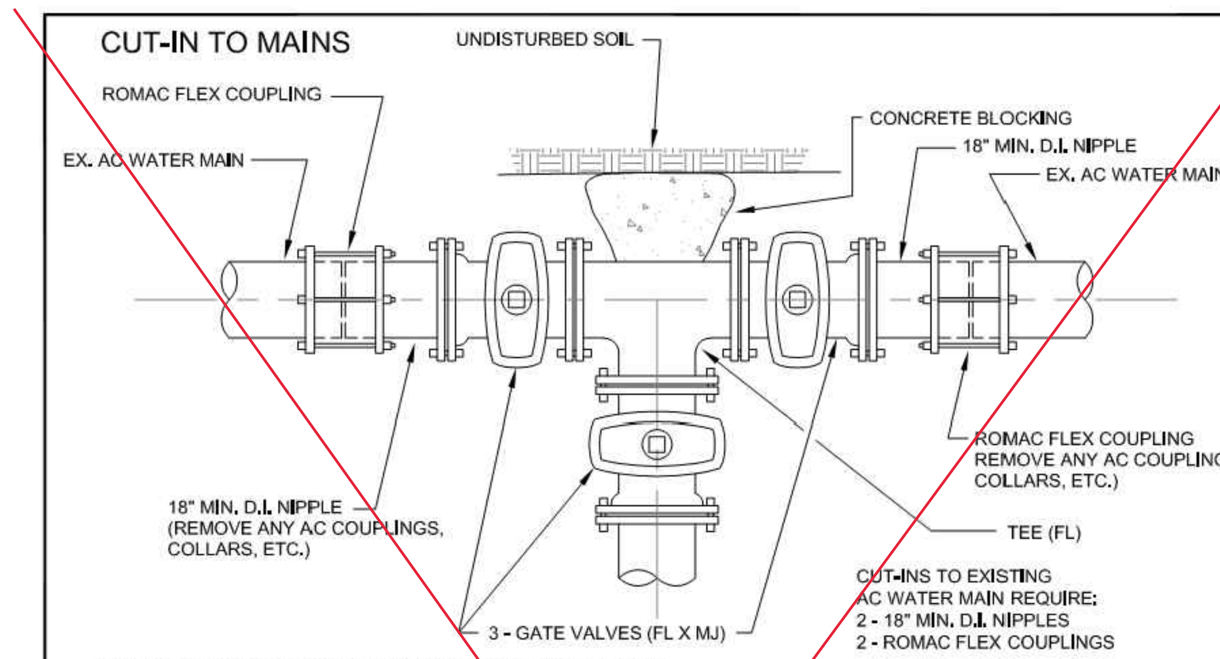
VALVE MARKER POST REQUIRED PER HWD STANDARD DETAIL #10.
DISINFECT FITTINGS AND PIPE BEFORE MAKING CONNECTION.
PROVIDE SUPPORT BLOCK UNDER TEE AND VALVE.



CUT-IN USING SINGLE VALVE — NTS — REVISION DATE 1/7/04 — DRAWN SED — CHECKED TDK — DISTRICT APPROVED TDK — PLOTTING SCALE NTS — FILE NAME F:\DWGS\DETAILS-2004\HWD-002 — DATE APPROVED 3/1/04 — 2

001

CUT-IN TO MAINS



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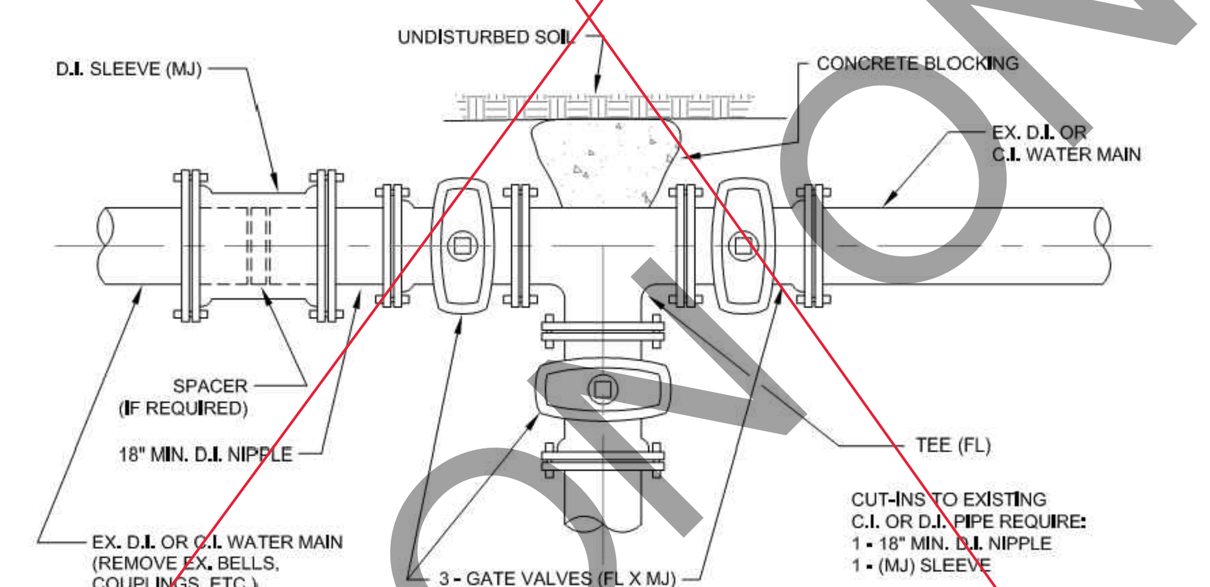

CUT-IN USING THREE VALVES — NTS — REVISION DATE 1/7/04 — DRAWN SED — CHECKED TDK — DISTRICT APPROVED TDK — PLOTTING SCALE NTS — FILE NAME F:\DWGS\DETAILS-2004\HWD-004 — DATE APPROVED 3/1/04 — 4

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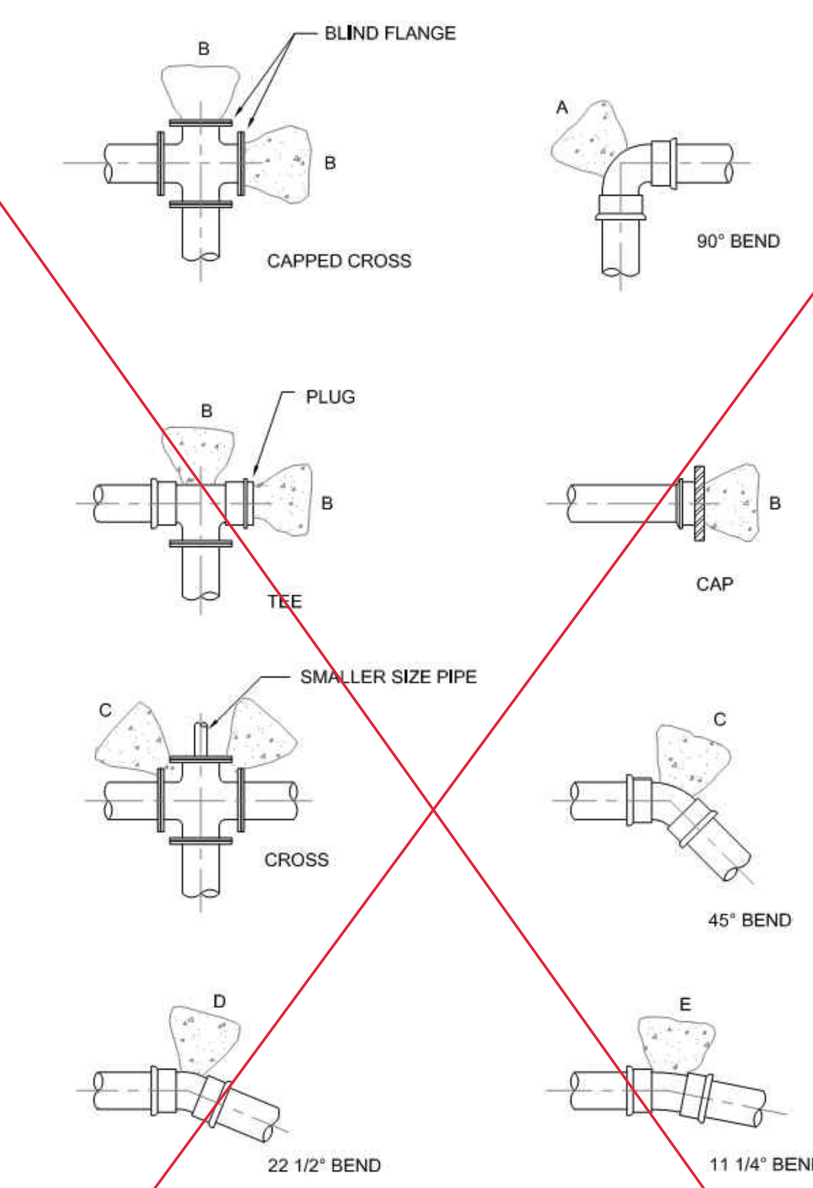


NOTES:
SEE THRUST BLOCK TABLE, DETAIL #7
PROVIDE POLYETHYLENE SHEETING TO COVER BOLTS AND JOINTS FOR FUTURE DISMANTLING.

CONCRETE BLOCKING — NTS — REVISION DATE 1/8/04 — DRAWN SED — CHECKED TDK — DISTRICT APPROVED TDK — PLOTTING SCALE NTS — FILE NAME F:\DWGS\DETAILS-2004\HWD-005 — DATE APPROVED 3/1/04 — 5

001

THRUST BLOCK - TABLE
MIN. BEARING AREA AGAINST UNDISTURBED SOIL
SQUARE FEET

PIPE SIZE	A (FT.2)	B (FT.2)	C (FT.2)	D (FT.2)	E (FT.2)
3"	3	2	2	2	2
6"	4	4	2	2	2
8"	7	6	4	2	2
10"	11	10	6	3	2
12"	16	14	9	5	3
14"	22	19	12	6	3
16"	29	25	16	8	4
18"	36	31	20	10	5
20"	45	39	24	13	6
22"	54	47	29	15	8
24"	64	56	35	18	9
28"	87	76	48	24	12
30"	101	87	55	28	14
36"	145	125	78	40	20
42"	197	171	107	55	27
48"	257	223	140	71	36

NOTES:
1. BEARING AREA OF CONC. THRUST BLOCK BASED ON 200 PSI WATER PRESSURE AND SAFE SOIL BEARING LOAD OF 2,000 POUNDS PER SQUARE FOOT.
2. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZES, PRESSURES AND SOIL CONDITIONS.
3. CONCRETE BLOCKING SHALL BE CAST IN PLACE AND HAVE A MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.
4. BLOCK SHALL BEAR AGAINST FITTINGS ONLY AND SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING OF JOINT.
5. CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATION PRESSURE UNDER ALL CONDITIONS OF SERVICE.

THRUST BLOCK TABLE — NTS — REVISION DATE 1/8/04 — DRAWN SED — CHECKED TDK — DISTRICT APPROVED TDK — PLOTTING SCALE NTS — FILE NAME F:\DWGS\DETAILS-2004\HWD-006 — DATE APPROVED 3/1/04 — 6

001

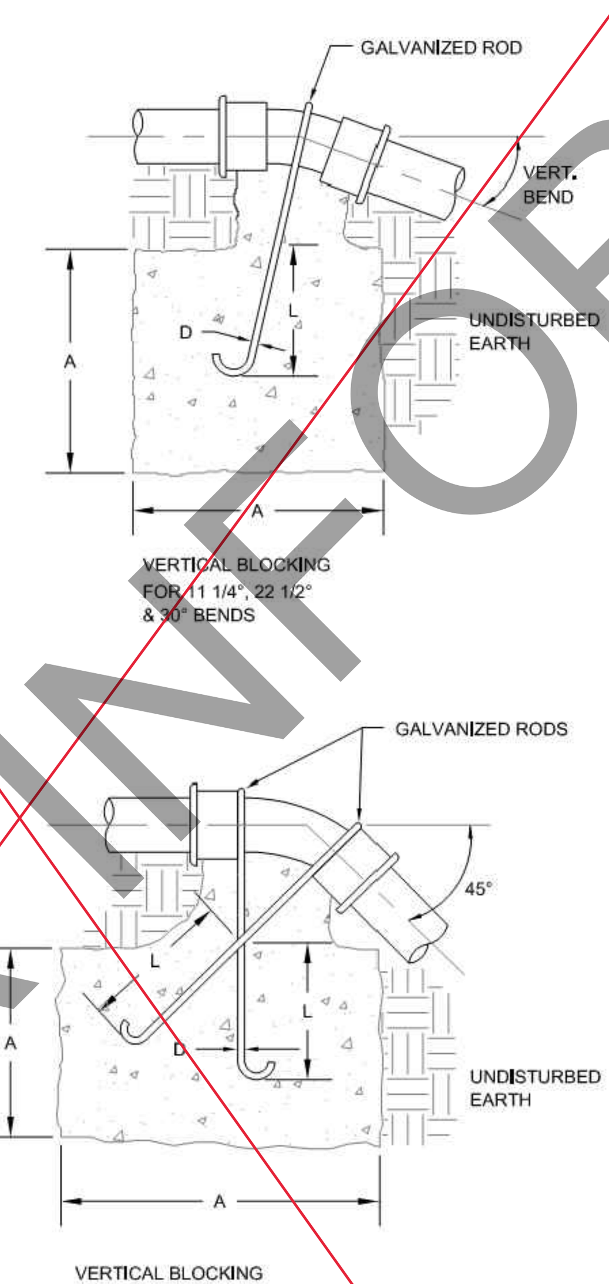
VERTICAL BLOCKING FOR 11 1/4°, 22 1/2°, 30° BENDS

PIPE SIZE	V B	CU FT	A	D	L
4"	11 1/4° 22 1/2° 30°	8 11 17	2.0' 2.2' 2.6'	3/4"	1.5' 2.0'
6"	11 1/4° 22 1/2° 30°	11 25 41	2.2' 2.9' 3.5'	3/4"	2.0'
8"	11 1/4° 22 1/2° 30°	16 47 70	2.5' 3.6' 4.1'	3/4" 3/4"	2.0' 2.5'
12"	11 1/4° 22 1/2° 30°	32 88 132	3.2' 4.5' 5.1'	3/4" 7/8"	2.0' 3.0'
16"	11 1/4° 22 1/2° 30°	70 184 275	4.1' 5.7' 6.5'	7/8" 11/8" 11/4"	3.0' 4.0'
20"	11 1/4° 22 1/2° 30°	91 225 330	4.5' 6.1' 6.9'	7/8" 11/4" 13/8"	3.0' 4.0' 4.5'
24"	11 1/4° 22 1/2° 30°	128 320 480	5.0' 6.8' 7.9'	1" 13/8" 15/8"	3.5' 4.5' 5.5'

VERTICAL BLOCKING FOR 45° BENDS

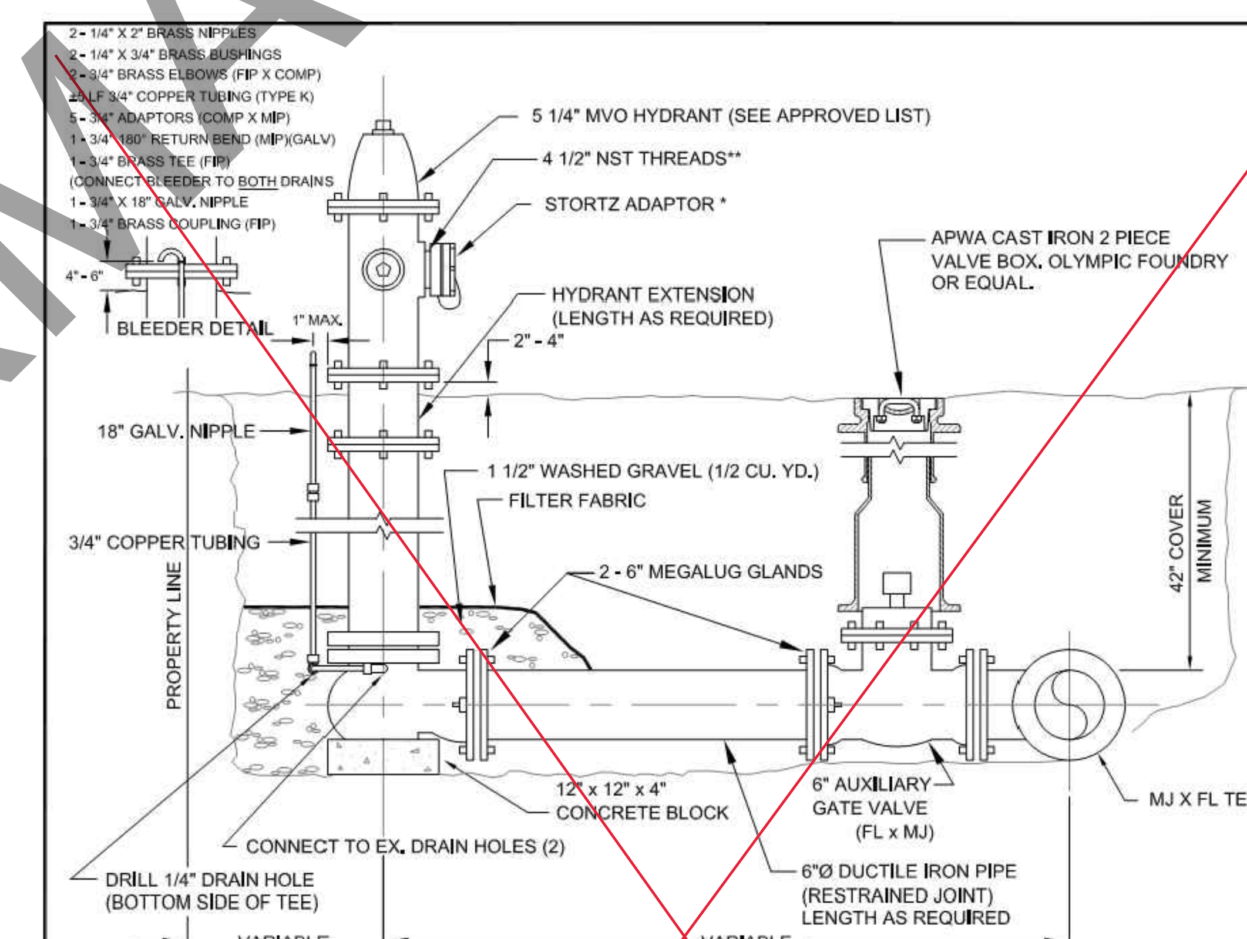
PIPE SIZE	V B	CU FT	A	D	L
4"	45°	30	3.1'	3/4"	2.0'
6"		68	4.1'		
8"		123	5.0'		
12"		232	6.1'	3/4"	2.5'
16"		478	7.8'	11/8"	4.0'
20"		560	8.2'	11/4"	
24"		820	9.4'	13/8"	4.5'

NOTE: CONCRETE BLOCKING BASED ON 200 PSI WATER PRESSURE AND 2500 PSI CONCRETE



VERTICAL CONCRETE BLOCKING — NTS — REVISION DATE 1/8/04 — DRAWN SED — CHECKED TDK — DISTRICT APPROVED TDK — PLOTTING SCALE NTS — FILE NAME F:\DWGS\DETAILS-2004\HWD-007 — DATE APPROVED 3/1/04 — 7

001



NOTES:
PAINT HYDRANT WITH CASE YELLOW #X3472 AS MANUFACTURED BY FARWEST PAINT MFG. CO.
EXTRUDED CURBING. SEE DETAIL #10.
INSTALL BLUE PAVEMENT MARKER IF HYDRANT IS IN RIGHT-OF-WAY.
NEATLY STENCIL VALVE DISTANCE ONTO HYDRANT W/ 2" NUMERALS USING WHITE OR BLACK ENAMEL PAINT AND FACING THE FOOT VALVE.
BLEEDER KIT AVAILABLE FROM MOST SUPPLIERS.

* PUMPER PORT REQUIREMENTS:
5" STORTZ ADAPTOR - FIRE DISTRICT #2, SOUTH KING, CITIES OF SEATAC, TUKWILA & KENT

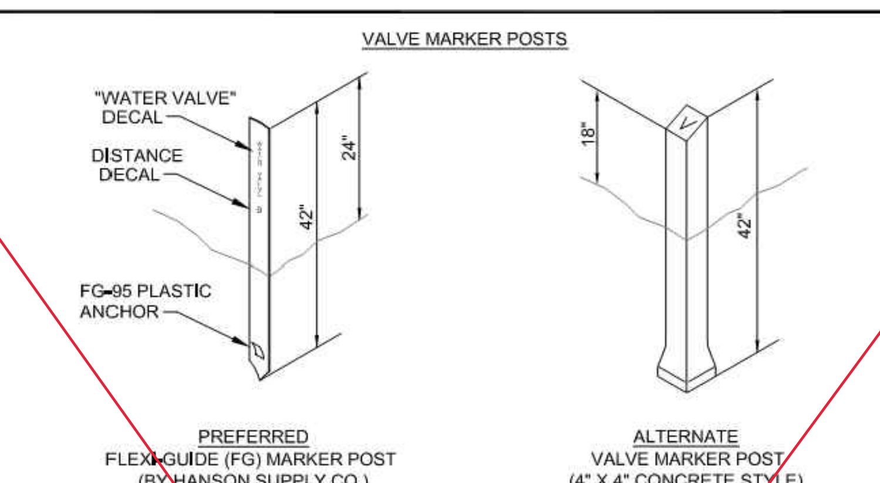
** ALL STORTZ ADAPTORS TO FIT 4 1/2" NST THREADS

HWD APPROVED HYDRANTS:
CLOW MEDALLION F-2545
MUELLER CENTURION A-423

HYDRANT INSTALLATION — NTS — REVISION DATE 4/25/13 — DRAWN SED — CHECKED JD — DISTRICT APPROVED JD — PLOTTING SCALE NTS — FILE NAME HWD-009.DWG — DATE APPROVED 4/25/13 — 9

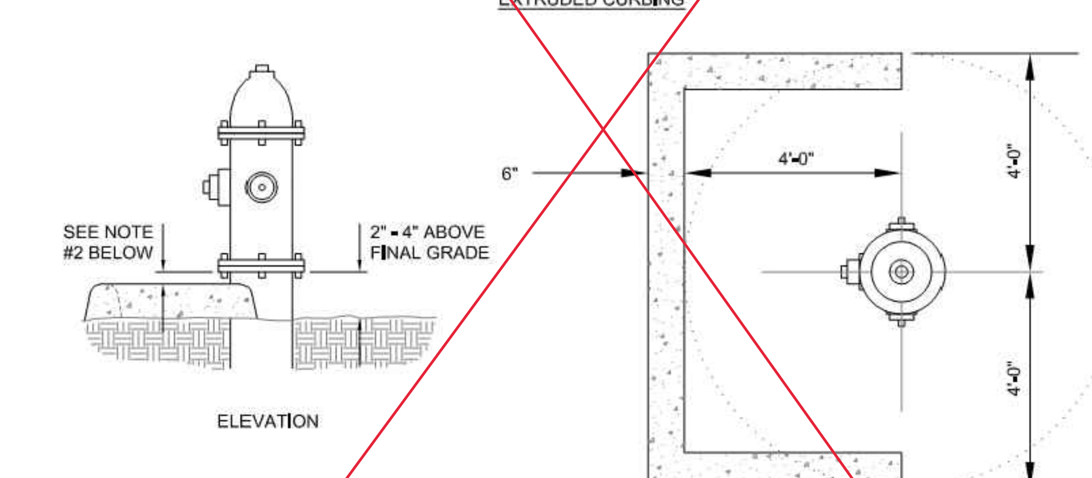
001

VALVE MARKER POSTS



NOTES:
1) PAINT POST WITH SAFETY BLUE ENAMEL #257, AS MANUFACTURED BY FARWEST PAINT MFG. CO. OR TAHOE BLUE MARATHON #1065, AS MANUFACTURED BY PARKER PAINT CO.
2) NEATLY STENCIL DISTANCE TO VALVE ON POST W/2" NUMERALS USING DECALS OR WHITE ENAMEL PAINT.
3) ALTERNATE PLACEMENT OF STENCIL(S) WILL BE MADE BY HWD IF USE OF MARKER POST(S) ARE NOT PRACTICAL.

EXTRUDED CURBING



NOTES:
1) FIRE HYDRANTS SHALL BE PROTECTED BY 6" HIGH EXTRUDED CURBING WHERE DIRECTED BY HIGHLINE WATER DISTRICT ENGINEER OR REPRESENTATIVE.
2) IF AREA WITHIN PROTECTIVE CURBING IS FILLED IN, THE BOTTOM OF THE HYDRANT FLANGE IS REQUIRED TO HAVE A CLEARANCE OF 2" TO 4" ABOVE THE FINAL GRADE.

VALVE MARKER POST AND EXTRUDED CURBING — NTS — REVISION DATE 6/3/2010 — DRAWN SED — CHECKED TDK — DISTRICT APPROVED TDK — PLOTTING SCALE NTS — FILE NAME F:\DWGS\DETAILS-2004\HWD-010 — DATE APPROVED 3/1/04 — 10

FOR INFORMATION ONLY

30% SUBMITTAL - NOT FOR CONSTRUCTION

FILE NAME: P:\18\18434 SR-509 CROSSING WM RELOCATION\CAD\ENGINEERING\SHEETS\P18434_DET-HWD.DWG
SAVE TIME: 4/3/2020 12:56 PM — PLOT TIME: 4/3/2020 2:00 PM
USER NAME: PETER PAULSEN
XREF FILES: X18434_BDR.dwg

DESIGNED VAR	SYM	REVISION	DATE	BY	APP'D
DRAWN MWP					
CHECKED					

PACE — An Engineering Services Company
11255 Kirkland Way, Suite 300
Kirkland, WA 98033
p. 425.827.2014 | f. 425.827.5043
Civil | Structural | Planning | Survey
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HIGHLINE WATER DISTRICT
23828 30TH AVE. S.
KENT, WA 98032
206-824-0375

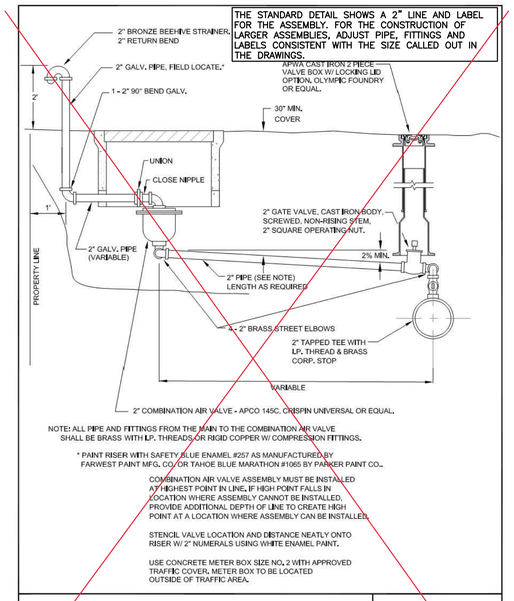
VERIFY SCALE — BAR IS ONE INCH ON ORIGINAL DRAWING. 0 — 1" — IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DATE 4/3/2020 — SCALE AS SHOWN

HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
HIGHLINE WATER DISTRICT DETAILS

PACE PROJECT NO. 18434 — DWG NAME: P18434_DET-HWD — SHEET W-23 OF 26

001 Change Order 001 - Contract Revisions - See 'U4-UTB1363-HWD-Exhibit-C-Specifications.pdf'



THE STANDARD DETAIL SHOWS A 2" LINE AND LABEL FOR THE ASSEMBLY. FOR THE CONSTRUCTION OF LARGER ASSEMBLIES, ADJUST PIPE, FITTINGS AND LABELS CONSISTENT WITH THE SIZE CALLED OUT IN THE DRAWINGS.

NOTE: ALL PIPE AND FITTINGS FROM THE MAIN TO THE COMBINATION AIR VALVE SHALL BE BRASS WITH I.P. THREADS OR RIGID COPPER W/ COMPRESSION FITTINGS.

* PAINT RISER WITH SAFETY BLUE ENAMEL #257 AS MANUFACTURED BY FARWEST PAINT MFG. CO. OR TAHOE BLUE MARATHON #1065 BY PARKER PAINT CO..

COMBINATION AIR VALVE ASSEMBLY MUST BE INSTALLED AT HIGHEST POINT IN LINE, IF HIGH POINT FALLS IN LOCATION WHERE ASSEMBLY CANNOT BE INSTALLED, PROVIDE ADDITIONAL DEPTH OF LINE TO CREATE HIGH POINT AT A LOCATION WHERE ASSEMBLY CAN BE INSTALLED.

STENCIL VALVE LOCATION AND DISTANCE NEATLY ONTO RISER W/ 2" NUMERALS USING WHITE ENAMEL PAINT.

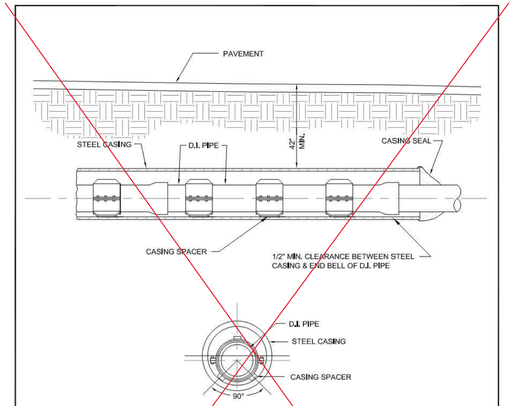
USE CONCRETE METER BOX SIZE NO. 2 WITH APPROVED TRAFFIC COVER. METER BOX TO BE LOCATED OUTSIDE OF TRAFFIC AREA.

2" COMBINATION AIR VALVE

NTS

REVISION DATE	DRAWN	CHECKED	DISTRICT APPROVED
1/30/04	SED	TDK	TDK
PLOTTING SCALE	FILE NAME		DATE APPROVED
NTS	F:\DWGS\DETAILS-2004\HWD-015		3/1/04

15



NOTES:

CASING SIZE AND MINIMUM THICKNESS OF CASING SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING THE THICKNESS CONSISTENT WITH HIS OPERATION.

CASING SEAL BRICK IN AND MORTAR FINISH

PIPE CASING

NTS

REVISION DATE	DRAWN	CHECKED	DISTRICT APPROVED
4/25/04	SED	TDK	TDK
PLOTTING SCALE	FILE NAME		DATE APPROVED
NTS	F:\DWGS\DETAILS-2004\HWD-020		3/1/04

20

15" COPPER SETTER EQUAL TO FORD AND EQUIPPED AS FOLLOWS:

- PADLOCK WINGS ON BALL VALVE
- ANGLE CHECK VALVE ON METER OUTLET
- IRON PIPE CONNECTIONS ON SETTER INLET AND OUTLET
- COMPRESSION ADAPTOR ON SETTER INLET
- 1Ø COPPER OR BRASS NIPPLE ON SETTER OUTLET
- INSTALL TYPE K COPPER AND MISC., BRASS FITTINGS FOR CONNECTION TO CUSTOMER'S LINE

COPPER SETTER SHALL BE SET LEVEL AND CENTERED IN THE METER BOX.

SERVICE METER SIZE	CONCRETE METER BOX SIZE	MID-STATES ** PLASTIC METER BOX SIZE	RAVEN ** PLASTIC METER BOX SIZE
5/8"	B-9 1/2	MSBCF1118-18	RMB 11x18-18
3/4"	B-9 1/2	MSBCF1118-18	RMB 11x18-18
1"	B-10	MSBCF1324-18	RMB 13x24-18

CONCRETE METER BOX AS MANUFACTURED BY FOG-ITE METER SEAL CO.. INSTALL TRAFFIC LID WHEN SERVICE IS LOCATED IN DRIVEWAY, STREET OR SIDEWALK.

** FOR USE IN NON TRAFFIC AREAS ONLY. CONCRETE BOXES WILL ALSO BE ALLOWED.

PLASTIC METER BOX AS MANUFACTURED BY RAVEN OR MID-STATES PLASTICS, INC., PLASTIC METER BOX(ES) ALLOWED IN LANDSCAPED OR NON-TRAFFIC AREAS ONLY.

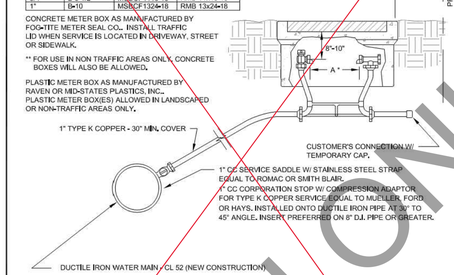
NEW INSTALLATION ONLY

FOR DOMESTIC USE ONLY: HWD TO PROVIDE ANSI/NSF 61, AWWA C708 COMPLIANT METER.

FOR COMBINED DOMESTIC/FIREFLOW APPLICATIONS: HWD TO PROVIDE ANSI/NSF 61, AWWA C712 COMPLIANT METER.

METER	A *
5/8"	7 3/4"
3/4"	7 3/4"
1"	11"

* DIMENSIONS INCLUDE GASKET WIDTHS.



WATER METER TO BE SUPPLIED BY HIGHLINE WATER DISTRICT.

METER BOX SHALL BE INSTALLED FLUSH WITH FINAL GRADE AND MUST BE SIZED TO ALLOW FOR MIN. CLEARANCE REQUIREMENTS.

NEW DEVELOPMENTS:
INSTALL 1" PVC SPACER PIPE IN METER SETTER TO SECURE ALIGNMENT DURING CONSTRUCTION.

NOTE: RETROFIT MAY VARY

5/8", 3/4" & 1" SERVICES

NTS

REVISION DATE	DRAWN	CHECKED	DISTRICT APPROVED
8/3/2010	SED	TDK	TDK
PLOTTING SCALE	FILE NAME		DATE APPROVED
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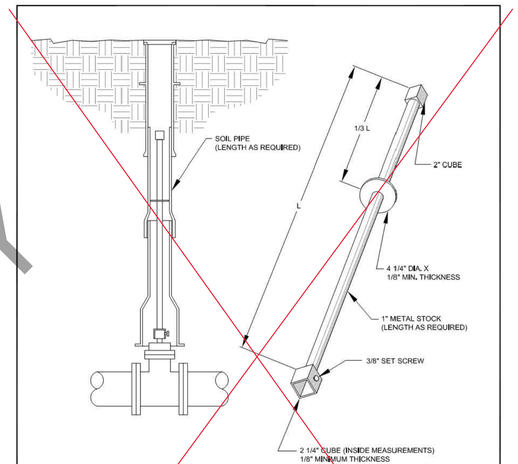
21



NOTES: LENGTH AS REQUIRED TO PUT OPERATING NUT, TWO (2) FEET FROM SURFACE. EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN FOUR (4) FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF TWO (2) FEET LONG. ONE EXTENSION IS TO BE USED PER VALVE.

ALL EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH TWO (2) COATS OF ENAMEL PAINT.

VALVE OPERATING NUT EXTENSION

NTS

REVISION DATE	DRAWN	CHECKED	DISTRICT APPROVED
3/1/04	SED	TDK	TDK
PLOTTING SCALE	FILE NAME		DATE APPROVED
NTS	F:\DWGS\DETAILS-2004\HWD-025		3/1/04

25

BACKFILL FOR ALL PIPE IN ALL JURISDICTIONS SHALL BE 100% CRUSHED SURFACING. NO NATIVE BACKFILL MATERIAL WILL BE ACCEPTED. TYPE OF CRUSHED SURFACING VARIES WITH AGENCY HAVING JURISDICTION.

NOTES

1. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES IN THE FIELD.
2. CONTRACTOR SHALL NOTIFY DISTRICT A MINIMUM OF 72 HOURS (3 WORKING DAYS) IN ADVANCE OF ALL REQUESTS FOR STAKING, TESTING OR INSPECTIONS.
3. DEVELOPER'S REGISTERED PROFESSIONAL LAND SURVEYOR SHALL PROVIDE STAKING OF WATER SYSTEM CONSTRUCTION FOR DISTRICT INSPECTION A MINIMUM OF 72 HRS. PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL FURNISH SHOP DRAWINGS FOR APPROVAL WHERE REQUIRED BY THE DETAIL SPECIFICATIONS AND FOR VARIATION FROM THE APPROVED DRAWING.
5. CONTRACTOR SHALL INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS AND HIGHLINE WATER DISTRICT SPECIFICATIONS.
6. CONTRACTOR TO FURNISH ALL MATERIALS.
7. ALL DUCTILE IRON PIPE SHALL BE CLASS 52, NO EQUAL.
8. ALL GATE VALVES SHALL BE MUELLER OR EQUIVALENT.
9. HYDRANTS SHALL BE AS SPECIFIED.
10. CUT-INS SHALL BE DIRECTLY SUPERVISED BY AN AUTHORIZED REPRESENTATIVE OF HIGHLINE WATER DISTRICT OR PREFORMED BY THE DISTRICT.
11. ALL LIVE TAPS SHALL BE DIRECTLY SUPERVISED BY AN AUTHORIZED REPRESENTATIVE OF HIGHLINE WATER DISTRICT.
12. ALL CHARGES FOR CUT-INS AND LIVE TAPS ARE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.
13. ALL COUPLINGS SHALL BE ROMAC 501, OR EQUIVALENT.
14. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING PIPE TYPES AND SIZES FOR COUPLINGS, CONNECTIONS AND LIVE TAPS.
15. ALL MAINLINE PIPE SHALL HAVE A 42" MINIMUM COVER AND 60" MAXIMUM COVER UNLESS OTHERWISE SHOWN ON PLANS.
16. DEVELOPER SHALL PAY FOR ALL STATE, CITY, AND COUNTY INSPECTION AND PERMIT FEES.
17. COORDINATE METER LOCATIONS WITH HIGHLINE WATER DISTRICT AUTHORIZED REPRESENTATIVE.
18. FIRE HYDRANTS AND MAINS TO BE OPERATIONAL PRIOR TO COMMENCEMENT OF BUILDING CONSTRUCTION.
19. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE A SET OF THESE APPROVED PLANS ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS. NO CHANGES ARE TO BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY THE DISTRICT.
20. SUBGRADE SHALL BE ESTABLISHED FOR AREAS OF SITE INVOLVING WATER SYSTEM FACILITIES.
21. PARTS MUST BE ON-SITE AND INSPECTED BY HIGHLINE WATER DISTRICT PRIOR TO SCHEDULING CUT-INS OR CONNECTIONS.
22. REFER TO HIGHLINE WATER DISTRICT DESIGN AND DEVELOPEMENT STANDARDS FOR ALL REMAINING NOTES AND DETAILS.
23. WATER USES OTHER THAN THOSE SHOWN WILL BE EVALUATED BY HIGHLINE WATER DISTRICT FOR COMPLIANCE WITH BACKFLOW PREVENTION REQUIREMENTS.
24. COMPACTION TESTING IS REQUIRED FOR ALL OPEN CUTS AND/OR TRENCHINGS WITHIN PAVED OR TRAVELED AREAS OF PUBLIC RIGHT-OF-WAYS.
25. THE APPROVAL OF THESE PLANS DOES NOT RELIEVE THE CUSTOMER OF THE RESPONSIBILITY TO COMPLY WITH THE REQUIREMENTS OF OTHER AGENCIES AND, TO INSTALL ADDITIONAL BACKFLOW ASSEMBLIES RESULTING FROM THE DISTRICT'S FINAL SURVEY OF THE FACILITIES OR AT A FUTURE DATE SHOULD THE CUSTOMER HAVE A CHANGE IN USE OF THEIR WATER SYSTEM.
26. SEPARATION SHALL BE 10' HORIZONTAL FOR SANITARY SEWER, 5' HORIZONTAL FOR ALL OTHER UTILITIES. 18" VERTICAL CLEARANCE FOR SANITARY, 6" CLEARANCE FOR ALL OTHERS.

GENERAL NOTES

REVISION DATE	DRAWN	CHECKED	DISTRICT APPROVED
12/1/04	SED	TDK	TDK
PLOTTING SCALE	FILE NAME		DATE APPROVED
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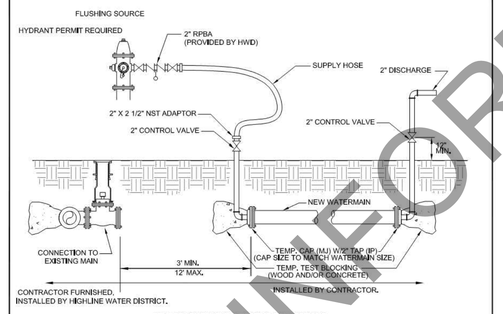
28



TEMPORARY FLUSHING\TESTING CONNECTIONS

NOTES:

ALL FITTINGS TO BE DUCTILE IRON.
ALL EXCAVATION SHALL PROVIDE A MINIMUM OF 12" CLEARANCE AROUND PIPE & FITTINGS.

1. CONTRACTOR TO DETERMINE ALIGNMENT & GRADE OF EXISTING FACILITIES PRIOR TO INSTALLATION OF NEW WATERMAIN. OUTSIDE DIAMETER OF EXISTING WATERMAIN TO BE DETERMINED AT THE SAME TIME THE CONTRACTOR EXCAVATES FOR ALIGNMENT & GRADE.
2. ALL EXCAVATION, PIPE, FITTINGS (EXCEPT AS NOTED), OTHER MATERIAL BACKFILL, COMPACTION & STREET RESTORATION BY CONTRACTOR. ALL MATERIALS TO BE ON JOB SITE PRIOR TO SCHEDULED SHUT-DOWN OF EXISTING WATERMAINS.
3. D.I. SLEEVE (MJ) TO BE INSERTED AT TIME OF CONNECTION FOR CUT INTO EXISTING WATERMAIN.
4. D.I. SLEEVE(S) FURNISHED BY CONTRACTOR FOR CUT INTO EXISTING WATERMAIN.
5. COORDINATE WITH SEWER UTILITY BEFORE DISCHARGE TO SEWERS.
6. FITTINGS & HOSE SIZE SHOWN ARE MINIMUM SIZE. USE LARGER SIZE AS NEEDED FOR 2.5 F.P.S. FLUSHING.

TEMPORARY FLUSHING/TESTING SETUP FOR CONNECTIONS TO EXISTING WATERMAINS

REVISION DATE	DRAWN	CHECKED	DISTRICT APPROVED
12-4-96	SED	TDK	TDK
PLOTTING SCALE	FILE NAME		DATE APPROVED
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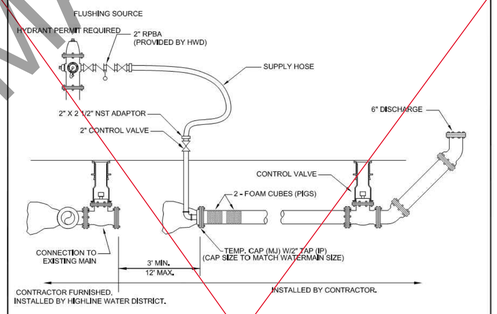
29



NOTES:

ALL FITTINGS TO BE DUCTILE IRON.
ALL EXCAVATION SHALL PROVIDE A MINIMUM OF 12" CLEARANCE AROUND PIPE & FITTINGS.

1. CONTRACTOR TO DETERMINE ALIGNMENT & GRADE OF EXISTING FACILITIES PRIOR TO INSTALLATION OF NEW WATERMAIN. OUTSIDE DIAMETER OF EXISTING WATERMAIN TO BE DETERMINED AT THE SAME TIME THE CONTRACTOR EXCAVATES FOR ALIGNMENT & GRADE.
2. ALL EXCAVATION, PIPE, FITTINGS (EXCEPT AS NOTED), FOAM PIGS, OTHER MATERIAL BACKFILL, COMPACTION & STREET RESTORATION BY CONTRACTOR. ALL MATERIALS TO BE ON JOB SITE PRIOR TO SCHEDULED SHUT-DOWN OF EXISTING WATERMAINS.
3. D.I. SLEEVE (MJ) TO BE INSERTED AT TIME OF CONNECTION FOR CUT INTO EXISTING WATERMAIN.
4. D.I. SLEEVE(S) FURNISHED BY CONTRACTOR FOR CUT INTO EXISTING WATERMAIN.
5. COORDINATE WITH SEWER UTILITY BEFORE DISCHARGE TO SEWERS.
6. FITTINGS & HOSE SIZE SHOWN ARE MINIMUM SIZE. USE LARGER SIZE AS NEEDED FOR 2.5 F.P.S. FLUSHING.

MAIN CLEANING / TESTING / PIGGING FOR CONNECTION TO EXISTING WATERMAINS

REVISION DATE	DRAWN	CHECKED	DISTRICT APPROVED
12-4-96	SED	TDK	TDK
PLOTTING SCALE	FILE NAME		DATE APPROVED
NTS	F:\DWGS\DETAILS-2000\HWD-030		3/1/04

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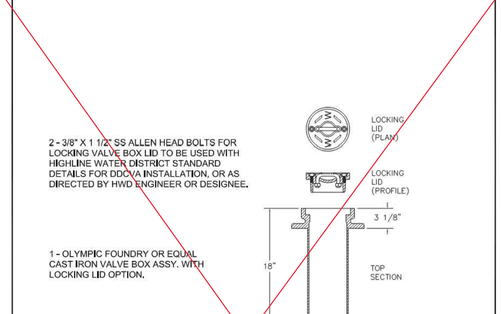


APWA LOCKING VALVE BOX

NTS

REVISION DATE	DRAWN	CHECKED	DISTRICT APPROVED
1/12/04	SED	TDK	TDK
PLOTTING SCALE	FILE NAME		DATE APPROVED
NTS	F:\DWGS\DETAILS-2000\HWD-033		3/1/04

33

30% SUBMITTAL - NOT FOR CONSTRUCTION

HANS P. PAULSEN — STATE OF WASHINGTON — 13695 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY NOT FOR CONSTRUCTION

SYM	REVISION	DATE	BY	APP'D

DESIGNED VAR
DRAWN MWP
CHECKED

PACE — An Engineering Services Company
11255 Kirkland Way, Suite 300
Kirkland, WA 98033
p. 425.827.2014 | f. 425.827.5043
Civil | Structural | Planning | Survey
www.paceengrs.com

HIGHLINE WATER DISTRICT
23828 30TH AVE. S.
KENT, WA 98032
206-824-0375

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DATE 4/3/2020
SCALE AS SHOWN

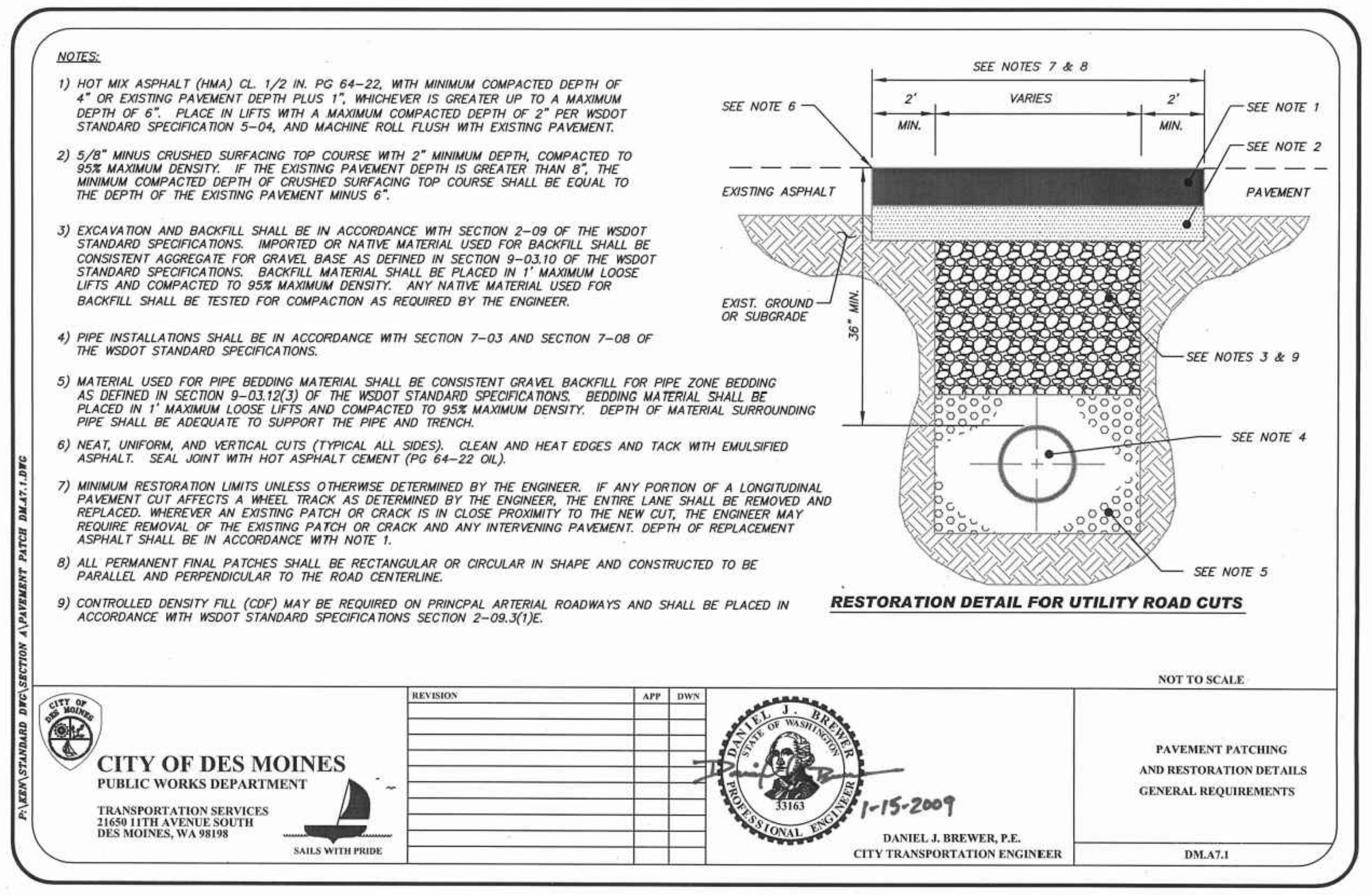
HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
HIGHLINE WATER DISTRICT DETAILS

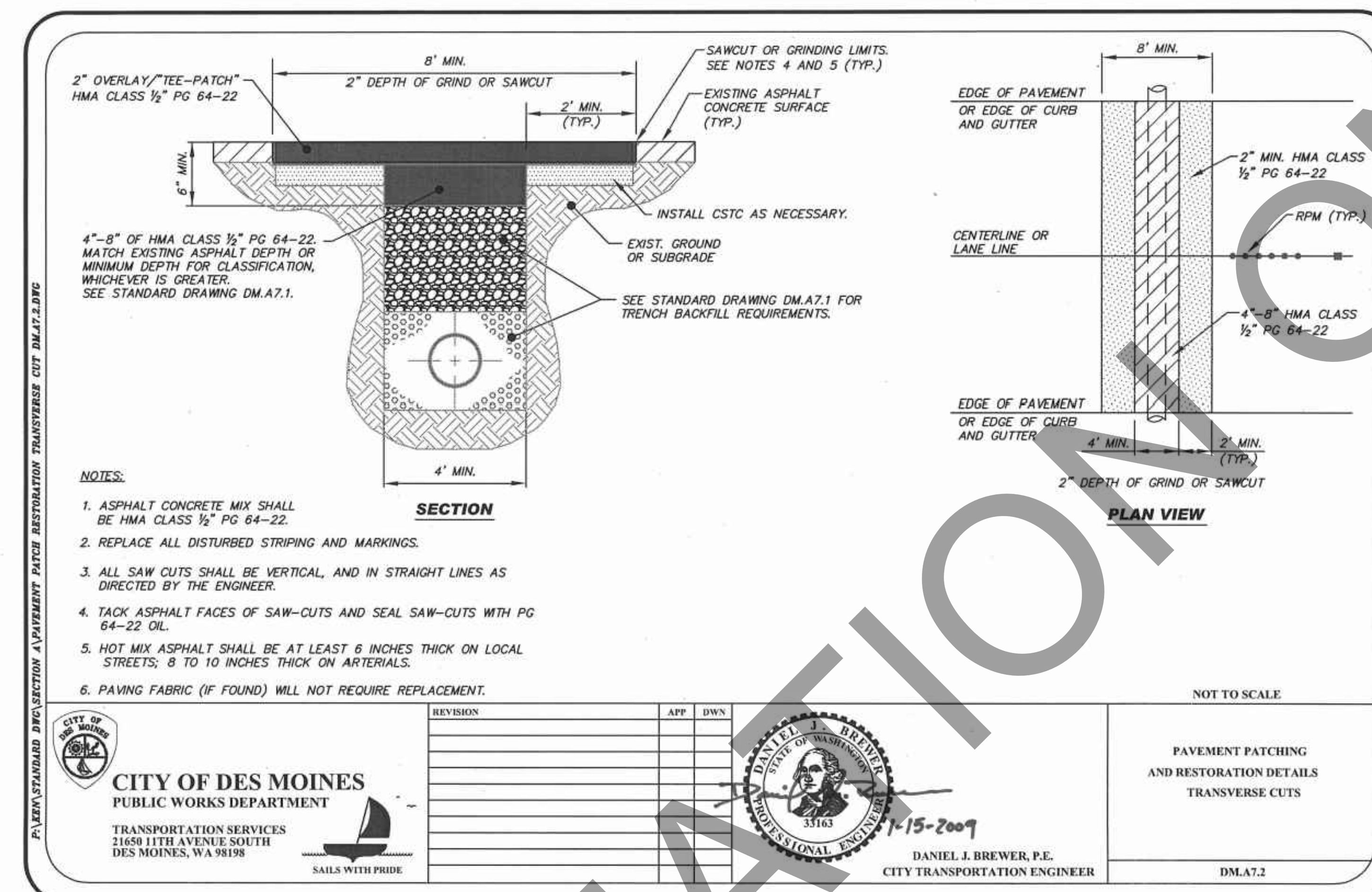
PACE PROJECT NO. 18434
DWG NAME: P18434_DET-HWD
SHEET W-24 OF 26

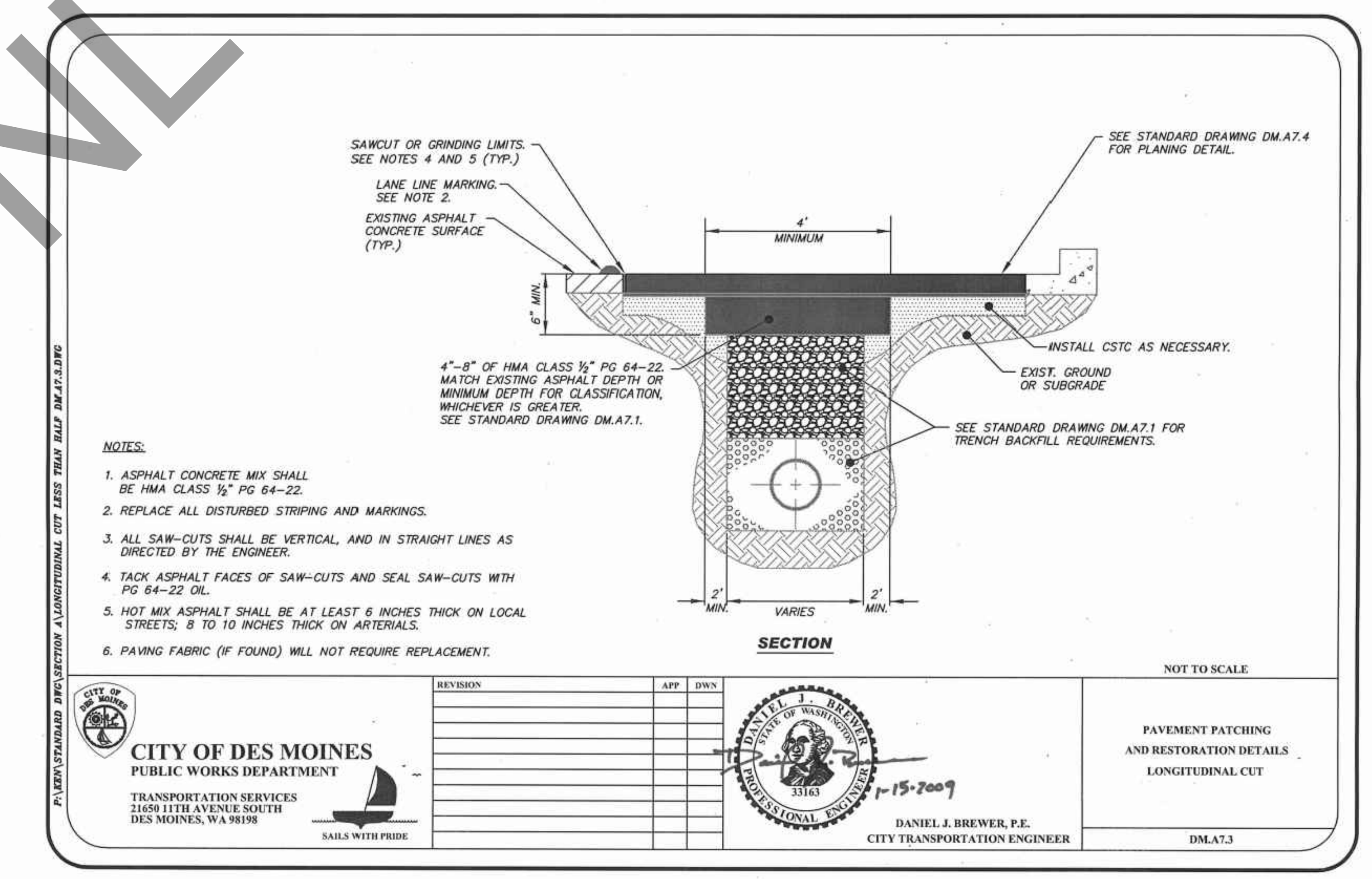
FILE NAME: P:\P18\18434_SR-509_CROSSING_WM_RELOCATION\CAD\ENGINEERING\SHEETS\P18434_DET-HWD.dwg
SAVE TIME: 4/3/2020 1:23:36 PM
USER NAME: PETER PAULSEN
XREF FILES: X18434_DBR.dwg

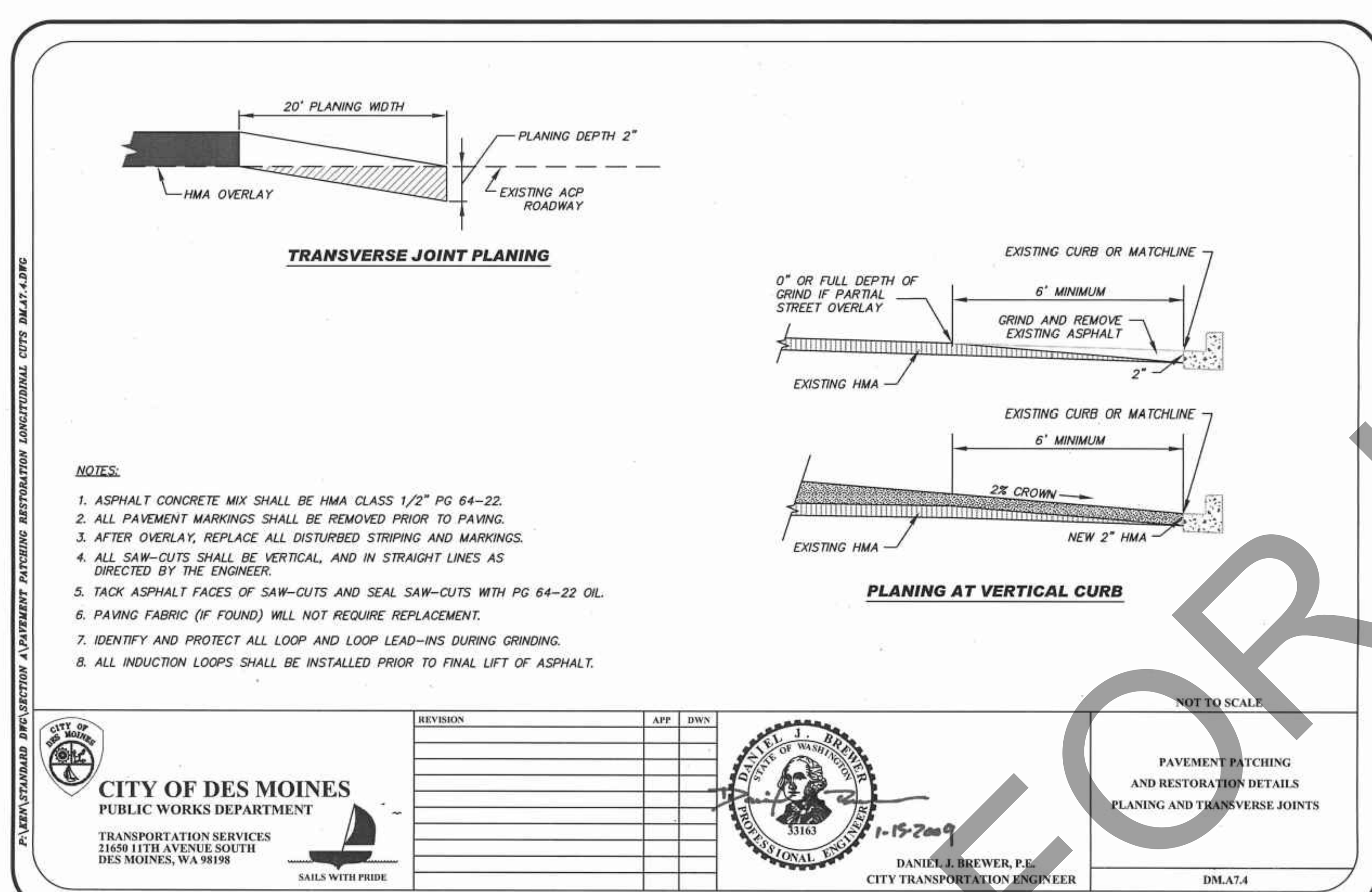
001 Change Order 001 - Contract Revisions - See 'U4-UTB1363-HWD-Exhbit-C-Specifications.pdf'

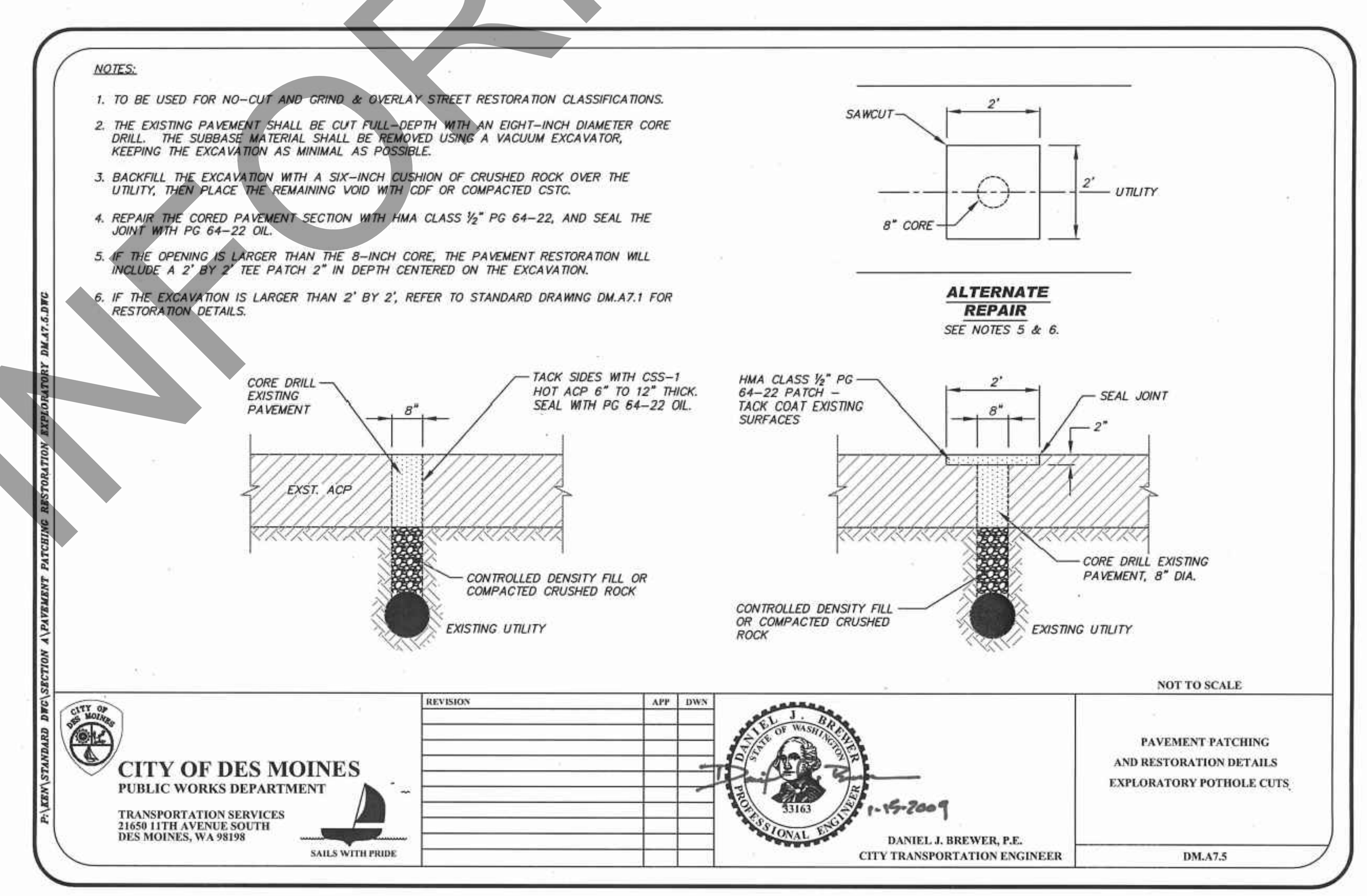
BACKFILL FOR ALL PIPE IN ALL JURISDICTIONS SHALL BE 100% CRUSHED SURFACING. NO NATIVE BACKFILL MATERIAL WILL BE ACCEPTED. TYPE OF CRUSHED SURFACING VARIES WITH AGENCY HAVING JURISDICTION.











FOR INFORMATION ONLY

30% SUBMITTAL - NOT FOR CONSTRUCTION

DESIGNED VAR				
DRAWN MWP				
CHECKED				
SYM	REVISION	DATE	BY	APP'D

PACE — An Engineering Services Company
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HIGHLINE WATER DISTRICT
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KENT, WA 98032
206-824-0375

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DATE 4/3/2020
SCALE AS SHOWN

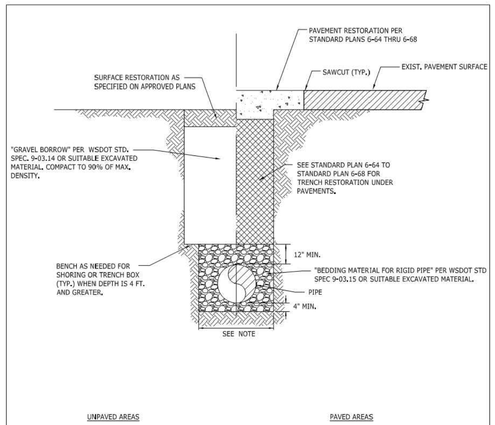
HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
DES MOINES STANDARD DETAILS

PACE PROJECT NO. 18434
DWG NAME: P18434_DET-HWD
SHEET W-25 OF 26

FILE NAME: P:\P18\18434 SR-509 CROSSING WM RELOCATION\CAD\ENGINEERING\SHEETS\P18434_DET-HWD.DWG
SAVE TIME: 4/3/2020 12:56 PM PLOT TIME: 4/3/2020 2:00 PM
USER NAME: PETER PAULSEN
XREF FILES: X18434_BOR.dwg

BACKFILL FOR ALL PIPE IN ALL JURISDICTIONS SHALL BE 100% CRUSHED SURFACING. NO NATIVE BACKFILL MATERIAL WILL BE ACCEPTED. TYPE OF CRUSHED SURFACING VARIES WITH AGENCY HAVING JURISDICTION.

CITY OF KENT STANDARD DETAILS



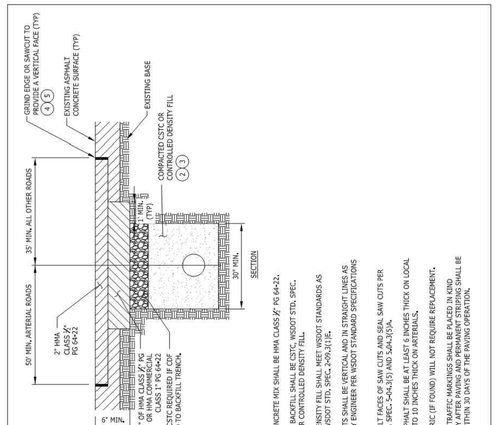
NOTE:

MAXIMUM WIDTH OF TRENCH AT TOP OF PIPE
* 30" FOR PIPE UP TO AND INCLUDING 12" NOMINAL DIAMETER.
* O.D. PLUS 16" FOR PIPE LARGER THAN 12" NOMINAL DIAMETER.

NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL, SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION IS KEPT ON FILE AT THE CITY OF KENT. A COPY MAY BE OBTAINED UPON REQUEST.

CITY OF KENT ENGINEERING DEPARTMENT		
TYPICAL PIPE TRENCH		
DESIGNED: DWR	SCALE: NONE	STANDARD PLAN
DRAWN: BB	DATE: –	3-22
CHECKED:	ENGINEER	
APPROVED:		

September 2009



NOTES:

1. ASPHALT CONCRETE MIX SHALL BE HMA CLASS ½" PG 64-22.
2. ALL TRENCH BACKFILL SHALL BE CSTC, WSDOT STD. SPEC. 9-03.9(3), OR CONTROLLED DENSITY FILL.
3. CONTROL DENSITY FILL SHALL MEET WSDOT STANDARDS AS STATED IN WSDOT STD. SPEC. 2-09.3(1)E.
4. ALL SAW CUTS SHALL BE VERTICAL AND IN STRAIGHT LINES AS DIRECTED BY ENGINEER PER WSDOT STANDARD SPECIFICATIONS 5-04.3(5).
5. TACK ASPHALT FACES OF SAW CUTS AND SEAL SAW CUTS PER WSDOT STD. SPEC. 5-04.3(5) AND 5-04.3(5)A.
6. HOT MIX ASPHALT SHALL BE AT LEAST 6 INCHES THICK ON LOCAL STREETS; 8 TO 10 INCHES THICK ON ARTERIALS.
7. PAVING FABRIC (IF FOUND) WILL NOT REQUIRE REPLACEMENT.
8. TEMPORARY TRAFFIC MARKINGS SHALL BE PLACED IN HMA IMMEDIATELY AFTER PAVING AND PERMANENT STRIPING SHALL BE REPLACED WITHIN 30 DAYS OF THE PAVING OPERATION.

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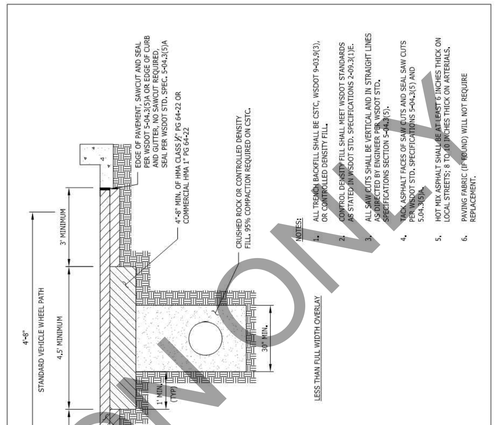
CITY OF KENT ENGINEERING DEPARTMENT		
FLEXIBLE PAVEMENT PATCHING TRANSVERSE CUT		
DESIGNED: DWR	SCALE: NONE	STANDARD PLAN
DRAWN: BB	DATE: –	6-64
CHECKED:	ENGINEER	
APPROVED:		

September 2009



NOTES:

1. ALL TRENCH BACKFILL SHALL BE CSTC, WSDOT 9-03.9(3), OR CONTROLLED DENSITY FILL.
2. CONTROL DENSITY FILL SHALL MEET WSDOT STANDARDS AS STATED IN WSDOT STD. SPECIFICATIONS 2-09.3(1)E.
3. ALL SAW CUTS SHALL BE VERTICAL AND IN STRAIGHT LINES AS DIRECTED BY ENGINEER PER WSDOT STD. SPECIFICATIONS 5-04.3(5).
4. TACK ASPHALT FACES OF SAW CUTS AND SEAL SAW CUTS PER WSDOT STD. SPECIFICATIONS 5-04.3(5) AND 5-04.3(5)A.
5. HOT MIX ASPHALT SHALL BE AT LEAST 6 INCHES THICK ON LOCAL STREETS; 8 TO 10 INCHES THICK ON ARTERIALS.
6. PAVING FABRIC (IF FOUND) WILL NOT REQUIRE REPLACEMENT.

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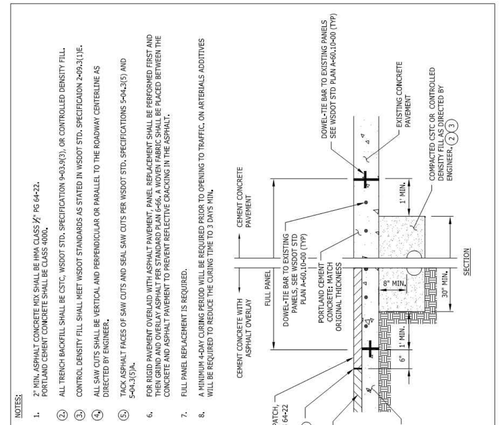
CITY OF KENT ENGINEERING DEPARTMENT		
FLEXIBLE PAVEMENT PATCHING LONGITUDINAL CUT		
DESIGNED: DWR	SCALE: NONE	STANDARD PLAN
DRAWN: BB	DATE: –	6-65
CHECKED:	ENGINEER	
APPROVED:		

September 2009



NOTES:

1. 2" MIN. ASPHALT CONCRETE MIX SHALL BE HMA CLASS ½" PG 64-22. PORTLAND CEMENT CONCRETE SHALL BE CLASS 4000.
2. ALL TRENCH BACKFILL SHALL BE CSTC, WSDOT STD. SPECIFICATION 9-03.9(3), OR CONTROLLED DENSITY FILL.
3. CONTROL DENSITY FILL SHALL MEET WSDOT STANDARDS AS STATED IN WSDOT STD. SPECIFICATION 2-09.3(1)E.
4. ALL SAW CUTS SHALL BE VERTICAL AND PERPENDICULAR OR PARALLEL TO THE ROADWAY CENTERLINE AS DIRECTED BY ENGINEER.
5. TACK ASPHALT FACES OF SAW CUTS AND SEAL SAW CUTS PER WSDOT STD. SPECIFICATIONS 5-04.3(5) AND 5-04.3(5)A.
6. FOR RIGID PAVEMENT OVERLAID WITH ASPHALT PAVEMENT, PANEL REPLACEMENT SHALL BE PERFORMED FIRST AND THEN GRIND AND OVERLAY ASPHALT PER STANDARD PLAN 6-66.A. WOVEN FABRIC SHALL BE PLACED BETWEEN THE CONCRETE AND ASPHALT WHERE REQUIRED.
7. FULL PANEL REPLACEMENT IS REQUIRED.
8. A MINIMUM 4-DAY CURING PERIOD WILL BE REQUIRED PRIOR TO OPENING TO TRAFFIC. ON ARTERIALS ADDITIVES WILL BE REQUIRED TO REDUCE THE CURING TIME TO 3 DAYS MIN.

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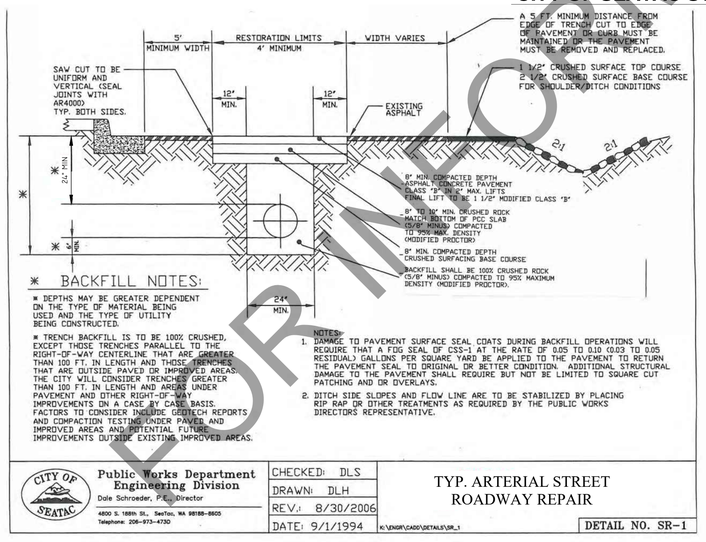
CITY OF KENT ENGINEERING DEPARTMENT		
RIGID PAVEMENT PATCHING LONGITUDINAL CUT		
DESIGNED: DWR	SCALE: NONE	STANDARD PLAN
DRAWN: BB	DATE: –	6-68
CHECKED:	ENGINEER	
APPROVED:		

September 2009

CITY OF SEATAC STANDARD DETAILS



* BACKFILL NOTES:

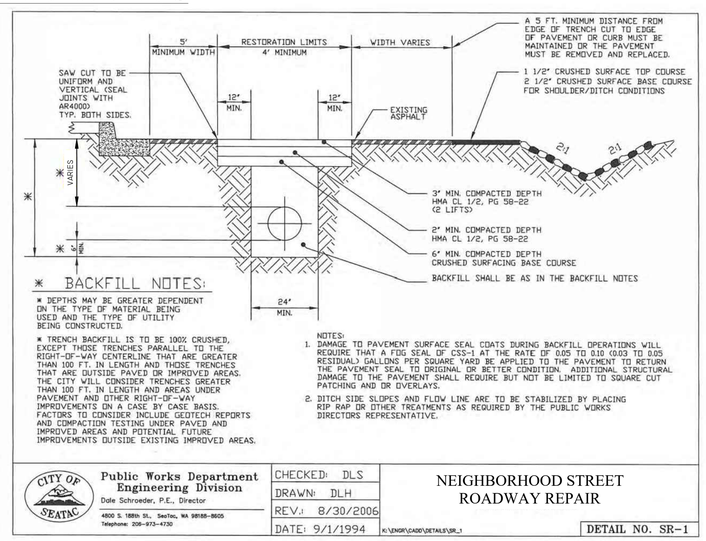
* DEPTHS MAY BE GREATER DEPENDENT ON THE TYPE OF MATERIAL BEING USED AND THE TYPE OF UTILITY BEING CONSTRUCTED.

* TRENCH BACKFILL IS TO BE 100% CRUSHED, EXCEPT THOSE TRENCHES PARALLEL TO THE RIGHT-OF-WAY CENTERLINE THAT ARE GREATER THAN 100 FT. IN LENGTH AND THOSE TRENCHES THAT ARE OUTSIDE PAVED OR IMPROVED AREAS. THE CITY WILL CONSIDER TRENCHES GREATER THAN 100 FT. IN LENGTH AND AREAS UNDER PAVEMENT AND OTHER RIGHT-OF-WAY IMPROVEMENTS ON A CASE BY CASE BASIS. FACTORS TO CONSIDER INCLUDE GEOTECH REPORTS AND COMPACTION TESTING UNDER PAVED AND IMPROVED AREAS AND POTENTIAL FUTURE IMPROVEMENTS OUTSIDE EXISTING IMPROVED AREAS.

NOTES:

1. DAMAGE TO PAVEMENT SURFACE SEAL COATS DURING BACKFILL OPERATIONS WILL REQUIRE THAT A FOG SEAL OF CSS-1 AT THE RATE OF 0.05 TO 0.10 (0.03 TO 0.05 RESIDUAL) GALLONS PER SQUARE YARD BE APPLIED TO THE PAVEMENT TO RETURN THE PAVEMENT SEAL TO ORIGINAL OR BETTER CONDITION. ADDITIONAL STRUCTURAL DAMAGE TO THE PAVEMENT SHALL REQUIRE BUT NOT BE LIMITED TO SQUARE CUT PATCHING AND OR OVERLAYS.
2. DITCH SIDE SLOPES AND FLOW LINE ARE TO BE STABILIZED BY PLACING RIP RAP OR OTHER TREATMENTS AS REQUIRED BY THE PUBLIC WORKS DIRECTORS REPRESENTATIVE.

CITY OF SEATAC	Public Works Department Engineering Division Dale Schroeder, P.E., Director 4800 S. 188th St., SeaTac, WA 98188-8605 Telephone: 206-973-4730	CHECKED: DLS DRAWN: DLH REV.: 8/30/2006 DATE: 9/1/1994	TYP. ARTERIAL STREET ROADWAY REPAIR K:\ENGR\CADD\DETAILS\SR_1	DETAIL NO. SR-1



* BACKFILL NOTES:

* DEPTHS MAY BE GREATER DEPENDENT ON THE TYPE OF MATERIAL BEING USED AND THE TYPE OF UTILITY BEING CONSTRUCTED.

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1. DAMAGE TO PAVEMENT SURFACE SEAL COATS DURING BACKFILL OPERATIONS WILL REQUIRE THAT A FOG SEAL OF CSS-1 AT THE RATE OF 0.05 TO 0.10 (0.03 TO 0.05 RESIDUAL) GALLONS PER SQUARE YARD BE APPLIED TO THE PAVEMENT TO RETURN THE PAVEMENT SEAL TO ORIGINAL OR BETTER CONDITION. ADDITIONAL STRUCTURAL DAMAGE TO THE PAVEMENT SHALL REQUIRE BUT NOT BE LIMITED TO SQUARE CUT PATCHING AND OR OVERLAYS.
2. DITCH SIDE SLOPES AND FLOW LINE ARE TO BE STABILIZED BY PLACING RIP RAP OR OTHER TREATMENTS AS REQUIRED BY THE PUBLIC WORKS DIRECTORS REPRESENTATIVE.

CITY OF SEATAC	Public Works Department Engineering Division Dale Schroeder, P.E., Director 4800 S. 188th St., SeaTac, WA 98188-8605 Telephone: 206-973-4730	CHECKED: DLS DRAWN: DLH REV.: 8/30/2006 DATE: 9/1/1994	NEIGHBORHOOD STREET ROADWAY REPAIR K:\ENGR\CADD\DETAILS\SR_1	DETAIL NO. SR-1

* ALL PIPE TO BE BACKFILLED W/CSTC. ROAD RESTORATION PER CITY REQUIREMENTS.

HANS P. PAULSEN — STATE OF WASHINGTON — 43695 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY NOT FOR CONSTRUCTION

30% SUBMITTAL - NOT FOR CONSTRUCTION

FILE NAME: P:\P18434 SR-509 CROSSING WA RELOCATION\CAD\ENGINEERING\SHEETS\P18434_DET-HWD.DWG
SAVE TIME: 4/3/2020 12:36 PM
USER NAME: PETER PAULSEN
PLOT TIME: 4/3/2020 2:06 PM
XREF FILES: X18434_CBR.dwg

DESIGNED	VAR
DRAWN	MWP
CHECKED	

SYM	REVISION	DATE	BY	APP'D

PACE — An Engineering Services Company
11255 Kirkland Way, Suite 300
Kirkland, WA 98033
p. 425.827.2014 | *f.* 425.827.5043
Civil | Structural | Planning | Survey
www.paceengrs.com

HIGHLINE WATER DISTRICT
23828 30TH AVE. S.
KENT, WA 98032
206-824-0375

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DATE 4/3/2020
SCALE AS SHOWN

HIGHLINE WATER DISTRICT
SR-509 WATERMAIN RELOCATIONS
KENT AND SEATAC STANDARD DETAILS

PACE PROJECT NO. 18434
DWG NAME: P18434_DET-HWD
SHEET W-26 OF 26

SPECIFICATIONS AND CONTRACT DOCUMENTS

HIGHLINE WATER DISTRICT

HWD PROJECT 18-2

SR-509 Water Main Relocations Project

30% Preliminary Design for RFP

April 2020

District Office:
23828 - 30th Ave. South
Kent, WA 98032
(206) 824-0375

Prepared by:
PACE Engineers, Inc.
11255 Kirkland Way, #300
Kirkland, WA 98033
(425) 827-2014
PACE Job No. 18434

UTB 1363
Exhibit C

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MODIFICATIONS TO THE STANDARD SPECIFICATIONS FOR HWD WATER WORK

The Standard Specifications for this project will be the current Standard Specifications for Road, Bridge, and Municipal Construction, as issued by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), Washington State Chapter (hereafter "Standard Specifications"). The Standard Specifications, as modified or supplemented by the Amendments to the Standard Specifications and these Special Provisions, all of which are made a part of the Contract Documents, shall govern for Water Work.

These Special Provisions are made up of both General Special Provisions (GSPs) from various sources, which may have project-specific fill-ins; and project-specific Special Provisions. Each Provision either supplements, modifies, or replaces the comparable Standard Specification, or is a new Provision. The deletion, amendment, alteration, or addition to any subsection or portion of the Standard Specifications is meant to pertain only to that particular portion of the section, and in no way should it be interpreted that the balance of the section does not apply.

The performance of this Contract and all work, materials and testing shall conform to the Standard Specifications which are expressly incorporated by this reference except as supplemented or modified. The Contractor is encouraged to review the Standard Specifications to ensure the knowledge and understanding of their terms and conditions and/or to obtain a copy of such Standard Specifications at the Contractor's own expense. The Standard Specifications are modified by the special provisions and supplemental specifications as follows:

Specific modifications of and to the Standard Specifications are set forth hereinafter for Water Work. The term "Owner" shall mean Highline Water District for the water work only.

NOTE: The following modifications to the Standard Specifications are made part of this contract and supersede any conflicting provisions of the Standard Specifications, including current WSDOT/APWA Amendments for the HWD Water Work only. All design work and construction of new water facilities shall be coordinated by the Contractor for the proposed WSDOT Work and other third-party entities on the Project at no additional cost to the Owner.

The Contractor will be required to comply with all applicable requirements of Specifications Division 1 through 9. Unless specifically outlined as a separate bid item, costs for such compliance shall be included with other items bid.

TECHNICAL SPECIFICATIONS
(WSDOT and Supplemental Specifications)

TABLE OF CONTENTS

001 Change Order 001 - Contract Revisions - See 'U4-UTB1363-HWD-Exhbit-C-Specifications.pdf'

001 Change Order 001 - Contract Revisions - See 'U4-UTB1363-HWD-Exhbit-C-Specifications.pdf'

001 Change Order 001 - Contract Revisions - See 'U4-UTB1363-HWD-Exhbit-C-Specifications.pdf'

APPENDICES

Highline Water District Standard Details

30% Preliminary Plans

2016 WSP System Design Standards

001 Change Order 001 - Contract Revisions - See 'U4-UTB1363-HWD-Exhbit-C-Specifications.pdf'

DIVISION 2
EARTHWORK

2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

2-01.3 Construction Requirements

2-01.3(1) Clearing (Supplement)

Section 2-01.3(1) is supplemented with the following:

Construction areas shall be cleared of grass and weeds to at least a depth of 6-inches and cleared of structures, pavement, sidewalks, concrete or masonry debris, trees, logs, upturned stumps, loose boulders, and any other objectionable material of any kind which would interfere with the performance or completion of the Work, create a hazard to safety, or impair the subsequent usefulness of the Work, or obstruct its operation. Loose boulders within 10-feet of the top of cut lines shall be incorporated in landscaping or removed from the Site. Trees and other natural vegetation outside the actual lines of construction shall be protected from damage during construction, as directed by the ENGINEER.

Within the limits of clearing, the areas below the natural ground surface shall be grubbed to a depth necessary to remove all stumps, roots, buried logs, and all other objectionable material. Any other underground structures, debris or waste shall be removed if found on the Site. All objectionable material from the clearing and grubbing process shall be removed from the Site and wasted in approved safe locations.

Unless otherwise indicated, native trees larger than 6-inches in diameter at the base shall not be removed without the ENGINEER's approval. The removal of any trees, shrubs, fences, or other improvements outside of the Mansion Hill property, if necessary for the CONTRACTOR's choice of means and methods, shall be arranged with the OWNER of the property, and shall be removed and replaced, at no additional cost to the OWNER.

2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

2-02.1 Description (Supplement)

Section 2-02.1 is supplemented with the following:

Where indicated on the Drawings or in the Construction Provisions, or when directed by OWNER, castings, pipe, hydrants, fence, and any removed or disturbed facilities shall be carefully salvaged and stockpiled in OWNER's yard or in a location directed by OWNER. Other such items with no salvage value to OWNER shall be lawfully disposed of at CONTRACTOR's expense.

2-02.3 Construction Requirements

2-02.3(3) Removal of Pavement, Sidewalks, Curbs and Gutters (Deletion/Replacement)

Delete this section and replace it with the following:

As a minimum, CONTRACTOR shall comply with the requirements of Chapter 3, Chapter 8.03 and Chapter 9 in the 2016 King County Road Standards or most current Standard employed by any City when working under that city's street or use permits.

In removing pavement, sidewalks, curbs, and gutters, the CONTRACTOR shall:

1. Make a vertical full depth saw cut between any existing pavement, sidewalk, curb, or gutter that is to remain and the portion to be removed. For Portland cement concrete pavement removal, a second vertical full depth relief saw cut offset 12 to 18 inches from and parallel to the initial saw cut is also required, unless the ENGINEER approves otherwise. For removal of bituminous pavement, asphalt planning equipment may be used in lieu of saw cutting provided that a clean vertical edge remains. Cutting with jack hammers or excavation equipment will not be permitted.

2. If the CONTRACTOR elects to pulverize the asphalt concrete pavement, the edge of the pulverized asphalt shall be set back at least 12-inches away from the final edge of the restored asphalt joint. The full depth of the existing asphalt concrete pavement shall be pulverized. Following the pulverization operation, the material shall be graded and compacted to form a smooth, uniform cross slope. The equipment used shall be capable of effectively pulverizing the existing asphalt concrete pavement for the full depth in one pass. Pulverization shall be performed in such a manner that disturbance of the subgrade is kept to a minimum. The pulverized material shall meet a 1-inch minus gradation. Prior to performing any paving operations and after the pavement has been pulverized, graded, and compacted, the edge of the existing asphalt shall be saw cut in a vertical manner to provide a clean neat joint.

3. The removed pavement, curb, gutter, and sidewalk shall become the property of the CONTRACTOR and shall be promptly removed and disposed of in accordance with Section 2-01.2(2).

4. The road surface shall be restored to a drivable surface before leaving every day, unless approved otherwise by the ENGINEER.

5. CONTRACTOR shall replace, at no expense to the OWNER, any existing pavement designated to remain that is damaged by the CONTRACTOR's Work.

Add new Sections 2-02.3(4), (5), and (6) as follows:

2-02.3(4) Replacement of Asbestos Cement Water Main at Pipeline Crossings (New Section)

Coordinate water main shut down with the OWNER pursuant to Section 7-09.3(19) as modified in these Specifications. For water mains outside the OWNER's service area, contact the local water purveyor. Remove the existing asbestos cement water main between points three (3) feet outside of the new pipe line trench zone of influence, replacing it with like diameter Class 52 Ductile iron pipe conforming to Section 9-30.1(1) as modified in these Specifications. Couple the DI pipe to the remaining existing asbestos cement pipe with OWNER (or water purveyor, as applicable) approved water main couplings provide support blocking under couplings to prevent settlement. Comply with the requirements of the Standard Detail bound with these Specifications.

2-02.3(5) Recommended Standard Asbestos Cement Pipe Work Practice, Procedures and Training Requirements (New Section)

All personnel on any asbestos project who directly handles asbestos/cement water pipe or asbestos-containing waste materials will be certified per Chapter 296-65 WAC. Provide proof of certification to OWNER prior to work on asbestos cement pipe.

All work with asbestos/cement water pipe shall be done as follows:

Carbide Blade Cutting (hand-operated only):

Blade cutters consist of a frame, adjustable to the circumference of the pipe and a number of outboard, self-tracking rollers which align one or more carbide-tipped cutting blades. The cutter is rotated around the pipe with the blades cutting a grove into the pipe. As the cutter is rotated, the blades are slowly tightened with screws to cut deeper and deeper into the pipe until the pipe is severed.

Snap Cutting:

Snap cutting equipment operates by means of cutting wheels mounted on a chain wrapped around the A/C pipe. Hydraulic or manually-applied pressure simultaneously squeezes the cutting wheels into the pipe wall until the pipe is severed.

Hand Saw Cutting:

Large-toothed, cross-cut hand saws used to manually cut small A/C pipes or to trim larger pipes.

Repair Band Installation:

Repair bands consist of a pliable gasket material held in place by a metal sleeve tightened over the gasket and are used to repair small A/C pipe leaks.

Wet/Hot Tapping:

Wet tapping is done with specific equipment which can tap an A/C pipe while it is under pressure. The equipment is designed to tap various sizes of pipe and connect either services or pipe. Normally the A/C debris is contained in the tapping equipment until removed by the operator.

Equipment required: Hand-operated carbide blade cutter or Snap Cutting or Hand Saw or Repair band and tools necessary for installation or Wet tapping machine of appropriate size; water source and means of application sufficient to maintain a continuously-wetted cutting area; protective equipment including: disposable coveralls, respiratory protection (consisting of ½ face respirator equipped with HEPA filters or respirator which provides equivalent or better protection), rubber boots, and hard hat.

1. Excavate around the A/C pipe in a sufficient distance to assure adequate tool clearance in the area to be cut. Care must be taken to avoid any abrasion to the pipe.

2. Don protective equipment and have sufficient water available before entering trench to begin cutting operations.

3. Clean and wash with water the surface of the pipe in the area to be cut and attach the cutting equipment around the A/C pipe.

4. Begin applying water to area being cut and continue until cutting is complete.

5. Operate the cutting tool in accordance with the manufacturer's instruction until cutting is complete or tap pipe, making sure that water is applied in sufficient quantities to assure that area being cut is continuously wetted and no A/C dust is created.

6. Detach cutting equipment, move to new cutting location and repeat procedure described above. Upon completion of the final cut, thoroughly wash the cutting equipment with clean water to remove all A/C debris. Allow wash water to drain into the bottom of the trench. Remove washed cutting equipment from the trench.

7. Install other pipe and fittings as necessary to complete the job taking care to avoid any abrasion to the A/C pipe. Install the repair band and tighten bolts, keeping the entire exposed area of the pipe wet in the vicinity of the repair band during the operation.

8. When all pipe work is completed, any asbestos cement water pipe greater than one (1) linear foot in size may be buried at the project site if it is covered with three feet (3') or more of non-asbestos fill materials. Thoroughly wash tools, boots and hands with clean water to remove all A/C debris. Allow wash water to drain into the bottom of the trench.

9. All asbestos-containing waste materials, including pipe fragments, protective clothing, HEPA filters and asbestos-contaminated containers and debris shall be sealed in a leak tight, labeled container while adequately wet, and disposed in accordance with Puget Sound Air Pollution Control Agency, Asbestos Control Standard, Regulation III, Article 4.

10. Exit ditch in such a manner that no A/C debris will contaminate clothing, boots, tools, etc.

Handling, Hauling and Disposal:

Contractor is responsible for the legal handling, cutting, removal, loading, hauling and disposal of all AC pipe in accordance with all local and regional standards and requirements. Any work to be performed upon existing asbestos/cement water pipe shall be in conformance with the latest edition of "Recommended Standard Asbestos/Cement Pipe Work Practice Procedures and Training Requirements," adopted and published by the Pacific Northwest Section of the American Water Works Association, the Puget Sound Clean Air Agency (PSCAA) Asbestos Standards, and Chapter 296-65 of WAC, except as revised herein. Any exposed and disturbed pipe to be removed from service shall be removed and disposed of at an appropriate waste site. The disturbed pipe may not be relocated in the trench or otherwise disposed of on site. Disposal of any removed materials shall be at an approved off-site facility, in accordance with the above publications. The Contractor shall provide manifests of proper disposal from the disposal facility to the Owner.

The Contractor shall be responsible for obtaining all necessary permits and approvals from the appropriate jurisdiction for work on and disposal of AC pipe.

All personnel on any asbestos project who directly handles asbestos/cement water pipe or asbestos-containing waste materials shall be certified per Chapter 296-65 WAC. Proof of certification shall be provided to Owner prior to work on asbestos cement pipe.

A work plan for AC removal/disposal shall be provided to the Owner for review and approval prior to commencing the work.

2-02.3(6) Removal of Existing Landscape Features (New Section)

CONTRACTOR shall remove any landscaping features that impede construction unless indicated otherwise on the Plans. After the water main has been installed, the disturbed landscaping features shall be returned to preconstruction conditions or better.

2-02.3(7) Removal and Disposal of Decommissioned Water Facilities (New Section)

All water pipe and appurtenances to be decommissioned and removed from service as a result of the project shall be removed, hauled and lawfully disposed of by the Contractor. Facilities shall not be abandoned and left in place. Excavations shall be backfilled with crushed surfacing top course or other material as approved by the Engineer. All costs for removal, disposal and restoration of disturbed areas shall be incidental to other items of the work.

2-02.5 Payment

2-02.5(1) Other (New Section)

Add the following new section:

Removal of structures and obstructions pursuant to 2-02 and not related to Open Cut Pavement Crossings or Replacement of Asbestos Cement Water Main at Pipeline Crossings will be considered incidental to other Work in this Contract and will not be measured or paid for as a separate item. The CONTRACTOR shall estimate the amount and cost of this Work and shall include it in one or all of the bid items.

2-03 ROADWAY EXCAVATION AND EMBANKMENT

2-03.3 Construction Requirements

2-03.3(12) Overbreak (Supplement)

Section 2-03.3(12) is supplemented with the following:

Trench excavation outside the trench width pay limits shall be classified as overbreak. Removal and replacement of overbreak material, including backfill and compaction requirements, shall meet the same conditions as the trench backfill. Sloughing of the trench walls shall not be considered as slides.

2-03.3(14) Embankment Construction

2-03.3(14)D Compaction and Moisture Control Tests (Revision)

Add the following sentence to the first paragraph:

Where different compaction control tests are specified in these Specifications, they will supersede the tests referenced in this section.

2-06 SUBGRADE PREPARATION

2-06.3 Construction Requirements

2-06.3(2) Subgrade for Pavement (Supplement)

Section 2-06.3(2) is supplemented with the following:

Construct final subgrade only when the weather conditions will not detrimentally affect the quality of the finished work. Any portion of the work damaged by the effects of rain, wind, or other inclement weather conditions shall, at no additional cost to the OWNER, be:

1. Aerated if excessively wet,

2. Moistened if excessively dry,

3. Reshaped and re-compacted to conform to the requirements of the plans and special provisions.

Fill and compact all depressions and holes.

Blading and rolling shall be done until the surface is smooth and free from waves and other irregularities. The subgrade elevations shall be such that they are within a tolerance of 0.1 feet and match/blend with the existing roadway features (driveways, curb and gutter, sidewalk, paving, etc.).

If the subgrade is damaged by the CONTRACTOR's operations, the CONTRACTOR shall repair, reshape, and recompact the subgrade as necessary at no additional cost.

Subgrade below structures shall be as specified in Section 2-09.

Subgrade below pipe shall be as specified in Section 7-08.

Subgrade below curb and gutter and sidewalks shall be moisture conditioned and compacted to a minimum of 95% maximum density.

Subgrade in non-classified areas shall be moisture conditioned and compacted to a minimum of 95% maximum density.

2-07 WATERING

2-07.3 Construction Requirements (Supplement)

Section 2-07.3 is supplemented with following:

CONTRACTOR shall be responsible for controlling dust and mud within the project limits as well as on all streets used in the execution of this contract. The CONTRACTOR shall be prepared to furnish and use watering trucks equipped with high velocity water jets and low head sprinkling devices, street sweepers, and any other pieces of equipment necessary to render the project site free of dust and the streets free of all dust, mud, debris, and foreign materials. Any damage caused by dust and/or mud accumulation on the streets or in the storm sewer system shall be the sole responsibility of the CONTRACTOR.

2-09 STRUCTURE EXCAVATION

2-09.3 Construction Requirements

2-09.3(1) General Requirements

2-09.3(1)C Removal of Unstable Base Material (Deletion/Replacement)

Section 2-09.3(1)C is deleted and replaced with the following:

Unsuitable material such as mud, muck, or highly organic material may be encountered within the limits of the work and may require additional excavation beyond the lines and grades shown on the Drawings. In addition, when the material at the bottom of an excavation is not stable enough to support the pipe line or structure, the CONTRACTOR shall excavate below grade as shown on the Drawings or directed by the ENGINEER. Unsuitable material shall be removed and disposed of in accordance with Section 2-01.2(2).

Over-excavation of unsuitable materials followed by replacement and compaction with select material shall only be performed when authorized and directed by the ENGINEER. Material over-excavated without authorization shall be backfilled as described herein at no cost to the OWNER.

2-09.3(1)D Disposal of Excavated Material (Deletion/Replacement)

Section 2-09.3(1)D is deleted and replaced with the following:

All excavated material that is not used as backfill shall be removed and disposed of in accordance with Section 2-01.2(2). No separate payment will be made for disposing of the excess material.

2-09.3(3) Construction Requirements, Structure Excavation, Class A

2-09.3(3)D Shoring and Cofferdams (Supplement)

Section 2-09.3(3)(D) shall be supplemented as follows:

Any trench exceeding 4 feet in depth shall be provided with adequate safety systems meeting the requirements of the Washington Industrial Safety and Health Act (WISHA), RCW 49.17. CONTRACTOR alone shall be responsible for worker safety and OWNER and ENGINEER assume no responsibility. OWNER may require shoring in lieu of sloping to protect and maintain existing facilities and minimize restoration.

2-11 TRIMMING AND CLEANUP

Add the following new section and subsections:

2-11.6 Surface Restoration (New Section)

2-11.6(1) General

To the extent possible, all unpaved surfaces shall be restored to a condition equal to that which existed prior to construction. All trees, shrubs and any improvements shall be saved, relocated, or replaced by CONTRACTOR unless specifically noted otherwise on the drawings or in easement stipulations. Preconstruction photographs and/or video shall be used to verify when restoration has been adequately performed.

All surface restoration shall be completed within 20 calendar days of first disturbance, except through single family residential dwellings. All surface restorations, within single family residential dwellings, shall be completed within 7 days of first disturbance.

2-11.6(2) Landscaping

Landscape restoration shall be performed by CONTRACTOR using the services of a licensed landscape gardener whose principal business is this type of work. Where ornamental trees and shrubbery are in the work area, they shall be carefully removed with the earth surrounding their roots, wrapped in burlap, and replanted in their original positions within four (4) days. Work may be halted elsewhere on the project to ensure this work is done in a timely manner. Tree and shrubbery removal and transplanting shall be done only by a landscape gardener. Trees may need to be protected from sun and watered regularly.

Ornamental trees and shrubbery must be protected, but if, through some unavoidable situation, such trees or shrubbery are destroyed or damaged, whether in public or private property, they shall be replaced by CONTRACTOR with material of equal quality and no additional compensation will be allowed for such replacement. CONTRACTOR shall take every precaution to protect existing ornamental trees which are not removed. Protection may include the tying back of existing limbs where necessary for work room. Such tying back shall be done carefully to avoid breakage or other limb damage. No limbs shall be removed or trimmed without the written permission of the property OWNER, with a copy of such permission given to OWNER. If such removal or trimming is approved in writing, it shall be performed in a professional manner by a qualified landscape gardener.

2-11.6(3) Lawn (Cultivated)

In areas where existing lawns are disturbed, and no alternative restoration is specified, the lawns shall be replaced with a minimum of four inches of new topsoil and existing sod. Existing sod shall be cut, stockpiled, and replaced within four (4) days of initial removal. CONTRACTOR shall be responsible for protection and preservation of sod, and shall replace any damaged sod, or sod which does not survive, with new sod at CONTRACTOR'S expense. Hydroseeding in lieu of sod will not be accepted as an equal alternative. In any case, final appearance of restored lawn shall match grade, evenness and type of surrounding lawn.

2-11.6(4) Lawn (Uncultivated), Pasture, or Vacant Land

Uncultivated lawns, pasture, and vacant land shall be restored with a pasture grass in addition to the protection, restoration, or replacement of any improvements or trees

otherwise called for. Disturbed areas shall not be left unprotected for long periods. Temporary seeding, covering, or other protection shall be used as required. Final restoration shall be as specified below.

Previously established grades conforming to the requirements of the drawings shall be maintained in a true and even condition. If necessary, repairs shall be made before seeding.

The surface to be seeded shall be cleared of stones or other debris larger than two inches. The top four inches shall be cultivated by raking or rototilling after all compaction and prior to seeding. The surface shall receive approval of OWNER or ENGINEER before beginning seeding operations.

Seed mix, fertilizer, and mulch shall be hydroseeded with appropriate equipment upon approval of the seed bed. Appropriate quantities of seed, fertilizer and mulch shall be combined with the proper amounts of water to insure the uniform coat sprayed on the soil accommodates the following rates:

Seed Mix: 40% perennial rye grass
10% white clover
30% fescue
20% red creeping fescue
Apply at a rate of 100 pounds per acre.

Mulch: Silva fiber mulch applied at 1500 pounds to 2000 pounds per acre.

Fertilizer: Commercial mix 10/20/20 of nitrate, phosphate, and potash applied at rate of 450 pounds per acre.

2-11.6(5) Soil Amendments

Existing or import top soil requiring to be amended as shown on the Plans shall be amended in accordance with the City of SeaTac Soil Amendment Standards. Refer to the King County Soil Amendment Requirements (KCC 16.82.100 F & G).

END OF DIVISION 2

DIVISION 3
PRODUCTION FROM QUARRY AND PIT SITES AND STOCKPILING

3-02 STOCKPILING AGGREGATES

3-02.2 General Requirements

3-02.2(1) Stockpile Sites Provided by the Contracting Agency (Deletion/Replacement)

Section 3-02.2(1) is deleted and replaced with the following:

The OWNER will not provide any designated stockpiling sites off premises.

3-02.2(5) Preparation of Site (Revision)

The last sentence of the first paragraph in Section 3-02.2(5) is revised to read as follows:

Debris resulting from clearing and preparing the site shall be disposed of in accordance with Section 2-01.2(2).

3-02.2(6) Construction of Stockpiles (Deletion/Replacement)

The first paragraph in Section 3-02.2(6) is deleted and replaced with the following:

Stockpiles shall be constructed in neat and regular shapes. The stockpile height shall be limited to a maximum of 24 feet.

3-02.3 Additional Requirements for Specific Aggregates

3-02.3(2) Site Reclamation (New Section)

Add the following new section:

After construction is completed and the stockpile sites are no longer needed, CONTRACTOR shall restore the sites back to their pre-existing grade/topography. All debris and materials shall be removed, the upper 12 inches of the ground tilled/cultivated, and the native soils that were stripped shall be replaced and graded back to the original contours and mitigated with soil amendment as described in the Special Provisions. The site shall then be hydroseeded and protected in accordance with Section 8-02.

END OF DIVISION 3

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DIVISION 7
DRAINAGE STRUCTURES, STORM SEWERS, SANITARY SEWERS, WATER MAINS, AND CONDUITS

7-09 WATER MAINS

7-09.1 Description

7-09.1(2) Submittals (New Section)

Section 7-09.1(2) is added as follows:

The CONTRACTOR shall submit the following information in accordance with Section 1-06 and as specified herein.

1. Ductile iron pipe, fittings, valves, mechanical restraining systems, casings and appurtenances.
2. Flexible expansion joints.
3. Letter from pipe manufacturer that discusses any differences of concern between this specification and the pipe manufacturer's procedures and requirements.
4. Test data showing compliance with the specifications for all materials.
5. Verification of Hot Tapping CONTRACTOR's Qualifications.
6. Certificates for Material Origin.
7. Concrete mix for water main blocking.
8. Bedding and backfill materials.
9. Casing and bridge installation materials.
10. Other materials as requested by the Owner.

7-09.1(3) Hot Tapping CONTRACTOR Qualifications (New Section)

Section 7-09.1(3) is added as follows:

The hot tapping CONTRACTOR shall:

1. Specialize in hot tapping as a core business and have been in business for a minimum of ten (10) years.
2. Be fully experienced and properly qualified, licensed, equipped, organized and financed.
3. Have successfully completed at least ten (10) hot tapping projects on 8-inch and larger pressure piping in the last two (2) years. For each project, provide project name, location,

a description of project components, contract value, owner's name and phone number and description of company's responsibilities.

7-09.2 Materials (Deletion/Replacement)

Delete the first paragraph and replace with the following:

7-09.2(1) Pipe

7-09.2(1)A Ductile Iron Pipe

Ductile iron pipe shall be in accordance with Section 9-30.1(1), shall be thickness Class 52, unless otherwise shown on the drawings or details and shall be furnished with rubber gasket push-on type joints except when restrained joints are specifically required. All pipe shall be manufactured in the United States of America.

Restrained joint (RJ) ductile iron pipe shall be U.S. Pipe "Field-Lok" gasket system, or equivalent when shown on the drawings or directed by the ENGINEER or OWNER and of domestic manufacture.

7-09.2(1)C Copper Pipe

Copper tubing used for water mains shall be straight length of Type K copper and manufactured in the United States.

7-09.2(2) Fittings

7-09.2(2)A Ductile Iron Fittings

Ductile iron fittings for ductile iron pipe shall be in accordance with Section 9-30.2 and may be flanged, mechanical joint or plain end as required. All fittings shall be manufactured in the United States of America.

7-09.2(2)B Transition Reducing and Flexible Couplings

Fittings for coupling ductile iron pipe to existing pipe shall be in accordance with Section 9-30.2(7). It shall be the CONTRACTOR's responsibility to determine and order the proper coupling based upon field determination of the existing pipe dimensions. All flexible couplings shall be of domestic manufacture.

7-09.2(2)C Compression Fittings

Compression fittings for coupling copper tubing shall be Mueller 110 compression connection or equivalent.

7-09.3 Construction Requirements

7-09.3(1) General (Supplement)

Supplement Section 7-09.3(1) with the following:

Comply with the requirements of City and State permits when operating within their franchise areas.

7-09.3(3) Clearing and Grubbing in Ungraded Streets (Deletion/Replacement)

Delete the last sentence and replace with the following sentence:

All such material shall be hauled and disposed of at a waste site obtained by the CONTRACTOR at no additional cost to the OWNER.

7-09.3(7) Trench Excavation (Deletion/Replacement/Supplement)

Delete the first sentence in the first paragraph and replace with the following sentences:

Trench excavation shall be unclassified. The CONTRACTOR shall excavate all materials encountered to the depth shown on the Drawings, as specified, or as directed by the ENGINEER. No extra payment will be allowed for bed rock, tree stumps, tree roots, boulders, hard pan, cemented gravel or any other material encountered. All material shall be disposed of at a site obtained by the CONTRACTOR.

Delete the sixth and seventh paragraphs and replace with the following paragraph:

Any trench exceeding four (4) feet in depth shall be provided with adequate safety systems meeting the requirements of the Washington State Industrial Safety and Health Act, Chapter 49.17 RCW, and all regulations adopted pursuant thereto. The CONTRACTOR alone shall be responsible for worker safety and the OWNER and the ENGINEER assume no responsibility.

Supplement Section 7-09.3(7) with the following:

All ledge rock, boulders and stones shall be removed to provide a minimum of four (4) inches clearance under all portions of the pipe. All rock larger than three (3) inches in diameter shall be disposed of at a site obtained by the CONTRACTOR, and shall not be used for trench backfill.

Mains shall be installed with a minimum depth of cover of 42 inches unless provided otherwise on the Drawings. Exceptions may be allowed at local depressions, such as ditch crossings or crossings of other utilities. Depth of cover at ditch lines shall be a minimum of 30 inches unless provided otherwise on the Drawings. Exceptions will be allowed only with the prior approval of ENGINEER or OWNER. Minimum separation between other utilities and water mains shall be twelve (12) inches with sand cushion or concrete blanket as directed by ENGINEER or OWNER. Maximum cover shall be 60 inches unless provided otherwise on the Drawings or approved by OWNER. Cost to deepen the line to avoid conflicts with other utilities is incidental.

CONTRACTOR shall pot hole to verify all existing utilities in advance of pipe laying to afford the opportunity to adjust alignment and grade of the pipe to avoid any conflicts with other utilities.

7-09.3(7)C Extra Trench Excavation (Deletion/Replacement)

Delete the fourth paragraph and replace with the following:

All rock larger than three (3) inches in diameter shall be disposed of at a site obtained by the CONTRACTOR.

7-09.3(7)D Wet Weather Earthwork (New Section)

Section 7-09.3(7)D is added as follows:

Wet weather generally begins in mid-October and continues through May, although precipitation may occur at any time of the year. Earthwork completed in wet weather or under wet conditions shall be accomplished in small sections to minimize exposure to wet weather. Each section shall be sufficiently small so that the removal of soil and placement of backfill can be accomplished on the same day. No soil shall be left un-compacted and exposed to water. Soil that is too wet for compaction shall be removed and replaced with clean, imported backfill material. Grading and earthwork should not be accomplished during periods of heavy continuous rainfall.

7-09.3(8) Removal and Replacement of Unsuitable Materials (Supplement)

Section 7-09.3(8) is supplemented with the following:

The ENGINEER'S and/or OWNER's decision is final with regard to removal and replacement of unsuitable material.

Pipe bedding material shall conform to the requirements of Section 9-03.12(3) of the General Conditions only unless noted otherwise on the face of the plans.

Foundation gravel shall conform to the requirements of Section 9-03.17 for Class A material of the General Conditions only.

Crushed Surfacing Top Course shall conform to Section 9-03.9(3) of the General Conditions only unless noted otherwise on the face of the plans.

Bank run gravel shall conform to Section 9-03.19 of the Standard Specifications.

7-09.3(9) Bedding the Pipe (Supplement)

Section 7-09.3(9) is supplemented with the following:

Ductile Iron Water Pipe

Bedding for ductile iron water pipe shall be CSTC.

When native material at the trench bottom is a pure sand and/or gravel and suitable for pipe bedding, the bottom shall be hand finished to grade so that the pipe will have uniform support along the barrel and bell. After the pipe is in place, additional hand selected native material shall be placed and tamped in place around the pipe up to the horizontal diameter of the pipe.

When native material at the trench bottom is any other type of material or stony or otherwise non-uniform, the trench shall be over-excavated to 4" below the specified grade and a layer of pipe bedding material as provided in Section 9-03.9(3) (unless otherwise stated in the Plans) shall be placed to the specified grade. After the pipe is in place, additional bedding material shall be placed and tamped in place around the pipe up to the horizontal diameter of the pipe.

7-09.3(10) Backfilling Trenches (Deletion/Replacement)

Delete the second and third paragraphs and replace with the following paragraphs:

Initial Backfill (Pipe Zone Bedding): The portion of the backfill from 6-inches below the bottom of the pipe to a point one (1) foot above the top of the pipe, shall be made with Crushed Surfacing Top Course (CSTC) per WSDOT Std. Spec. Section 9-03.9(3). The material shall be carried up evenly on both sides of the pipe simultaneously in approximately six (6) inch layers and each layer thoroughly compacted with appropriate tools in such manner as to avoid injuring or disturbing the completed pipeline.

Subsequent Backfill: In public right-of-way and in all areas (paved and unpaved) where streets, roadway shoulders, driveways, sidewalks, or parking lots will be constructed or reconstructed over the trench, the top four (4) feet of the trench shall be mechanically compacted to 95% density (minimum 90% density below this and above subsequent backfill).

Any open cut of any Right-of-Way or paved area above the pipe zone bedding shall be backfilled entirely with Crushed Surfacing Top Course (CSTC) meeting the requirements of Section 9-03.9(3). Backfill shall be placed and compacted mechanically in one (1) foot lifts with an inspector present. After backfill and compaction an immediate hot mix patch shall be placed and maintained in a manner acceptable to the ENGINEER. The hot mix shall be provided, placed and maintained daily to a serviceable condition acceptable for driving traffic and as directed by the ENGINEER.

Trench check dams may be required to prevent the conveyance of groundwater.

On slopes or steep grades, Engineer or Owner may require clay check dams be installed within trench lines to prevent conveyance of ground water.

7-09.3(11) Compaction of Backfill (Deletion)

Delete this section and refer to 7-09.3(10) as amended above.

7-09.3(12) General Pipe Installation (Supplement)

001 Change Order 001 - Contract Revisions - See 'U4-UTB1363-HWD-Exhibit-C-Specifications.pdf'

Supplement Section 7-09.3(12) with the following:

CONTRACTOR may obtain water from the OWNER for use on this project through a meter which may be rented from the OWNER. A DOH approved backflow prevention device shall be used in accordance with State Cross Connection Regulations. Contractor will be charged for all water used.

CONTRACTOR shall provide all trucking, piping, fittings, and connections for the distribution and measurement of the water used on this project. CONTRACTOR shall assume sole responsibility for maintaining the temporary piping for the water used on this project

7-09.3(15) Laying of Pipe on Curves (Supplement)

Supplement Section 7-09.3(15) with the following:

Deflection of joints to achieve horizontal/vertical alignment shall not exceed 1.5 degrees per length of pipe or no more than 1/2 maximum deflection per manufacturer. CONTRACTOR must obtain approval of ENGINEER or OWNER before horizontal/vertical deflections beyond this are used to achieve alignment.

7-09.3(19) Connections

Add the following new section:

7-09.3(19)C General Requirements (New Section)

Pipe work shall be completed as shown on Drawings, except the connections, which are subject to the following limitations. All equipment and material necessary to make the connection shall be delivered to the site prior to the start of work. Bolts, flanges, gaskets, couplings, and all accessories shall be checked and verified by ENGINEER or OWNER prior to shutdown of the existing water system. Once work is started, it shall proceed rapidly and continually to completion.

CONTRACTOR shall notify OWNER and other utilities at least three (3) regular working days in advance of any construction, and make the necessary arrangements with OWNER for connection to existing water main. CONTRACTOR shall not operate any gate valve of the water system before or during construction. OWNER may elect to furnish the materials, equipment, and labor necessary for making the connection and CONTRACTOR shall pay OWNER all costs for the connection. In the event OWNER does not elect to make the connection, he may authorize CONTRACTOR to furnish the materials, equipment, and labor necessary for making the connection under the supervision of OWNER or ENGINEER.

This work includes places where connections may be made to system components to be constructed by others. CONTRACTOR shall coordinate and schedule their work and connection to be made following the testing and acceptance of the system components

001 Change Order 001 - Contract Revisions - See 'U4-UTB1363-HWD-Exhbit-C-Specifications.pdf'

constructed by others. Connection may need to be made near the end of the work under this Contract.

CONTRACTOR must notify customers of time and length of shutdowns at least 48 hours prior to shutdown. CONTRACTOR shall be responsible for any damage caused to customer systems due to shutdown and recharging the water system.

No direct connection of the new system being constructed shall be made to the existing system until the new system has been pressure tested and accepted and until water quality (purity) tests have been satisfactorily completed.

All abandoned pipes which result from work under this contract shall be capped and plugged with concrete.

Add the following new section:

7-09.3(19)D Wet (Hot) Tapping Construction Requirements (New Section)

Prior to submittal, CONTRACTOR shall excavate, dewater, expose and shore the water mains at the proposed hot tap locations. A 12-foot minimum length of water main shall be exposed (6 feet either side of proposed location). After the pipe is exposed, confirm location with ENGINEER as an adjustment to the location may be needed for joints/fittings, interference from other piping, or other reasons. Water mains shall be properly prepared by power washing, wire brushing or grinding as required for the type of pipe. CONTRACTOR shall verify and document (using prepared forms and digital pictures) pipe material, joints and condition. Verify that there are no material structural defects. Measure and template pipe in accordance with the hot tapping contractor's directions and requirements for the type of pipe. Wall thickness, uniformity and internal condition (deposits, corrosion) shall be verified using ultrasonic testing. Ultrasonic testing shall be by a firm approved by the hot tapping contractor. If deemed prudent by the CONTRACTOR, an equalization tap that can be used during the installation shall be installed to obtain a coupon of the pipe. Verify that there will be adequate space to accomplish the installation. Make adequate field measurements so that the same locations can be re-established at a later date. Repair pipe, backfill and restore area as required by the Contract Documents and directed by the ENGINEER.

Inspect pipe and properly prepare piping for installation of the fittings as required for the type of pipe and condition. Properly protect, support, and restrain pipe from equipment effects (i.e., weight and vibration) as well as hydraulic thrust. Concrete shall be allowed to reach design strength before any valves or equipment are mounted on the fittings. Verify that the fittings properly fit the pipe. If not, remove fittings and make necessary and appropriate corrections as required. Forcing, reshaping or bending saddle plates by excessive tightening of saddle bolts will not be allowed.

All hot tapping equipment shall be pressure rated for a minimum of 250 psig.

Add the following new section:

7-09.3(19)E Plugging and Abandoning Existing Pipe (New Section)

Where shown on the Plans or where designated by the ENGINEER, pipes which are to be abandoned in place shall be filled entirely with controlled density fill (CDF) or concrete and the ends capped with an acceptable capping device. Care shall be used in placing the CDF or concrete in the pipe to see that the opening of the pipe is completely filled and thoroughly plugged.

7-09.3(21) Concrete Thrust Blocking (Supplement)

Supplement Section 7-09.3(21) with the following:

Blocking where shown on plans shall consist of poured cement concrete, against undisturbed soil with sufficient concrete and 3/4-inch anchor rods, if required, to resist the resultant forces. Conform to the Standard Details bound with these Specifications and to details shown on the Drawings. Blocking shall provide for removal of any connection to the fittings without damage to the fitting. Designer may be required to submit structural design of deadman or other concrete blocking at the request of the Owner. Where unfavorable ground conditions are encountered, special blocking will be required as directed by the ENGINEER or OWNER in the field. When digging near fittings of existing pipelines, temporary wood blocking or other restraining system shall be installed to prevent blowouts. Megalugs, field lock gaskets or other restrained joint pipe shall be required as shown on the Contract Drawings or in select locations as determined by the OWNER/ENGINEER. Note that thrust blocks are always required regardless of whether restrained joint pipe and fittings are installed

7-09.3(23) Hydrostatic Pressure Test (Supplement/Revision)

Supplement Section 7-09.3(23) with the following:

CONTRACTOR may obtain water from the OWNER for use on this project through a meter which may be rented from the OWNER. A Department of Health approved backflow prevention device shall be used in accordance with State Cross Connection Regulations.

CONTRACTOR shall provide all trucking, piping, fittings, and connections for the distribution and measurement of the water used on this project. CONTRACTOR shall assume sole responsibility for maintaining the temporary piping for the water used on this project.

The first paragraph of Section 7-09.3(23) is supplemented with the following:

Leak tests shall be conducted in accordance with ASTM F2164 and as specified herein. Water mains shall be tested at a pressure 1.5 times the rated pressure of the pipe or the maximum pressure rating of the lowest pressure rated component in the test section, whichever is less. The test pressure shall be monitored at the lowest elevation point in the test section. The CONTRACTOR shall provide two weeks advance notice of hydrostatic testing.

The fourth paragraph of Section 7-09.3(23) is revised to read as follows:

The mains shall be filled with water and allowed to stand under pressure a sufficient length of time to allow the escape of air and allow the lining of the pipe to absorb water. The CONTRACTOR shall furnish the water necessary to fill the pipelines for testing purposes at a time of day when sufficient quantities of water are available for normal system operation. The CONTRACTOR shall also be responsible for proper disposal of the water and shall neutralize the chlorine in the water before it is discharged. The discharge shall be at a controlled rate that does not cause flooding or erosion of any surfaces. If necessary, CONTRACTOR shall provide erosion control measures in accordance with the Contract Documents and satisfactory to the OWNER's Representative and regulating agency.

Add the following sentence to the twelfth paragraph:

The CONTRACTOR shall provide all taps, fittings, connections, blowoffs, etc. required to complete all necessary pressure tests.

7-09.3(24) Disinfection of Water Mains (Supplement)

Supplement Section 7-09.3(24) with the following:

Following a successful test, those water pipes which will not immediately be connected to the existing system shall be relieved of excess pressure and shall be left full of the chlorinated water. CONTRACTOR shall be responsible for disposal of super chlorinated water after testing.

7-09.3(24)A Flushing (Deletion/Replacement)

Delete the last paragraph and replace with the following paragraphs:

The CONTRACTOR shall not do any flushing of the pipeline without supervision of OWNER. Prior to flushing, the CONTRACTOR shall submit to the OWNER and ENGINEER a flushing plan that includes dechlorination of the super chlorinated waste water. Holding of water until the verification that it is safe to be released to drainage channel or sewer system will be required. If discharging chlorinated water to a local sewer system is planned, written permission from the sewer agency shall be obtained. Best management practices shall be utilized when disposing of the higher chlorinated water. The District shall hold the CONTRACTOR liable for any ESA salmon "takes" that occur as a result of improperly disposing of the flushing water. The CONTRACTOR shall make arrangements with the OWNER for the necessary flushing of the pipeline. Flushing procedure shall be approved and observed by OWNER.

Sections of pipe to be disinfected shall first be cleaned. This shall include pigging at the discretion of the District in accordance with these Construction Standards and AWWA Standard C651-922, Section 4.5 to remove any solids or contaminated material that may have become lodged in the pipe. Flushing velocities should be a minimum of 2.5 ft/sec in the new water main when practical to assure the all debris is removed during the flushing process. Table shown below may be used as a guideline, but does not relieve the CONTRACTOR from assuring a clean line.

Table 3.8.6 AWWA C651-92 suggested flow and openings to flush pipelines (40 psi residual pressure in water main*:

Pipe (in inches)	To Produce 2.5 ft/sec (approx) Velocity in Main	Size of Tap, 2 Inches/ Number of Taps on Pipe**	Number of 2-1/2 inch Hydrant Outlets
4	100 gpm	--	1
6	200 gpm	--	1
8	400 gpm	1	1
10	600 gpm	2	1
12	900 gpm	2	2
16	1,600 gpm	4	2

**With a 40 psi pressure in the main and the hydrant flowing to atmosphere, a 2-1/2-inch hydrant outlet will discharge approximately 1,000 gpm and 4-1/2 inch hydrant outlet will discharge approximately 2,500 gpm.*

***Number of taps on pipe based on discharge through 50 feet of galvanized iron pipe with one 90 degree elbow.*

The CONTRACTOR shall be responsible for flushing all new mains under the supervision of the District and their personnel. The storm drainage system shall be the preferred option for disposal of the flush water. The governing public entity of said storm drainage system shall approve of any disposal into available storm systems, provided that the rate of disposal will not overload the storm system or flow turbid water into waterways.

7-09.3(24)H Point of Application (Supplement)

Supplement Section 7-09.3(24)H with the following:

The CONTRACTOR shall provide all taps, fittings, connections, blow offs, etc. required to complete all necessary purity tests.

7-12 VALVES FOR WATER MAINS

7-12.2 Materials (Supplement)

Supplement Section 7-12.2 with the following:

All valves shall be manufactured in the United States of America.

7-12.3 Construction Requirements (Supplement)

Supplement Section 7-12.3 with the following:

Provide two (2) inch thick by two (2) feet wide asphalt or four (4) inch thick by two (2) feet wide concrete pad around valve box covers in unimproved areas, landscape areas and easements.

7-12.3(1) Installation of Valve Marker Post (Deletion/Replacement)

Delete the paragraph and replace with the following paragraph:

Valve marker posts shall be furnished and installed as directed and as shown on the Standard Detail bound with these Specifications. Concrete style marker posts shall be four (4) inch minimum square section, 42-inch length, and shall be reinforced with one 3/8-inch by 39-inch bar of reinforcing steel. Plastic style marker posts shall be 3-inch PVC pipe with 3-inch PVC cap, 42-inch length, and shall have one (1) 1/2-inch by 9-inch bar of reinforcing steel placed through hole drilled 4 inches from bottom. Markers shall be placed as directed by the OWNER or ENGINEER and set so as to leave 18 inches exposed above grade. The exposed portion of the marker posts shall be painted with two (2) coats of blue enamel, and then the size of the valve (for example, 6-inch gate valve) and the distance in feet to the valve shall be stenciled with white exterior enamel paint on the face of the post, using a stencil which will produce letters 2 inches high.

7-14 HYDRANTS (Deletion/Replacement)

Delete the words “Standard Plans” and replace with the words “Standard Detail(s) bound with these Specifications” in 7-14.3(1), 7-14.3(2), 7-14.3(2)A, and 7-14.3(5).

7-14.2 Materials (Deletion/Replacement)

Delete Section 7-14.2 and replace with the following:

Hydrants shall be Center Stem Compression Style and conform to the latest revision of AWWA Specification C 502, except as herein modified. Minimum of 5-1/4 inch main valve opening, six-inch mechanical joint outlet, two (2) 3/4-inch-diameter tie rods or Megalug glands, furnished with 6-inch resilient wedge valve flanged to main tee, and valve box; riser pipe to suit trench depth and finished grade at each installation. Furnished with breakoff flange on barrel and breakoff coupling for the stem. Furnished with two (2) 2-1/2-inch hose connections, one (1) pumper connection, and 1-1/4-inch pentagonal operating nuts which turn counterclockwise to open; a removable Stortz one-quarter turn adaptor and blind cap is to be attached to the pumper connection of hydrants indicated below (contractor to verify all coupling sizes prior to installation). Nozzles shall be fitted with renewable bronze nipples locked in place. All threads shall be National Standard Thread. Hydrants shall be painted as shown on the Standard Details bound with these specifications. CONTRACTOR shall submit hydrant and fitting specifications for ENGINEER’s or OWNER’s review and approval prior to ordering.

PUMPER PORT SCHEDULE		
Jurisdiction	**Pumper Port Size/Thread**	**Stortz Coupling Size**
K.C. Fire District No. 2	4½” NST	5-Inch
K.C. Fire District No. 24	4½” NST	5-Inch

K.C. Fire District No. 37	4½" NST	5-Inch
S. K.C. Fire & Rescue	4½" NST	5-inch
Puget Sound Regional Fire Authority	4½" NST	5-Inch
City of Tukwila	4½" NST	5-Inch

APPROVED HYDRANTS	
Clow Medallion	F-2545
Mueller	Centurion A-423

7-14.3 Construction Requirements

7-14.3(1) Setting Hydrants (Supplement)

Supplement Section 7-14.3(1) with the following paragraph:

Maintain three feet clearance between hydrant and obstructions which would inhibit the operation of the hydrant such as banks, fences, rockeries, walls, trees or bushes. Install 6-inch high extruded curbing as shown in the details contained herein and specified in Section 8-04.3(1)A.

7-15 SERVICE CONNECTIONS

7-15.1 Description (Supplement)

Supplement Section 7-15.1 with the following:

Comply with the Standard Detail(s) bound and/or referenced within these Specifications.

Meter boxes supplied by the CONTRACTOR for installation will be approved by the OWNER prior to installation.

Meters will be supplied by the OWNER but installed by the CONTRACTOR.

Two-inch and smaller water services shall be constructed out of copper tubing and brass tubing as shown in the details. The connecting fittings shall be compression style. Ball corps will be used in vaults and interior buildings. Standard corp. stops will be used for buried installations.

7-15.2 Materials (Supplement)

Supplement Section 7-15.2 with the following:

Piping used for the temporary bypass system shall be SDR9 polyethylene plastic (or other material subject to acceptance by District), with a minimum working pressure of 200 psi. Piping shall be new and free from obvious defects and/or damage, and materials and

installation shall meet applicable AWWA and NSF standards for contact with potable water, and the general installation requirements herein for water main and water services.

Compression fittings shall be used on all copper service pipe and/or the existing poly service connection on the privately-owned service line (back side of meter). Barbed connections shall not be allowed.

7-15.3 Construction Requirements (Supplement)

Supplement Section 7-15.3 with the following:

Existing meters and radio read devices will be reused. CONTRACTOR shall remove the existing meter from the existing meter box and relocate said meter into new meter box at the new location, taking care to ensure the meter remains servicing the same property owner after its relocation.

Service line from the new water main to the meter shall be constructed of copper service pipe. Service lines from the meter to the connection point on the existing service line shall be polyethylene pipe. If existing customer side service is copper, copper service pipe shall be used instead of polyethylene pipe and the change in material costs shall be paid by Force Account. Ball corps will be used in vaults and interior buildings. Standard corp stops will be used for buried installations.

CONTRACTOR shall furnish and install transition fittings and connection fittings as necessary to connect the polyethylene service pipe to the existing private service line. The condition of the existing private service lines is unknown and will likely vary. CONTRACTOR shall excavate to expose the private service line as necessary to find a point on the existing service line where the existing piping is sufficiently good condition to make the connection. The OWNER shall observe the condition of the existing service line once it is exposed and shall accept the final connection location before the connection is made.

END OF DIVISION 7

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DIVISION 8
MISCELLANEOUS CONSTRUCTION

8-01 EROSION CONTROL AND WATER POLLUTION CONTROL

8-01.1 Description (Supplement)

Supplement Section 8-01.1 with the following:

This work includes controlling sediment from trench excavations. In particular, this work involves keeping sediments from excavated soil from spreading on nearby streets and properties and from reaching nearby streams, lakes, wetlands, and storm water facilities, including catch basins and ditches. The CONTRACTOR shall take particular care to guard against the transport of sediment caused by vehicle tracking, water action and wind action. This work includes hydroseeding and the installation of filter fences to control siltation and erosion from the construction area. Temporary erosion and sediment control work shall be in compliance with all WSDOT requirements of the project and shall supersede these specifications if in conflict.

8-01.3 Construction Requirements

8-01.3(1) General (Supplement)

Supplement Section 8-01.3(1) with the following:

If concentrated flows are evident uphill of silt fence, they must be intercepted and conveyed to a sediment trap or pond.

8-01.3(1)A Submittals (Supplement)

Supplement Section 8-01.3(1)A with the following:

Submittals shall be in accordance with Section 1-06 and as specified herein.

Submit data for all materials showing compliance with the specifications. If requested by OWNER or ENGINEER, submit material samples.

8-01.3(1)B Erosion and Sediment Control (ESC) Lead (Supplement)

Supplement Section 8-01.3(1)B with the following:

CONTRACTOR shall have a certified ESC Lead on-site or on-call at all times.

8-01.3(1)F Construction Operations (New Section)

Add Section 8-01.3(1)F as follows:

Temporary erosion and sedimentation control measures shall be in place and functional before land disturbing activities take place. Construction areas shall be properly protected and stabilized as the construction progresses. Disturbed slopes along streams or drainage channels shall be protected with erosion control matting or other suitable and approved measures.

CONTRACTOR shall maintain drainage conveyance within and downstream of construction areas to properly control drainage and runoff. CONTRACTOR shall be responsible for damage caused by lack of, or improper, measures or maintenance.

Properly maintain erosion and sedimentation control measures and facilities so that they will individually and collectively perform and function effectively. The CONTRACTOR and ENGINEER will periodically review and assess the performance and adequacy of the CONTRACTOR's TESC measures and facilities. The CONTRACTOR shall promptly correct any inadequacies or deficiencies found to exist. Such reviews or lack thereof shall not relieve the CONTRACTOR of responsibility for providing and maintaining proper TESC measures and facilities at all times.

8-01.3(2) Seeding, Fertilizing, and Mulching

8-01.3(2)B Seeding and Fertilizing (Supplement)

Supplement Section 8-01.3(2)B with the following:

In areas where the CONTRACTOR's activities have compromised the erosion control functions of the existing grasses, the CONTRACTOR shall over-seed these areas. Grass seed shall be applied at a rate of 5 pounds per 1,000 square feet. Areas subsequently disturbed by the CONTRACTOR's operations shall be reseeded.

8-01.3(2)D Mulching (Supplement)

Supplement Section 8-01.3(2)D with the following:

Mulch shall be wood cellulose fiber. Wood cellulose shall be applied with a soil binder and stabilizing emulsion. Guar gum, or accepted equal, shall be used as the soil binder. Stabilizing emulsion shall be Marloc as manufactured by Reclamare Co. or accepted equal. Wood cellulose fiber shall be applied at a rate of 200 pounds per acre. Hydro-mulch slurry shall be applied at a rate of 2,000 pounds per acre.

8-01.3(2)E Tackifiers (Revision)

Revise the first paragraph to read as follows:

Tacking agents or soil binders applied using a hydroseeder shall have a mulch tracer added to visibly aid uniform application. This tracer shall not be harmful to plant, aquatic, or animal life. A minimum of 125 pounds per acre and a maximum of 250 pounds per acre of Short-Term Mulch shall be used as a tracer. Tacking agents and soil binders shall be mixed and applied in accordance with the manufacturer's recommendations.

8-01.3(2)G Protection and Care of Seeded Areas (Supplement)

Supplement Section 8-01.3(2)G with the following:

Watering of seeded areas shall be at a frequency, amount and for the duration that is necessary to properly sustain the seeded areas until the grass is fully established and able to survive without supplemental watering.

8-01.3(9) Sediment Control Barriers

8-01.3(9)A Fencing

8-01.3(9)A2 Silt Fence (Revision)

Revise the second, third, and fourth paragraphs of Section 8-01.3(9)A2 to read as follows:

Geotextile material shall be sewn together at the point of manufacture, or at a location approved by the ENGINEER, to form geotextile lengths as required. All sewn seams and overlaps shall be located at a support post. Standard strength fabric requires wire backing to increase the strength of the fence. Geotextile material shall meet the following requirements:

GEOTEXTILE FOR TEMPORARY SILT FENCE		
Geotextile Property	ASTM Test Method	Geotextile Property Requirements
AOS	D 4751	30-100 sieve size (0.60-0.15mm) for slit film 50-100 sieve size (0.30-0.15mm) for other fabrics
Water Permittivity	D 4491	0.02 seconds^{-1} minimum
Grab Tensile Strength	D 4632	180 lbs minimum for extra strength fabric 100 lbs minimum for standard strength fabric
Grab Tensile Elongation	D 4632	30% maximum
Ultraviolet Resistance	D 4355	70% minimum

Posts shall be either wood or steel. Wood posts shall be standard 2x4 dimensional lumber with a minimum length as shown in the Plans.

When sediment deposits reach 6 inches high, the deposits shall be removed and stabilized in accordance with Section 8-01.3(15). It is important to check the uphill side of the fence for signs of the fence clogging and acting as a barrier to flow and then causing channelization of flows parallel to the fence. If this occurs, replace the fence and/or remove the trapped sediment.

8-01.3(9)D Inlet Protection (Supplement)

Supplement Section 8-01.3(9)D with the following:

Straps shall be provided to assist in removal of and cleaning of the inserts. All inserts shall have a 0.5 CF minimum storage capacity. An overflow shall be provided to prevent flooding in case the insert is clogged. Inserts shall be cleaned and maintained regularly per the manufacturer's recommendations.

8-02 ROADSIDE RESTORATION

The title of this section is revised to read as follows:

8-02 LANDSCAPING AND RESTORATION (Revision)

8-02.1 Description (Supplement)

Supplement Section 8-02.1 with the following:

The work shall also include all landscaping and restoration not specifically addressed by other bid items and shall include but not be limited to:

1. Preparing and restoring landscaped and lawn areas.
2. Replacement of landscape plant material.
3. Watering restored landscaping, sod, and hydroseeded areas as required.
4. Restoration of all fences, gates, and other surface features disturbed by construction.
5. Installing bark mulch in those areas shown on the Drawings or as requested by the OWNER.

All areas shall be restored to equal or better conditions than that which existed prior to construction.

8-02.2 Materials (Supplement)

Supplement Section 8-02.2 with the following:

Topsoil Type A shall be as described in Section 9-14.1(1). All topsoil used within public right-of-way shall be Topsoil Type A.

Grass seed shall be as described in Section 9-14.2. Seeded areas subsequently disturbed by the CONTRACTOR's operations shall be reseeded at no additional cost to the OWNER.

8-02.3 Construction Requirements

8-02.3(1) Responsibility During Construction (Supplement)

Supplement Section 8-02.3(1) with the following:

At the conclusion of the work, and as approved by the ENGINEER, CONTRACTOR shall seed, fertilize, and mulch all areas within the project's limits that have been disturbed by the construction activities.

Unwanted or undesirable vegetation in areas to be seeded shall be controlled according to Section 8-02.3(2)B prior to seeding.

Existing or import top soil requiring soil amendments shall be in accordance with the City of SeaTac Soil Amendment Requirements. The requirements are located in Appendix E.

8-02.3(5) Planting Area Preparation (Supplement)

Supplement Section 8-02.3(5) with the following:

Areas requiring seeding that have become compacted due to construction shall be loosened and cultivated to a minimum depth of 12-inches prior to seeding. With the ENGINEER's review and acceptance, the depth of cultivation may be reduced in areas that are in close proximity to existing vegetation that could be damaged.

Areas shall be graded to within 0.10 foot of finish grade prior to seeding.

Suitable native topsoil that was stripped prior to construction shall be evenly spread and distributed in the same general areas from which it originated to the extent possible as directed by the ENGINEER.

8-02.3(10) Fertilizers (Supplement)

Supplement Section 8-02.3(10) with the following:

Fertilizers shall conform to Section 9-14.3.

8-02.3(13) Plant Establishment (Supplement)

Supplement Section 8-02.3(13) with the following:

Watering of seeded areas shall be at a frequency, amount and for the duration that is necessary to properly sustain the seeded areas until the grass and plants are fully established and able to survive without supplemental watering.

8-02.3(16) Lawn Installation (Supplement)

Supplement Section 8-02.3(16) with the following:

All lawn and vegetated areas shall be restored to pre-construction condition.

8-02.3(16)A Lawn Installation (Supplement)

Supplement Section 8-02.3(16)A with the following:

The existing sod shall be cut vertically, to a depth of 4 inches, along straight lines at a uniform width to provide ease of handling and matching when replaced. The strips shall be removed to a depth of 3 inches with an approved sod cutter. Sod strips shall be placed in neat piles and maintained continuously in a damp condition until replaced on the lawn.

Topsoil shall be evenly spread to a uniform minimum depth of 2 inches, and cultivated into the top 6 inches of the existing soil, then raked by approved hand or mechanical methods to remove all large clods, rocks, debris, and litter over 1 inch in any dimension. Such clods, rocks, debris, and litter shall be disposed of by the CONTRACTOR.

The area shall then be compacted by rolling in two directions. The second rolling shall be done at right angles to the first rolling. The roller shall be a standard, lightweight, water-filled type roller. The grade after compaction shall be such that the root zone of the sod will be flush with the final grade.

The area shall be raked to make it smooth and level. Topsoil shall be added when necessary, or designated by the ENGINEER.

Immediately prior to placement of sod, fertilizer shall be raked into the soil at a rate of 12 pounds per 1,000 square feet. The fertilizer shall be applied by approved hand or mechanical methods. Application in one direction will be sufficient.

Soil shall be moistened by sprinkling prior to the laying of the sod. Sod shall be placed without voids, and have the end joints staggered. Butt joints shall be staggered and tightly fitted. On sloped areas, sod shall be laid with the long dimension across the slope, parallel to the top or toe of the slope.

After rolling, the sod shall be heavily watered by sprinkling. Lawn areas shall be uniformly level to match existing grades.

The CONTRACTOR shall commence watering immediately upon sod replacement and shall schedule additional watering as necessary to prevent drying of joints between sod strips. Water shall be furnished by the CONTRACTOR. Watering shall continue until the OWNER has accepted the project.

8-02.3(17) Lawn Seeding or Hydroseeding (New Section)

Section 8-02.3(17) is added as follows:

After topsoil has been spread to a uniform minimum depth as shown on the Drawings, the areas shall be mechanically tilled to a depth of 2 inches below the new topsoil, then raked by approved hand or mechanical methods to remove all large clods, rocks, debris, and litter over 1 inch in any dimension, which shall be disposed of by the CONTRACTOR.

The area shall then be rolled in two directions; the second rolling shall be done at right angles to the first rolling. The roller shall be a standard, lightweight, water-filled type roller.

Rake the area to make it smooth and level. Add topsoil where necessary, or as directed by the ENGINEER.

The finished grade shall be 1 inch below all curbs, sidewalks, and/or other appurtenances.

Apply fertilizer at the rate of 12 pounds per 1,000 square feet. The fertilizer shall be applied by an approved hand or mechanical method. Application in one direction is sufficient.

Rake the fertilizer into the surface soil to a depth of 1/2 to 1 inch.
Roll the area in one direction.

Seed shall be applied after the fertilizer and shall be raked into the top 1 inch of the fertilized topsoil. The seed shall be applied with a lawn type spreader at the rate of 5 pounds per 1,000 square feet.

Immediately following the raking of the seed into the soil, the total area shall be covered with horticultural grade sun-dried peat moss, “HI-PRESS,” or approved equal, applied with a lawn type spreader to the rate of 70 pounds per 800 square feet. This material shall not be raked into the topsoil, but shall be rolled with a water-filled roller. The seeded and prepared area shall then be kept continuously moist until the grass is 2 inches high. Water shall be furnished by the CONTRACTOR. The CONTRACTOR shall be responsible for providing a finished grass area which meets the approval of the OWNER until such time that the grass is 2 inches high.

8-21 PERMANENT SIGNING

8-21.3 Construction Requirements

8-21.3(1) Location of Signs (Deletion/Replacement)

This section is deleted and replaced with the following:

CONTRACTOR shall replace all signing disturbed by the CONTRACTOR’s operations. Preconstruction photos shall be used to assist with determining the location of the signs.

END OF DIVISION 8

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DIVISION 9
MATERIALS

9-03 AGGREGATES

9-03.8 Aggregates for Hot Mix Asphalt

9-03.8(2) HMA Test Requirements (Supplement)

Supplement Section 9-03.8(2) with the following:

ESALs
The number of ESALs for the design and acceptance of the HMA shall be 13 million.

9-03.9 Aggregates for Ballast and Crushed Surfacing (Supplement)

Supplement Section 9-03.9 with the following:

Crushed gravel surfacing and crushed gravel backfill for road crossings shall conform to the requirements of Section 9-03.9 of the General Conditions.

9-03.16 Vacant

Delete and replace Section 9-03.16 with the following:

9-03.16 Structural Fill (Deletion/Replacement)

Structural fill shall be Crushed Surfacing Base Course material (9-03.16) with the exception that the maximum fines passing No. 200 shall be 5.0%.

9-03.21 Recycled Material (Deletion)

Section 9-03.21 is deleted in its entirety. Recycled materials may not be used for Water Work.

9-03.22 Controlled Density Fill (New Section)

9-03.22(1) Description

Controlled Density Fill shall be a mixture of Portland cement, fly ash, aggregates, water and admixtures which has been batched and mixed in accordance with ASTM C 94 or WSDOT 6-02.3.

9-03.22(2) Materials

1.	Portland cement	ASTM C 150 or AASHTO M 85 or WSDOT 9-01
2.	Fly Ash	Class F or Class C

3.	Aggregates	ASTM C 33 or WSDOT 9-03.14 or WSDOT 9-03.1
4.	Water	WSDOT 9-25
5.	Admixtures	WSDOT 9-23.6 or AASHTO M 194 or ASTM C 494 or ASTM C 260

9-03.22(3) Classification of Controlled Density Fill

Class A Free-flowing...void fills, tank fills, insulating fills, pipe and caisson fills

Class B Free-flowing...road base, slab base, sub-footings, trench backfills and pipe bedding.

9-03.22(4) Proportioning

The table below provides a guideline for Controlled Density Fill mixes. The weights shown are only an estimate of the amount to be used per cubic yard of C.D.F. Actual amounts may vary from those shown as approved by the ENGINEER or approved trial mix data or field test results for proper strength, work- ability, consistency and density.

Class of C.D.F.	A	B
Maximum compressive strength, lbs per sq. in. (lbs./sq. ft.)	100 (14400)	300 (43200)
Max. gals. of mixing water per cubic yard	50	50
Lbs of cement per cubic yard, approximate	30	50
Lbs of fly ash per cubic yard, approximate	200	250
Lbs. of dry aggregate per cubic yard, approximate (assumed Sp.G. 2.67)	3200	3200

1. If air entraining or water reducing admixture is used for flowability, total water and aggregates may be adjusted for yield.

2. Coarse aggregate size of 1-1/2-inch minus assumed. For flowable or excavatable C.D.F., 3/8-inch minus or sand is recommended.

3. Weights may be adjusted for flow ability and pump ability.

9-13 RIP RAP, QUARRY SPALLS, SLOPE PROTECTION, AND ROCK FOR EROSION AND SCOUR PROTECTION AND ROCK WALLS

9-13.1 Riprap and Quarry Spalls

9-13.1(5) Quarry Spalls (Deletion)

Delete Section 9-13.1(5) in its entirety.

9-14 EROSION CONTROL AND ROADSIDE PLANTING

9-14.2 Seed (Supplement)

Supplement Section 9-14.2 with the following:

The seed mixture shall not contain more than 5 percent weeds or other species that are not required.

SEED MIXTURE			
Common Names	**By Weight (percent)**	**Proportion Purity (percent)**	**Germination (percent)**
Creeping Red Fescue	50	90	90
Annual Ryegrass	30	90	85
Redtop Bentgrass	20	90	85

9-14.3 Fertilizer (Supplement)

Supplement Section 9-14.3 with the following:

Fertilizer shall be furnished in bags or other standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon.

Chemical fertilizers shall be a mixed commercial fertilizer conforming to FS O-F-241D, Type I, with percentages of nitrogen, phosphoric acid, and potash at 5-10-5 or 6-10-4. The combined N-P-K content shall be the following percentages of total weight: 5 percent nitrogen, 10 percent phosphoric acid and 5 percent potash. Fertilizers shall be uniform in composition, dry, and free flowing.

Animal fertilizer shall be well-rotted cattle manure, free from sawdust, shaving or refuse of any kind, and shall contain no more than 25 percent straw or litter by volume.

Lime shall be dolomitic limestone containing not less than 85 percent of total carbonates. Limestone shall be ground to such fineness that 100 percent will pass a No. 200 sieve.

Agricultural gypsum shall be approved standard brand agricultural calcium sulfate (CaSO4) as applied to soils and shall contain 19 percent combined sulfur.

9-14.4 Mulch and Amendments (Supplement)

Supplement Section 9-14.4 with the following:

Mulch shall be wood cellulose fiber. Wood cellulose shall be applied with a soil binder and stabilizing emulsion. Guar gum, or approved equal, shall be used as the soil binder. Stabilizing emulsion shall be Marloc as manufactured by Reclamare Co. or approved equal. Wood cellulose fiber shall be applied at a rate of 200 pounds per acre. Hydro-mulch slurry shall be applied at a rate of 2,000 pounds per acre.

Composted organic mulch shall be an aged, well decomposed, dark, high organic/humus-like material with a fine texture meeting the following requirements:

1. pH range between 6.0 and 8.5.
2. Foreign material no more than 1% on a dry weight or volume basis, whichever is least.
3. Meets Grade AA compost.
4. Minimum organic matter is 30% on a dry weight basis.
5. Soluble salt content less than 4.0 mmhos/cm.
6. Compost score of 5 or higher on the Solvita compost maturity.
7. Comprised of 85-94% recycled yard waste, 5-10% pre-consumer food waste and 1-5% wood waste.

9-30 WATER DISTRIBUTION MATERIALS (Supplement) 001

Supplement Section 9-30 with the following:

All water distribution materials and equipment shall be manufactured with “lead-free” materials in accordance with the Safe Drinking Water Act Section 1417. Bronze and brass fittings, valves, setters and corp-stops shall bear the manufacturer’s identification of construction with lead-free materials. All water distribution materials shall be of domestic manufacture.

9-30.1 Pipe

9-30.1(1) Ductile Iron Pipe (Supplement)

Supplement Section 9-30.1(1) with the following:

Pipe shall be new, seal coated, thickness Class 52, conforming to AWWA/ANSI C151/A21.51-96. Cement-mortar lining shall be 1/16 cement-mortar conforming to

001 Change Order 001 - Contract Revisions - See 'U4-UTB1363-HWD-Exhbit-C-Specifications.pdf'

AWWA/ANSI C104/A21.4-95. Joints shall be push-on type with rubber gasket which fits into an annular groove, except as noted on plans. Joints at valves or fittings may be mechanical joint or flanged depending on Specification and Drawing requirement. Restrained joint water pipe, where shown on the Drawings, shall be in accordance with one of the alternate types of restrained joint water pipe as specified in this document. All pipe shall be manufactured in the USA.

Restrained joints shall be U.S. Pipe Field-Lok gasket system, Megalug or equivalent, as accepted by ENGINEER. Restrained joint pipe on bridges shall be U.S. Pipe TR Flex or approved equivalent.

9-30.1(4) Steel Pipe (Supplement)

Supplement Section 9-30.1(4) with the following:

Steel pipe for PRV Assemblies shall be fabricated from schedule 40 steel to AWWA M11 Steel Pipe Standards except as otherwise noted. Finished steel pipe for PRV Assemblies shall be sandblasted, epoxy lined, and coated with NSF 61 approved epoxy to AWWA C210 specifications except as otherwise noted.

9-30.2 Fittings (Supplement)

Supplement Section 9-30.2 with the following:

Fittings for ductile iron pipe shall conform to Section 9-30.2(1) of the General Conditions, and may be flanged, mechanical joint or plain end as required. Fittings shall be furnished with standard cement-mortar lining with seal coat.

All fittings shall be manufactured in the United States of America. Ductile Iron fittings may conform to the requirements of AWWA C153/A21.53-84 where shown on the Drawings. Mechanical joint restraint shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe, increasing its resistance as the pressure increases. Glands shall be manufactured of ductile iron conforming to ASTM A 536-80 Grade 60-42-10. Restraining devices shall be of ductile iron, heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA A21.11 and ANSI/AWWA C153/A21.53 of latest revision. Twist-off nuts, sized same as tee-head bolts, shall be used to insure proper actuating of restraining devises. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1 and shall be EBAA Iron, Inc., MEGALUG™, Uni-Flange Series 1300, Smith-Blair 913 w/anchor bolts or equivalent. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1 without the use of auxiliary blocking or restraints. Mechanical joint restraint requiring a follower gland and wedge action restraint shall be MEGALUG™ 1100 Series, Uni-Flange Series 1300, Smith-Blair 913 w/anchor bolts or equivalent.

9-30.2(2) Vacant (Replacement)

Replace Section 9-30.2(2) with the following:

9-30.2(2) Hot Tap Fittings

All hot tap fittings shall be of the full encirclement type, split tee. Fittings shall be fabricated at the factory. Saddles shall be pressure vessel quality steel plate, minimum 0.375 inches thick, ASTM A-283 steel. Interior of saddles shall be shaped to the exterior of the pipe based on the field measurements. The top section shall have nozzle and flange outlet. Nozzle shall have a minimum 0.375-inch thickness, fabricated from ASTM A-234 or A-283 steel. Flange shall be 150-pound forged steel, ASTM A-105 or steel plate, ASTM A-283. Suitable independently operated locking devices shall be provided in the periphery of the flange to secure the completion plug. Nozzle shall have a 3/4-inch threaded test outlet and plug to allow pressure testing after the fitting has been installed around the pipe. The interior of the fittings, adjacent to and concentric with outside diameter of the nozzle, shall be properly grooved and gasketed.

Fittings shall be provided with a blind flange, ASTM A-105 steel. Minimum thickness shall be in accordance with AWWA C-207.

Gaskets shall be suitable for the type of pipe and pressure and resist compression setting.

Completed fittings, interior and exterior, shall be coated with fusion bonded epoxy in accordance with AWWA C-213.

Fittings to be clearly marked with serial numbers to insure proper alignment and ends are properly matched in the field.

9-30.2(7) Bolted, Sleeve-Type Couplings for Plain End Pipe (Deletion/Replacement)

Delete the first sentence and replace with the following sentence:

Couplings shall be ductile iron, ROMAC Style 501 or equivalent, or the equivalent for unequal pipe sizes, as required by field conditions.

9-30.2(12) Steel Casing with Casing Spacers (New Section)

Steel casing pipe shall meet ASTM A-53 , having a minimum tensile strength of 60,000 psi and a minimum yield strength of 35,000 psi. Wall thickness shall be sufficient to withstand jacking forces without deformation, with minimum wall thickness of 0.375 inches for casing pipe diameters up to 22". For casing pipe diameters larger than 22", see the table at the end of this subsection. All joints shall be welded. All field-welded joints shall comply with AWS Code for procedures of manual shielded metal are welding.

If jacking and boring of casing pipe is required, it shall be accomplished in such a manner that there will be no damage to the existing improvements. Boring shall be accomplished by mechanical augering or drilling of the soil. The casing shall be jacked close enough

behind the boring operation so there is no caving of soil from above. Removal of the material from the bored hole by washing or sluicing is not permitted. If excess voids are crated around the casing, holes shall be drilled around the casing and voids shall be pumped full of CDF. All excess excavated material shall be legally disposed of.

The carrier pipe shall be installed with casing spacers. Unless shown otherwise, spacers shall be at least 12-inches wide and shall be designed to provide a maximum space of 1 inch between the upper runners and the inside of the steel casing. A minimum of three spacers shall be provided for each full length pipe section and the pipe shall be installed with restrained joints. Pipe lengths shall be installed to minimize the number of joints within the casing. The spacers shall prevent the pipe bells from touching the inside of the casing. Metal components of casing spacers shall be Type 302 (18-8) 14 gauge (minimum) stainless steel. The liner shall be neoprene rubber or PVC, and the runners shall be polyethylene with a low friction factor. Casing spacers shall be designed for center restraint. Casing spacers shall be Model CCS by Cascade Waterworks Manufacturing or approved equal.

Where casing spacers must be custom designed to account for a specific grade of the carrier pipe inside the casing, submittals must be provided which include drawings and dimensions for each of the casing spacers and the respective location of each of the spacers relative to the casing and carrier pipe. Casing ends shall be sealed with concrete.

Steel Casing Pipe Wall Thickness Table

Diameter of Casing Pipe in Inches	Minimum Thickness in Inches
22	0.3750
22 - 28	0.4375
28 - 34	0.5000
34 - 42	0.5625
42 - 48	0.6250
Over 48	Review

9-30.2(13) Double Ball Flexible Expansion Joint

(New Section)

Flexible expansion joints shall be installed in the locations indicated on the drawings and shall be manufactured of ductile iron conforming to the material requirements of ASTM A536 and ANSI/AWWA C153/A21.53. Foundry certification of material shall be readily available upon request.

Each flexible expansion joint shall be pressure tested prior to shipment against its own restraint to a minimum of 250 PSI. A minimum 2:1 safety factor, determined from the published pressure rating, shall apply.

Each flexible expansion joint shall consist of an expansion joint designed and cast as an integral part of a ball and socket type flexible joint, having a minimum per ball deflection of: 25º, 4" - 8"; 20º, 10" - 12"; 15º, 14+" and 8-inches minimum expansion. The flexible expansion fitting shall not expand or exert an axial imparting thrust under internal water

pressure. The flexible expansion fitting shall not increase or decrease the internal water volume as the unit expands or contracts.

All internal surfaces (wetted parts) shall be lined with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C213. Sealing gaskets shall be constructed of EPDM. The coating shall meet ANSI/NSF-61.

Exterior surfaces shall be coated with a minimum of 6 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C116/A21.16.

Polyethylene sleeves, meeting ANSI/AWWA C105/A21.5, shall be included for direct buried applications.

Manufacturer's certification of compliance to the above standards and requirements shall be readily available upon request.

All flexible expansion joints shall be The Force Balanced FLEX-TEND as manufactured by EBAA Iron, Inc. or approved equal.

9-30.2(14) Expansion and Contraction Joint

(New Section)

Expansion joints shall be installed in the locations indicated on the drawings and shall be manufactured of ductile iron conforming to the material properties of ANSI/AWWA C153/A21.53.

All expansion joints shall be capable of expanding or contracting no less than 6". Separation beyond the maximum extension of the expansion joint shall be prevented without the use of external tie rods.

Each expansion joint shall be pressure tested against its own restraint to a minimum of 350 psi (250 psi 24 inch and greater). Restrained joints shall be provided with each mechanical joint connection.

All pressure containing parts shall be lined with a minimum of 15 mils of fusion bonded epoxy, conforming to the applicable requirements of ANSI/AWWA C213, and shall be tested with a 1500 volt spark test conforming to stated specification.

All expansion joints shall be EX-TEND 200, as manufactured by EBAA Iron, Inc., or approved equal.

9-30.3 Valves

9-30.3(1) Gate Valves (3 inches to 16 inches) (Replacement)

Change the title of this section and replace it in its entirety with the following:

9-30.3(1) Gate Valves (3 inches to 12 inches)

Gate Valves shall conform to AWWA C515 or C509 with Ductile Iron Body and Bonnet and shall be ANSI/NSF 61 Certified. Valve end connections may be flanged or mechanical joint, as required. Operating nuts for non-rising stem gate valves installed are to be extended to within 18 to 24 inches of the finish grade. Valves shall be manufactured in the United States of America.

Gate valves shall have ductile iron bodies, bonnets and stuffing boxes conforming to ASTM A536, solid wedge resilient seats, non-rising stems (NRS), and be suitable for installation with the type and class of the pipe being installed. Valve wedge shall be fully encapsulated rubber meeting ASTM D429 and seal 100% leak tight. Seating rubber shall be EPDM elastomer. Valves shall be supplied with O-rings at all pressure retaining joints; no flat gaskets shall be allowed. All stem O-rings above thrust collar shall be fully replaceable with the valve fully opened and subjected to full pressure. Valve waterways shall be smooth, unobstructed and free of all pockets, cavities and depressions in the seat area.

Valves shall be rated for 250 psi minimum cold water working pressure, AWWA service. Each valve shall be tested per the requirements of AWWA C515.

Unless otherwise required by connecting piping, all 2-1/2 inch or larger buried, embedded and encased valves shall have non-threaded ends; all 2-inch or smaller valves shall have threaded ends. Whether shown on the Drawings or not, a union, grooved end connection or other special connector allowing easy removal of threaded valves shall be provided within two (2) feet of such valves unless the valve can otherwise be easily removed subject to the ENGINEER's and/or OWNER's satisfaction and approval.

All buried valves or valves that are underneath floors shall be provided with a 2-inch nut operator. Wrench nuts shall comply with AWWA C500. Extend shafts to within 6-inches of finished grade. Properly support shafts per manufacturers recommendations. Exposed valves shall have hand wheels.

There shall be no moving bearing or contact surfaces of iron in contact with iron. Contact surfaces shall be machined and finished in the best workman like manner, and all wearing surfaces shall be easily renewable.

Nuts and bolts for connecting bonnet and body shall be ANSI 304 stainless steel. Bolts may be regular square or hexagonal heads confirming to ANSI B18.2.1. Metric size socket head cap screws are not allowed.

All gate valves shall be resilient wedge seated type of valves. Gate Valves to be Mueller or equal.

9-30.3(3) Butterfly Valves (Supplement)

Supplement Section 9-30(3) with the following:

Butterfly valves shall Class 150 and have ductile iron body and disk conforming to ASTM A536 Grade 65-45-12. Valves shall conform with AWWA C504. All butterfly valves shall be of domestic manufacture.

9-30.3(4) Valve Boxes (Supplement)

Supplement Section 9-30.3(4) with the following:

Valve box shall be Rich Manufacturing Company, Series 940, or accepted equal. A Rich Manufacturing Company, Series 940 or equal locking cover shall be installed in high traffic areas or when designated by the ENGINEER or OWNER. Each box shall be adjusted to match the finish grade at the valve location. All valve boxes shall be of domestic manufacture.

9-30.3(5) Valve Marker Posts (Deletion/Replacement)

Delete Section 9-30.3(5) and replace with the following:

Valve Marker Posts shall be as described in the Standard Details.

Concrete style marker posts shall be four (4) inch minimum square section, 42-inch length, and shall be reinforced with one 3/8-inch by 39-inch bar of reinforcing steel. The following items shall be painted as shown:

Item	Paint	Color	Number of Coats
Valve Marker Posts	Exterior Enamel Paint	Blue	2
Stenciled Notations	Exterior Enamel Paint	White	1

9-30.3(8) Tapping Sleeve and Valve Assembly

Add the following new subsections:

9-30.3(8)A Tapping Gate Valves (New Section)

1. Valves shall be of the resilient-seated variety and shall meet or exceed the requirements of AWWA C515 or C509 with ductile iron body and bonnet. Valves shall be coated both internally and externally with a fusion bonded epoxy coating meeting or exceed AWWA C550. Double metal disc or solid metal wedge valve designs are not acceptable.

2. Bore diameter shall be equal to, or preferably larger than, nominal valve size, allowing for the use of a ½" undersize shell cutter or larger.

3. For applications on mains where working pressures are anticipated to exceed 175 PSI ductile iron valve rated for 250 PSI or higher working pressure shall be utilized. Valve shall be U.S. Pipe "Metroseal 250", Mueller A2362 Series, or equivalent.

4. All valves shall be new and of current manufacture, and shall display a current casting date.

5. For applications below 175 PSI valves of the following manufacture, or equivalent, are acceptable providing they meet the requirements of paragraphs 1. and 2. above. Clow, Darling, M & H, Mueller, U.S. Pipe, Waterous.

9-30.3(8)B Tapping Sleeves (New Section)

1. All tapping sleeves shall be rated by their manufacturer for a working pressure of at least 200 PSI. Acceptable sleeve types are as follows:

"Stainless Steel" Style: OWNER prefers all stainless construction in this style. Stainless sleeves with ductile iron (but not carbon steel) flanges are also acceptable. Acceptable for all applications on ductile iron, cast iron, and A/C mains through 12 inches on 12 inches. Must meet working pressure requirement of 1. above. JCM, Romac, or approved equal.

"Fabricated Steel" Style: Must be fusion epoxy coated in accordance with AWWA C213. Acceptable for all taps on ductile iron or steel pipe, and for non-size-on-size applications of any size combination on cast iron pipe. Required where applicable for lines with pressures in excess of 175 PSI. JCM, Romac, or equivalent.

9-30.5 Hydrants (Supplement)

Supplement Section 9-30.5 with the following:

OWNER's requirements are given below. These requirements supplement and, in case of a conflict, supersede Section 9-30.5.

Hydrants shall conform to the latest revision of AWWA Specification C502, except as herein modified. Minimum of 5-1/4-inch main valve opening, 6-inch mechanical joint outlet, MEGALUG™ glands, furnished with 6-inch auxiliary gate valve flanged to main tee and valve box; riser to suit trench depth at each installation. Furnished with breakoff flange on barrel and break off coupling for the stem. Furnished with two (2) 2-1/2-inch hose connections, one (1) larger pumper connection and 1-1/4-inch pentagonal operating nuts which turn counterclockwise to open; all according to the OWNER's standards.

Nozzles shall be fitted with renewable bronze nipple locked in place.

All fire hydrants shall be, Mueller Centurion Model A-423 or Clow Medallion F-2545.

Hydrant Coatings	Heavy Duty, Brush-Type Primer		1

	Enamel	Yellow	2

9-30.6 Water Service Connections (2 Inches and Smaller)

9-30.6(1) Saddles (Supplement)

Supplement Section 9-30.6(1) with the following:

Service saddles shall be Romac, Smith Blair, or accepted equal.

9-30.6(2) Corporation Stops (Supplement)

Supplement Section 9-30.6(2) with the following:

Corporation stops shall be of domestic manufacture by Mueller, Ford or AY McDonald with compression adaptor for Type K copper pipe.

9-30.6(3) Service Pipes

9-30.6(3)A Copper Tubing (Supplement)

Supplement Section 9-30.6(3)A with the following:

Copper service pipe from the water main to the meter shall be constructed of straight lengths of Type K copper service pipe.

9-30.6(3)B Polyethylene Tubing (Supplement)

Supplement Section 9-30.6(3)B with the following:

Tubing shall be a continuous length of IPS pipe, with no splices, between the meter and the connection to the existing private service line or service line shut-off valve.

Polyethylene Tubing shall not be used on the customer side of the meter unless the existing service material is polyethylene tubing. Poly tubing shall not be used on the OWNER side of the meter.

9-30.6(4) Service Fittings (Supplement)

Supplement Section 9-30.6(4) with the following:

Compression fittings for coupling copper tubing shall be Mueller 110 compression connection or equivalent. Flared fittings are not acceptable.

Fittings for polyethylene tubing shall be compression type of domestic manufacture by Mueller or Ford and require stiffeners to be used. Stab fittings are not acceptable.

9-30.6(5) Meter Setters (Supplement)

Supplement Section 9-30.6(5) with the following:

Meter setters shall conform to the details on the Drawings.

9-30.6(7) Meter Boxes (Supplement)

Supplement Section 9-30.6(7) with the following:

Meter boxes shall conform to the details on the Drawings.

9-30.6(8) Water Sampling Station (New Section)

Add the following new Section 9-30.6(8):

Water sampling station shall be Elipse No. 88 (24-inch bury) as manufactured by Kupferle Foundary. The water sampling station shall be equipped with aluminum base and housing, copper vent tube with 1/4-inch petcock, and 1-inch brass exterior casing pipe, mounted on a 4-foot by 4-foot by 4-inch-thick concrete pad.

END OF DIVISION 9

APPENDICES

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STANDARD DETAILS

In the event of conflict, the requirement showing on the drawings shall supersede the requirements shown on the standard details.

These details are available at the District's offices or online at www.highlinewater.org.

1. Live Tap
2. Cut-In Using Single Valve
3. Cut-In Using Two Valves
4. Cut-In Using Three Valves
5. Concrete Blocking
6. Thrust Block Table
7. Vertical Concrete Blocking
8. 14" To 30" Gate Valve Installation With Bevel Gearing
9. Hydrant Installation
10. Valve Marker Post and Extruded Curbing
11. 2" Blow-Off Assembly
12. 4" Blow-Off Assembly
13. 6" Blow-Off Assembly
14. 8" Blow-Off Assembly
15. 10" Blow-Off Assembly
15. 2" Combination Air Valve
16. Double Detector Check and Vault
17. Double Detector Check and Vault w/FDC
18. Double Detector Check and Vault w/5" Stortz Adaptor FDC
19. Double Detector Check and Vault w/5" Stortz Adaptor FDC
20. Pipe Casing
21. 5/8", 3/4", and 1" Services
22. 1 1/2" and 2" Irrigation Services

22A. New 2" Compound Meter Installation W/ Bypass

22B. 1-1/2" and 2" Services with High By-Pass Setter

23. New 3" Meter Installation
24. New 4" and Larger Meter Installation
25. Valve Operating Nut Extension
26. Sump Pump Installation
27. A/C/C.I. Water Main Crossing of Sanitary Sewer
28. General Notes
29. Temporary Flushing/Testing Setup for Connections to Existing Water Mains
30. Main Cleaning/Testing/Pigging for Connection to Existing Water Mains
31. Mandatory Premise Isolation Requirements
32. Vault Lids
33. APWA Locking Valve Box
34. Double Detector Check Valve Assy. Inside Building w/ FDC
35. Double Detector Check Valve Assy. Inside Building w/ PIV & FDC
36. 2" Fire Assembly Service

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30% PRELIMINARY PLANS

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2016 WSP System Design Standards

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1.6.4 System Design Standards

This section summarizes the District's minimum standards for the design of new system facilities. Design standards differ from performance standards in that design standards dictate how future facilities will be designed, but do not have any bearing on existing facilities.

1.6.4.1 Planning Considerations

- Initial system construction and additions should conform to the comprehensive plan and retail water service area.
- Public water systems should be designed to provide fire fighting capability in accordance with the requirements of the jurisdiction within which the utility operates.
- Phased development is permitted where full development will take several years.

1.6.4.2 General Facility Placement

All piping, pumping, source, storage, and other facilities, shall be located in public rights-of-way, dedicated utility easements or on District-owned property. Utility easements must be a minimum of 15 feet in width, and piping shall be installed no less than 5 feet from the easement's edge. Any exceptions to this minimum easement will be at the discretion of the District. Unrestricted access shall be provided to all public water system lines and their appropriate appurtenances and all public fire hydrants.

The location of utilities shall be in accordance with the standards and guidelines established by local jurisdiction criteria. Where existing utilities or storm drains are in place, new facilities shall conform to these standards as nearly as practicable and yet be compatible with the existing installations.

1.6.4.3 Pump Stations

- Pump stations shall have the provision of a minimum of 20 psi at the intake of the pumps under PHD or fire flow plus MDD conditions.
- Pump stations shall have an automatic shut-off in place for when the intake pressure drops below 10 psi.

1.6.4.4 Water Pressure

- Water systems shall be designed to provide an adequate quantity of water at a positive pressure of at least 40 psi under PHD flow conditions, measured at any customer's water meter.

1.6.4.5 Pipelines

- Minimum pipe diameter is 8-inches nominal inside diameter, except for looping and dead- end mains beyond hydrants, and all pipelines shall be designed and

constructed to ultimate domestic and fire flow conditions as determined by the District.

- Dead end mains are generally not accepted by the District, except in phased development projects or where no potential for future interconnection of facilities exists. The District reserves the right to allow dead end mains. The allowed diameter of main will be determined on a case by case basis.
- New water mains shall be constructed of cement lined, ductile iron pipe conforming to ANSI Standard A 21.51 (APWA C-151), minimum thickness Class 52, unless otherwise allowed by the District.
- All water main fittings are to be cement lined, ductile iron conforming to ANSI Standards A21.10, A21.11 and A21.53, unless otherwise directed by the District.
- All water system pipelines shall be constructed of "lead-free" materials (less than 0.25% lead content by weight).
- Minimum cover over pipes shall be 42 inches minimum and 60 inches maximum, unless otherwise directed by the District or local standards.
- Transmission and distribution pipelines shall be at least 10 horizontal feet from any existing or proposed waste disposal facilities and 5 horizontal feet from other utilities, measured edge- to-edge. At least 18 inches of vertical separation (measured edge-to-edge) shall be maintained between the top of a sanitary sewer main and the bottom of a water line. A minimum vertical separation of 6 inches, measured edge-to-edge, is required between all other utilities. Reduction of the minimum separation due to field constraints may be allowed by the District Engineer, but in no cases shall be less than identified in Section 8.4.4 of the DOH Design Manual. Concrete encasement (CDF) or structural casing pipe will be allowed for water mains crossing sanitary sewers as less than 18 inches but no closer than 6 inches. Encasements shall be a minimum of 3 feet wide and extend 10 feet past each side of the crossing. Casings shall extend a minimum of 10 feet past each side of the crossing.

1.6.4.6 Valves

- Valving shall be installed in a configuration, which permits isolation of lines.
- Valves should be installed at intersections with normal maximum spacing at 500 feet in commercial, industrial, and multi-family districts, 800 feet in residential districts, and 1 /4 mile in transmission mains. Additional isolation valving may be required by the District and will be determined on a case-by-case basis.
- Air entrainment, air, or combined air-vacuum relief valves are to be installed at appropriate points of high elevation in the system. All piping in the system shall be sloped to permit escape of any entrained air.

- Zone isolation valves shall be installed at zone boundaries to permit future pressure zone realignment without the need for pipe realignment.
- A blow-off assembly or fire hydrant shall be installed on all dead end runs and at designated points of low elevation to provide a means for adequate flushing of the system. The blow- off assembly shall be installed in a utility right-of-way, except where a written access and construction easement is provided the water utility. In no case shall the location be such that a possibility of back-siphonage into the distribution system exists. The blow-off assembly shall be sized to achieve a minimum flow velocity of 21/2 feet per second in the main.

1.6.4.7 Fire Hydrants

- The minimum spacing for hydrants in commercial and multi-family areas shall be 300 feet on center and 600 feet on center in single-family residential areas.

1.6.5 Standard Plans and Details

In accordance with WAC 246-290-120, Highline Water District maintains standard plans and details on file with the DOH. These standards address construction requirements for: the installation of hydrants, valves, fittings and meters; repair or replacement of system components with similar components; and/or maintenance or painting of surfaces not contacting potable water. The standard plans and specifications also constitute a waiver from formal submittal and approval of specific distribution main improvements provided that construction of such projects are certified by a registered professional engineer and provided that the District retains the required documentation for placing the distribution pipeline into service. All other water system improvement projects require submittal to and approval from the DOH. A copy of Highline Water District's standards is included in Appendix E to this Plan. The District uses the current (2014) version of the APWA/WSDOT specifications and corresponding APWA specifications, including any periodic updates.

1.6.6 Cross Connection Control

Where the possibility of contamination of potable water exists, water services shall be equipped with appropriate cross connection control assemblies in accordance with State requirements and District Resolution No. 01-3-7H and the District's Cross Connection Control Program, which is included in this Plan as Appendix G. The need, size, and location of cross connection assemblies shall be determined by the District.

1.6.7 Looping

Looping of the water mains to improve circulation quality and fire flow is an on-going goal of the District.

1.6.8 Satellite Management

The District does not currently manage any satellite water systems and has no immediate plans to do so. If a request was made or opportunity arose to manage a satellite system, the possibility would be evaluated by staff and the Board of Commissioners prior to any action.

1.6.9 Service Area Agreements

The District's primary supply is from SPU. The current agreement with SPU was established in December of 2001 and remains in effect through 2061. The contract with SPU can be found in Appendix D. The District has agreements to supply or be supplied emergency fire flow from several neighboring water purveyors. These agreements are also included in Appendix D.

1.6.10 Customer Call/Complaint Procedure

When an office staff member receives a customer concern or complaint regarding an issue they will:

- Make every effort within their authority to resolve the issue.
- If they cannot resolve the issue to the customer's satisfaction, they will escalate the call to the Customer Service Supervisor who should make every attempt to resolve the issue within policy guidelines. If the complaint still cannot be resolved, the Customer Service Supervisor will arrange for the customer to speak with the Department Manager or the General Manager depending on the issue.

If the call requires a field staff member to visit the site of the complaint:

- If the call is an emergency, the office staff member will create an action request on the customer's account and contact the appropriate field supervisor to investigate immediately. Office staff will record as much information as possible. This should include the name of the person calling, their contact number, and any details that will help field staff resolve the issue.
- For nonemergency calls, the action request will be distributed to the appropriate field staff supervisor who will assign the work. The assigned field staff member will investigate and correct the issue if possible and inform the customer of their actions. They will record their actions on the action request, and return it to the Customer Service Supervisor.
- The Customer Service Supervisor will update the call on the customer's account. If the field staff member was not able to speak to the customer to inform them of their actions, the Customer Service Supervisor will call the customer to update them on the findings and the actions taken.

TO ADD MORE ESTIMATES COPY THESE COLUMNS

I-5/SR 509 Gateway Phase 1
SR 509 COMPLETION PROJECT
Summary of Quantities and Cost Estimate
UI-33: S. 216th St Bridge Over I-5 & Sound Transit Improvements

CN - Total: (DB Contract Total + Other Total)

STD ITEM NO.	UNIT	ITEM	Unit Cost	QUANTITY	ITEM TOTAL
PREPARATION					
0025	ACRE	CLEARING AND GRUBBING	$5,000.00	0	$0.00
0050	L.S.	REMOVAL OF STRUCTURE AND OBSTRUCTION	$1.00	0	$0.00
GRADING					
310	C.Y.	ROADWAY EXCAVATION INCL. HAUL	$10.00	0	$0.00
431	TON	GRAVEL BORROW INCL. HAUL	$15.00	0	$0.00
470	C.Y	EMBANKMENT COMPACTION	$3.00	0	$0.00
SURFACING					
5100	TON	CRUSHED SURFACING BASE COURSE	$20.00	0	$0.00
ASPHALT TREATED BASE					
5334	EST.	ANTI-STRIPPING ADDITIVE	$1.00	0	$0.00
CEMENT CONCRETE PAVEMENT PATCHING					
5625	C.Y.	CEMENT CONC. PAVEMENT	$195.00	0	$0.00
HOT MIX ASPHALT PATCHING					
5767	TON	HMA CL. 1/2 IN. PG	$70.00	125	$8,750.00
5830	CALC	JOB MIX COMPLIANCE PRICE ADJUSTMENT	$1.00	0	$0.00
5835	CALC	COMPACTION PRICE ADJUSTMENT	$1.00	0	$0.00
TRAFFIC MANAGEMENT					
			EST. BELOW	0	$0.00
ADD OTHER NEW ITEMS BELOW THIS LINE. IF ADDITIONAL LINES ARE NEEDED, INSERT AS NEEDED					
(item no.)	*LF*	*Trench Safety*	$2.00	585	$1,170.00
(item no.)	*LF*	*8" Class 52 D.I. Pipe & Fittings w/ Full-Depth Crushed Backfill*	$100.00	135	$13,500.00
(item no.)	*LF*	*18" Class 52 D.I. Pipe & Fittings w/ Full-Depth Crushed Backfill*	$300.00	450	$135,000.00
(item no.)	*LF*	*18" Class 52 D.I. Pipe Installed on Bridge*	$280.00	335	$93,800.00
(item no.)	*LF*	*18" Class 52 D.I. Pipe Installed in Casing*	$200.00	85	$17,000.00
(item no.)	*EA*	*8" Gate Valve & Box*	$1,800.00	5	$9,000.00
(item no.)	*EA*	*18" Butterfly Valve & Box*	$7,000.00	5	$35,000.00
(item no.)	*EA*	*Cut In and/or Connect to Existing Water System*	$5,500.00	6	$33,000.00
(item no.)	*LS*	*General Restoration*	$2,500.00	1	$2,500.00
(item no.)	*EA*	*Remove Ex. Fire Hydrant*	$800.00	1	$800.00
(item no.)	*EA*	*New Fire Hydrant Assembly*	$6,200.00	2	$12,400.00
(item no.)	*EA*	*Remove and Replace Affected Existing Service Line with New*	$2,500.00	3	$7,500.00
(item no.)	*LF*	*Remove and Dispose Existing 12" Water Main and Backfill with Rock*	$35.00	410	$14,350.00
(item no.)	*LF*	*Remove and Dispose of Existing 12" Water Main (Existing Bridge)*	$10.00	380	$3,800.00
(item no.)	*LF*	*30" Steel Casing w/ Fittings and Full-Depth Crushed Rock Backfill*	$275.00	36	$9,900.00
(item no.)	*EA*	*18" Double-Ball Flexible Expansion Joint Assembly, Complete*	$12,000.00	2	$24,000.00
(item no.)	*EA*	*18" Linear Expansion Joint Assembly, Complete*	$12,000.00	1	$12,000.00

DO NOT ADD DATA BELOW THIS LINE

CONSTRUCTION TOTAL		Base Item Total	$433,470.00
Estimated Bid Items, see below			$ -
Water Pollution Control /TESC (% of Base Item Total)		1%	$ 4,334.70
Maintenance of Traffic (% of Base Item Total)		1%	$ 4,334.70
		Subtotal 1	**$442,139.40**
CONSTRUCTION MOBILIZATION (% of Subtotal1)		10%	$ 44,213.94
		Subtotal 2	**$ 486,353.34**
DB Engineering and Quality (% of Subtotal 2; assumption that 30% design provided by Highline)		7.0%	$ 34,044.73
DB Contract Administration including subcontractor mark-up and small tools (% of Subtotal 2)		18.0%	$ 87,543.60
DB Engineering Mobilization (% DB Engineering and DB Contract Admin)		10.0%	$ 12,158.83
Base DB Contract		**Subtotal 3**	**$ 620,100.51**
Sales Tax (% of Subtotal 3)		10.0%	$ 62,010.05
WSDOT DB Construction Engr and Quality Verfication (% of Subtotal 3)		7.0%	$ 43,407.04
Standard Contingency (see below)			$ -
		Subtotal 4	**$ 105,417.09**
DB Contract Subtotal (subtotal 3 + subtotal 4, Before Escalation)			**$ 725,517.59**
Provision for Risk and Escalation (Contigency)		12.00%	$ 87,062.11
DB Contract Total			**$ 812,579.71**
CN - Total: (DB Contract Total + Other Total)			**$ 812,579.71**

WSDOT PE - Total			
WSDOT Preliminary Engineering and Submittal Review (2.5% of Subtotal 3)		2.5000%	$ 15,502.51
Risk assumed as 0%, Highline providing information	Risk (PE)	0.0000%	$ -
Escalation assumed 0%, current work	Escalation	0.0000%	$ -
		PE - Total	**$15,502.51**
		Subtotal 5	$828,082.22
		ROW - Total	**$0**
		Subtotal 6	**$828,082.22**
Indirect Cost Allocation (11.78% of all cost, excluding sales tax) (This is HQ overhead and State overhead		11.78%	$ 90,243.30
		TOTAL	**$918,325.52**

TO ADD MORE ESTIMATES COPY THESE COLUMNS

I-5/SR 509 Gateway Phase 1
SR 509 COMPLETION PROJECT
Summary of Quantities and Cost Estimate
UI-41: S. 206th St

Highline Water District
UI-41 : S. 206th Street 8" Water Main
Cost Shared 34% by WSDOT, 66% by Highline Water District

The 8" main which currently serves the Willow Lake Aparments, north of 208th St. is in a private easement. The cost associated with this remove and replace will be borne by WSDOT. The 8" main will be constructed in the new S 206th St., extending the main along the length of 206th to tie in to SR-99 will be at the expense of Highline. An equitable cost share percentage was agreed to by both agencies.

CN - Total: (DB Contract Total + Other Total)

STD ITEM NO.	UNIT	ITEM	Unit Cost	QUANTITY	ITEM TOTAL
PREPARATION					
0025	ACRE	CLEARING AND GRUBBING	$5,000.00	0	$0.00
0050	L.S.	REMOVAL OF STRUCTURE AND OBSTRUCTION	$1.00	0	$0.00
GRADING					
310	C.Y.	ROADWAY EXCAVATION INCL. HAUL	$10.00	0	$0.00
431	TON	GRAVEL BORROW INCL. HAUL	$15.00	0	$0.00
470	C.Y	EMBANKMENT COMPACTION	$3.00	0	$0.00
SURFACING					
5100	TON	CRUSHED SURFACING BASE COURSE	$20.00	0	$0.00
ASPHALT TREATED BASE					
5334	EST.	ANTI-STRIPPING ADDITIVE	$1.00	0	$0.00
CEMENT CONCRETE PAVEMENT PATCHING					
5625	C.Y.	CEMENT CONC. PAVEMENT	$195.00	0	$0.00
HOT MIX ASPHALT PATCHING					
5767	TON	HMA CL. 1/2 IN. PG	$70.00	25	$1,750.00
5830	CALC	JOB MIX COMPLIANCE PRICE ADJUSTMENT	$1.00	0	$0.00
5835	CALC	COMPACTION PRICE ADJUSTMENT	$1.00	0	$0.00
TRAFFIC MANAGEMENT					
			EST. BELOW	0	$0.00
ADD OTHER NEW ITEMS BELOW THIS LINE. IF ADDITIONAL LINES ARE NEEDED, INSERT AS NEEDED					
(item no.)	*LF*	*Trench Safety*	$2.00	940	$1,880.00
(item no.)	*LF*	*8" Class 52 D.I. Pipe & Fittings w/ Full-Depth Crushed Backfill*	$100.00	940	$94,000.00
(item no.)	*EA*	*8" Gate Valve & Box*	$1,800.00	4	$7,200.00
(item no.)	*EA*	*12" Gate Valve & Box*	$2,500.00	2	$5,000.00
(item no.)	*EA*	*Cut In and/or Connect to Existing Water System*	$5,500.00	3	$16,500.00
(item no.)	*LS*	*Abandon/Cap and Plug Existing Water Main*	$2,500.00	1	$2,500.00
(item no.)	*LF*	*Remove and Dispose Existing 12" AC Pipe and Backfill with Rock*	$65.00	45	$2,925.00
(item no.)	*LF*	*Remove and Dispose Existing 8" Water Main and Backfill with Rock*	$30.00	140	$4,200.00
(item no.)	*EA*	*Remove Existing Hydrant*	$800.00	3	$2,400.00
(item no.)	*EA*	*New Fire hydrant Assembly*	$6,200.00	3	$18,600.00
(item no.)	*LS*	*General Restoration*	$5,000.00	1	$5,000.00

DO NOT ADD DATA BELOW THIS LINE

CONSTRUCTION TOTAL	Base Item Total		$161,955.00
Highline Base Cost Share for D/B construction of 8" water main		66%	$106,890.30
Estimated Bid Items, see below		$	-
Water Pollution Control /TESC (% of Base Item Total)	1%	$	1,068.90
Maintenance of Traffic (% of Base Item Total)	1%	$	1,068.90
	Subtotal 1		**$109,028.11**
CONSTRUCTION MOBILIZATION (% of Subtotal1)	10%	$	10,902.81
	Subtotal 2	**$**	**119,930.92**
DB Engineering and Quality (% of Subtotal 2; assumption that 30% design provided by Highline)	7.0%	$	8,395.16
DB Contract Administration including subcontractor mark-up and small tools (% of Subtotal 2)	18.0%	$	21,587.56
DB Engineering Mobilization (% DB Engineering and DB Contract Admin)	10.0%	$	2,998.27
Base DB Contract	**Subtotal 3**	**$**	**152,911.92**
Sales Tax (% of Subtotal 3)	10.0%	$	15,291.19
WSDOT DB Construction Engr and Quality Verfication (% of Subtotal 3)	7.0%	$	10,703.83
Standard Contingency (see below)		$	-
	Subtotal 4	**$**	**25,995.03**
DB Contract Subtotal (subtotal 3 + subtotal 4, Before Escalation)		**$**	**178,906.94**
Provision for Risk and Escalation (Contigency)	12.00%	$	21,468.83
DB Contract Total		**$**	**200,375.78**
CN - Total: (DB Contract Total + Other Total)		**$**	**200,375.78**

WSDOT PE - Total

WSDOT Preliminary Engineering and Submittal Review (2.5% of Subtotal 3)		2.5000%	$	3,822.80
Risk assumed as 0%, Highline providing information	Risk (PE)	0.0000%	$	-
Escalation assumed 0%, current work	Escalation	0.0000%	$	-
		PE - Total		**$3,822.80**
		Subtotal 5		$204,198.58
		ROW - Total		**$0**
		Subtotal 6		**$204,198.58**
Indirect Cost Allocation (11.78% of all cost, excluding sales tax) (This is HQ overhead and State overhea		11.78%	$	22,253.29
			TOTAL	**$226,451.87**

Exhibit D

TO ADD MORE ESTIMATES COPY THESE COLUMNS

I-5/SR 509 Gateway Phase 1
SR 509 COMPLETION PROJECT
Summary of Quantities and Cost Estimate
UI-74: 12" Water main under S. 208th Street

Highline Water District
UI-74 : 12" Water Main under S. 208th Street
Cost Shared 50% by WSDOT, 50 % by Highline Water District
Portion of 12" Water Main within limited access; Highline and WSDOT agreed to equally share the estimated cost of the abandonment of the existing UI-74 and construciton of the new 12" UI-74, with Highline paying 50% of the cost and WSDOT paying 50% of the cost. Highline has elected to upsize the main replacement from 12" to 16" for system performance; the difference in cost will be borne 100% by Highline Water District.

CN - Total: (DB Contract Total + Other Total)

STD ITEM NO.	UNIT	ITEM	Unit Cost	QUANTITY	ITEM TOTAL
PREPARATION					
0025	ACRE	CLEARING AND GRUBBING	$5,000.00	0	$0.00
0050	L.S.	REMOVAL OF STRUCTURE AND OBSTRUCTION	$1.00	0	$0.00
GRADING					
310	C.Y.	ROADWAY EXCAVATION INCL. HAUL	$10.00	0	$0.00
431	TON	GRAVEL BORROW INCL. HAUL	$15.00	0	$0.00
470	C.Y	EMBANKMENT COMPACTION	$3.00	0	$0.00
SURFACING					
5100	TON	CRUSHED SURFACING BASE COURSE	$20.00	0	$0.00
ASPHALT TREATED BASE					
5334	EST.	ANTI-STRIPPING ADDITIVE	$1.00	0	$0.00
CEMENT CONCRETE PAVEMENT PATCHING					
5625	C.Y.	CEMENT CONC. PAVEMENT	$195.00	0	$0.00
HOT MIX ASPHALT PATCHING					
5767	TON	HMA CL. 1/2 IN. PG	$70.00	200	$14,000.00
5830	CALC	JOB MIX COMPLIANCE PRICE ADJUSTMENT	$1.00	0	$0.00
5835	CALC	COMPACTION PRICE ADJUSTMENT	$1.00	0	$0.00
TRAFFIC MANAGEMENT					
			EST. BELOW	0	$0.00
ADD OTHER NEW ITEMS BELOW THIS LINE. IF ADDITIONAL LINES ARE NEEDED, INSERT AS NEEDED					
(item no.)	*LS*	*Trench Safety*	$2.00	625	$1,250.00
(item no.)	*LF*	*12" Class 52 D.I. Pipe & Fittings w/ Full-Depth Crushed Backfill*	$125.00	625	$78,125.00
(item no.)	*EA*	*12" Gate Valve & Box*	$2,500.00	3	$7,500.00
(item no.)	*EA*	*Cut In and/or Connect to Existing Water System*	$5,500.00	2	$11,000.00
(item no.)	*LF*	*Remove and Dispose Existing 12" AC Pipe*	$65.00	400	$26,000.00
(item no.)	*LF*	*Remove and Dispose Existing 12" Water Main*	$10.00	140	$1,400.00
(item no.)	*LF*	*Remove and Dispose Existing 12" Water Main and Backfill with Rock*	$35.00	275	$9,625.00
(item no.)	*LF*	*Remove and Dispose Existing 8" Water Main and Backfill with Rock*	$30.00	130	$3,900.00
(item no.)	*LS*	*Abandon/Cap and Plug Existing Water Main*	$2,500.00	1	$2,500.00
(item no.)	*LS*	*Site Restoration*	$5,000.00	1	$5,000.00
(item no.)	*EA*	*3" Air & Vacuum Valve*	$4,000.00	2	$8,000.00
DO NOT ADD DATA BELOW THIS LINE					

Base D/B Contract for 12" pipe installation		Base Item Total		$168,300.00
Cost Sharing 50% for Highline's cost of 12" pipe				$84,150.00
Additional Cost of 16" pipe material and installation		$ 35.00	625	$21,875.00
Additional Cost of 16" valves and installation		$ 1,500.00	2	$3,000.00
Highline Base Cost Share for D/B installation of 16" water main				$109,025.00
Estimated Bid Items, see below				$ -
Water Pollution Control /TESC (% of Base Item Total)		1%		$ 1,090.25
Maintenance of Traffic (% of Base Item Total)		1%		$ 1,090.25
		Subtotal 1		**$111,205.50**
CONSTRUCTION MOBILIZATION (% of Subtotal1)		10%		$ 11,120.55
		Subtotal 2		**$ 122,326.05**
DB Engineering and Quality (% of Subtotal 2; assumption that 30% design provided by Highline)		7.0%		$ 8,562.82
DB Contract Administration including subcontractor mark-up and small tools (% of Subtotal 2)		18.0%		$ 22,018.69
DB Engineering Mobilization (% DB Engineering and DB Contract Admin)		10.0%		$ 3,058.15
Base DB Contract		**Subtotal 3**		**$ 155,965.71**
Sales Tax (% of Subtotal 3) applies to 25% of water main relocation with WSDOT R/W		10.0%	0.25	$ 3,899.14
WSDOT DB Construction Engr and Quality Verfication (% of Subtotal 3)		7.0%		$ 10,917.60
Standard Contingency (see below)				$ -
		Subtotal 4		**$ 14,816.74**
DB Contract Subtotal (subtotal 3 + subtotal 4, Before Escalation)				**$ 170,782.46**
Provision for Risk and Escalation (Contigency)		12.00%		$ 20,493.89
DB Contract Total				**$ 191,276.35**
CN - Total: (DB Contract Total + Other Total)				**$ 191,276.35**

WSDOT PE - Total				
WSDOT Preliminary Engineering and Submittal Review (2.5% of Subtotal 3)		2.5000%		$ 3,899.14
Risk assumed as 0%, Highline providing information	Risk (PE)	0.0000%		$ -
Escalation assumed 0%, current work	Escalation	0.0000%		$ -
		PE - Total		**$3,899.14**
		Subtotal 5		$195,175.49
		ROW - Total		**$0**
		Subtotal 6		**$195,175.49**
Indirect Cost Allocation (11.78% of all cost, excluding sales tax) (This is HQ overhead and State overhea		11.78%		$ 22,532.35
			TOTAL	**$217,707.85**

Exhibit D

TO ADD MORE ESTIMATES COPY THESE COLUMNS

I-5/SR 509 Gateway Phase 1
SR 509 COMPLETION PROJECT
Summary of Quantities and Cost Estimate
UI-157: S. 211th Crossing

CN - Total: (DB Contract Total + Other Total)

STD ITEM NO.	UNIT	ITEM	Unit Cost	QUANTITY	ITEM TOTAL
PREPARATION					
0025	ACRE	CLEARING AND GRUBBING	$5,000.00	0	$0.00
0050	L.S.	REMOVAL OF STRUCTURE AND OBSTRUCTION	$1.00	0	$0.00
GRADING					
310	C.Y.	ROADWAY EXCAVATION INCL. HAUL	$10.00	0	$0.00
431	TON	GRAVEL BORROW INCL. HAUL	$15.00	0	$0.00
470	C.Y	EMBANKMENT COMPACTION	$3.00	0	$0.00
SURFACING					
5100	TON	CRUSHED SURFACING BASE COURSE	$20.00	0	$0.00
ASPHALT TREATED BASE					
5334	EST.	ANTI-STRIPPING ADDITIVE	$1.00	0	$0.00
CEMENT CONCRETE PAVEMENT PATCHING					
5625	C.Y.	CEMENT CONC. PAVEMENT	$195.00	0	$0.00
HOT MIX ASPHALT PATCHING					
5767	TON	HMA CL. 1/2 IN. PG	$70.00	0	$0.00
5830	CALC	JOB MIX COMPLIANCE PRICE ADJUSTMENT	$1.00	0	$0.00
5835	CALC	COMPACTION PRICE ADJUSTMENT	$1.00	0	$0.00
TRAFFIC MANAGEMENT					
			EST. BELOW	0	$0.00
ADD OTHER NEW ITEMS BELOW THIS LINE. IF ADDITIONAL LINES ARE NEEDED, INSERT AS NEEDED					
(item no.)	*LF*	*Trench Safety*	$2.00	365	$730.00
(item no.)	*LF*	*24" Class 52 D.I. Pipe & Fittings w/ Full-Depth Crushed Backfill*	$350.00	220	$77,000.00
(item no.)	*LF*	*Furnish and Install 24" DI Pipe & Fittings in Casing*	$175.00	145	$25,375.00
(item no.)	*LF*	*Furnish and Install 36" Steel Casing w/Full Depth Crushed Backfill*	$325.00	145	$47,125.00
(item no.)	*EA*	*24" Butterfly Valve*	$8,500.00	2	$17,000.00
(item no.)	*EA*	*Cut in and/or Connect to Existing Water System*	$10,000.00	2	$20,000.00
(item no.)	*LF*	*Remove and Dispose Existing 6" AC Pipe*	$40.00	870	$34,800.00
(item no.)	*LF*	*Remove and Dispose Existing 6" AC Pipe and Backfill with Rock*	$50.00	100	$5,000.00
(item no.)	*LS*	*General Restoration*	$5,000.00	1	$5,000.00
(item no.)	*EA*	*4" Air & Vacuum Valve*	$7,500.00	1	$7,500.00
(item no.)	*EA*	*6" Blowoff*	$5,000.00	1	$5,000.00
DO NOT ADD DATA BELOW THIS LINE					

CONSTRUCTION TOTAL		Base Item Total	$244,530.00
Estimated Bid Items, see below			$ -
Water Pollution Control /TESC (% of Base Item Total)		1%	$ 2,445.30
Maintenance of Traffic (% of Base Item Total)		1%	$ 2,445.30
		Subtotal 1	**$249,420.60**
CONSTRUCTION MOBILIZATION (% of Subtotal1)		10%	$ 24,942.06
		Subtotal 2	**$ 274,362.66**
DB Engineering and Quality (% of Subtotal 2; assumption that 30% design provided by Highline)		7.0%	$ 19,205.39
DB Contract Administration including subcontractor mark-up and small tools (% of Subtotal 2)		18.0%	$ 49,385.28
DB Engineering Mobilization (% DB Engineering and DB Contract Admin)		10.0%	$ 6,859.07
Base DB Contract		**Subtotal 3**	**$ 349,812.39**
Sales Tax (% of Subtotal 3)		10.0%	$ 34,981.24
WSDOT DB Construction Engr and Quality Verfication (% of Subtotal 3)		7.0%	$ 24,486.87
Standard Contingency (see below)			$ -
		Subtotal 4	**$ 59,468.11**
DB Contract Subtotal (subtotal 3 + subtotal 4, Before Escalation)			**$ 409,280.50**
Provision for Risk and Escalation (Contigency)		12.00%	$ 49,113.66
DB Contract Total			**$ 458,394.16**

CN - Total: (DB Contract Total + Other Total) **$ 458,394.16**

WSDOT PE - Total			
WSDOT Preliminary Engineering and Submittal Review (2.5% of Subtotal 3)		2.5000%	$ 8,745.31
Risk assumed as 0%, Highline providing information	Risk (PE)	0.0000%	$ -
Escalation assumed 0%, current work	Escalation	0.0000%	$ -

	PE - Total	**$8,745.31**
	Subtotal 5	$467,139.47
	ROW - Total	**$0**
	Subtotal 6	**$467,139.47**
Indirect Cost Allocation (11.78% of all cost, excluding sales tax) (This is HQ overhead and State ove	11.78%	$ 50,908.24
	TOTAL	**$518,047.71**

TO ADD MORE ESTIMATES COPY THESE COLUMNS

I-5/SR 509 Gateway Phase 1
SR 509 COMPLETION PROJECT
Summary of Quantities and Cost Estimate
UI-160: Veterans Drive Tunnel New Main Extension

CN - Total: (DB Contract Total + Other Total)

STD ITEM NO.	UNIT	ITEM	Unit Cost	QUANTITY	ITEM TOTAL
PREPARATION					
0025	ACRE	CLEARING AND GRUBBING	$5,000.00	0	$0.00
0050	L.S.	REMOVAL OF STRUCTURE AND OBSTRUCTION	$1.00	0	$0.00
GRADING					
310	C.Y.	ROADWAY EXCAVATION INCL. HAUL	$10.00	0	$0.00
431	TON	GRAVEL BORROW INCL. HAUL	$15.00	0	$0.00
470	C.Y	EMBANKMENT COMPACTION	$3.00	0	$0.00
SURFACING					
5100	TON	CRUSHED SURFACING BASE COURSE	$20.00	0	$0.00
ASPHALT TREATED BASE					
5334	EST.	ANTI-STRIPPING ADDITIVE	$1.00	0	$0.00
CEMENT CONCRETE PAVEMENT PATCHING					
5625	C.Y.	CEMENT CONC. PAVEMENT	$195.00	24	$4,680.00
HOT MIX ASPHALT PATCHING					
5767	TON	HMA CL. 1/2 IN. PG	$70.00	40	$2,800.00
5830	CALC	JOB MIX COMPLIANCE PRICE ADJUSTMENT	$1.00	0	$0.00
5835	CALC	COMPACTION PRICE ADJUSTMENT	$1.00	0	$0.00
TRAFFIC MANAGEMENT					
			EST. BELOW	0	$0.00
ADD OTHER NEW ITEMS BELOW THIS LINE. IF ADDITIONAL LINES ARE NEEDED, INSERT AS NEEDED					
(item no.)	*LF*	*Trench Safety*	$2.00	1610	$3,220.00
(item no.)	*LF*	*12" Class 52 D.I. Pipe & Fittings w/ Full-Depth Crushed Backfill*	$125.00	1610	$201,250.00
(item no.)	*EA*	*12" Gate Valve & Box*	$2,500.00	8	$20,000.00
(item no.)	*EA*	*Cut In and/or Connect to Existing Water System*	$5,500.00	2	$11,000.00
(item no.)	*LS*	*Site Restoration*	$10,000.00	1	$10,000.00
(item no.)	*EA*	*New Fire Hydrant Assembly*	$6,200.00	4	$24,800.00
DO NOT ADD DATA BELOW THIS LINE					

CONSTRUCTION TOTAL	Base Item Total		$277,750.00
Estimated Bid Items, see below		$	-
Water Pollution Control /TESC (% of Base Item Total)	1%	$	2,777.50
Maintenance of Traffic (% of Base Item Total)	1%	$	2,777.50
	Subtotal 1		**$283,305.00**
CONSTRUCTION MOBILIZATION (% of Subtotal1)	10%	$	28,330.50
	Subtotal 2	**$**	**311,635.50**
DB Engineering and Quality (% of Subtotal 2; assumption that 30% design provided by Highline)	7.0%	$	21,814.49
DB Contract Administration including subcontractor mark-up and small tools (% of Subtotal 2)	18.0%	$	56,094.39
DB Engineering Mobilization (% DB Engineering and DB Contract Admin)	10.0%	$	7,790.89
Base DB Contract	**Subtotal 3**	**$**	**397,335.26**
Sales Tax (% of Subtotal 3)	10.0%	$	39,733.53
WSDOT DB Construction Engr and Quality Verfication (% of Subtotal 3)	7.0%	$	27,813.47
Standard Contingency (see below)		$	-
	Subtotal 4	**$**	**67,546.99**
DB Contract Subtotal (subtotal 3 + subtotal 4, Before Escalation)		**$**	**464,882.26**
Provision for Risk and Escalation (Contigency)	12.00%	$	55,785.87
DB Contract Total		**$**	**520,668.13**
CN - Total: (DB Contract Total + Other Total)		**$**	**520,668.13**

WSDOT PE - Total				
WSDOT Preliminary Engineering and Submittal Review (2.5% of Subtotal 3)		2.5000%	$	9,933.38
Risk assumed as 0%, Highline providing information	Risk (PE)	0.0000%	$	-
Escalation assumed 0%, current work	Escalation	0.0000%	$	-
		PE - Total		**$9,933.38**
		Subtotal 5		$530,601.51
		ROW - Total		**$0**
		Subtotal 6		**$530,601.51**
Indirect Cost Allocation (11.78% of all cost, excluding sales tax) (This is HQ overhead and State		11.78%	$	57,824.25
			TOTAL	**$588,425.76**

Exhibit D

TO ADD MORE ESTIMATES COPY THESE COLUMNS

I-5/SR 509 Gateway Phase 1
SR 509 COMPLETION PROJECT
Summary of Quantities and Cost Estimate
UI-245: 34th Ave New Main Extension

CN - Total: (DB Contract Total + Other Total)

STD ITEM NO.	UNIT	ITEM	Unit Cost	QUANTITY	ITEM TOTAL
PREPARATION					
0025	ACRE	CLEARING AND GRUBBING	$5,000.00	0	$0.00
0050	L.S.	REMOVAL OF STRUCTURE AND OBSTRUCTION	$1.00	0	$0.00
GRADING					
310	C.Y.	ROADWAY EXCAVATION INCL. HAUL	$10.00	0	$0.00
431	TON	GRAVEL BORROW INCL. HAUL	$15.00	0	$0.00
470	C.Y	EMBANKMENT COMPACTION	$3.00	0	$0.00
SURFACING					
5100	TON	CRUSHED SURFACING BASE COURSE	$20.00	0	$0.00
ASPHALT TREATED BASE					
5334	EST.	ANTI-STRIPPING ADDITIVE	$1.00	0	$0.00
CEMENT CONCRETE PAVEMENT PATCHING					
5625	C.Y.	CEMENT CONC. PAVEMENT	$195.00	0	$0.00
HOT MIX ASPHALT PATCHING					
5767	TON	HMA CL. 1/2 IN. PG	$70.00	140	$9,800.00
5830	CALC	JOB MIX COMPLIANCE PRICE ADJUSTMENT	$1.00	0	$0.00
5835	CALC	COMPACTION PRICE ADJUSTMENT	$1.00	0	$0.00
TRAFFIC MANAGEMENT					
			EST. BELOW	0	$0.00
ADD OTHER NEW ITEMS BELOW THIS LINE. IF ADDITIONAL LINES ARE NEEDED, INSERT AS NEEDED					
(item no.)	*LF*	*Trench Safety*	$2.00	2020	$4,040.00
(item no.)	*EA*	*Cut In and/or Connect to Existing Water System*	$5,500.00	4	$22,000.00
(item no.)	*LF*	*8" Class 52 D.I. Pipe & Fittings w/ Full-Depth Crushed Backfill*	$100.00	2020	$202,000.00
(item no.)	*EA*	*8" Gate Valve & Box*	$1,800.00	12	$21,600.00
(item no.)	*EA*	*Remove Existing Fire hydrant*	$800.00	3	$2,400.00
(item no.)	*EA*	*New Fire Hydrant Assembly*	$6,200.00	5	$31,000.00
(item no.)	*EA*	*Remove and Replace Affected Existing Service Line w/ New*	$3,000.00	7	$21,000.00
(item no.)	*LF*	*Remove and Dispose Existing 8" AC Pipe and Backfill with Rock*	$55.00	490	$26,950.00
(item no.)	*LF*	*Remove and Dispose Existing 8" Water Main and Backfill with Roc*	$30.00	85	$2,550.00
(item no.)	*LS*	*General Restoration*	$5,000.00	1	$5,000.00

DO NOT ADD DATA BELOW THIS LINE

CONSTRUCTION TOTAL	Base Item Total		$348,340.00
Estimated Bid Items, see below			
Water Pollution Control /TESC (% of Base Item Total)	1%	$	3,483.40
Maintenance of Traffic (% of Base Item Total)	1%	$	3,483.40
	Subtotal 1		**$355,306.80**
CONSTRUCTION MOBILIZATION (% of Subtotal1)	10%	$	35,530.68
	Subtotal 2	**$**	**390,837.48**
DB Engineering and Quality (% of Subtotal 2; assumption that 30% design provided by Highlin	7.0%	$	27,358.62
DB Contract Administration including subcontractor mark-up and small tools (% of Subtotal 2)	18.0%	$	70,350.75
DB Engineering Mobilization (% DB Engineering and DB Contract Admin)	10.0%	$	9,770.94
Base DB Contract	**Subtotal 3**	**$**	**498,317.79**
Sales Tax (% of Subtotal 3)	10.0%	$	49,831.78
WSDOT DB Construction Engr and Quality Verfication (% of Subtotal 3)	7.0%	$	34,882.25
Standard Contingency (see below)		$	-
	Subtotal 4	**$**	**84,714.02**
DB Contract Subtotal (subtotal 3 + subtotal 4, Before Escalation)		**$**	**583,031.81**
Provision for Risk and Escalation (Contigency)	12.00%	$	69,963.82
DB Contract Total		**$**	**652,995.63**
CN - Total: (DB Contract Total + Other Total)		**$**	**652,995.6**

WSDOT PE - Total				
WSDOT Preliminary Engineering and Submittal Review (2.5% of Subtotal 3)		2.5000%	$	12,457.94
Risk assumed as 0%, Highline providing information	Risk (PE)	0.0000%	$	-
Escalation assumed 0%, current work	Escalation	0.0000%	$	-
		PE - Total		**$12,457.94**
		Subtotal 5		$665,453.57
		ROW - Total		**$0**
		Subtotal 6		**$665,453.57**
Indirect Cost Allocation (11.78% of all cost, excluding sales tax) (This is HQ overhead and Stat		11.78%	$	72,520.25
			TOTAL	**$737,973.82**

Exhibit D

LUMP SUM COST ESTIMATE TOTAL

Provision for WSDOT Change Order Authorization (15% Contigency of LSCE Total)

2.5% of Base DB Contract for WSDOT Preliminary Engineering (Amount of Initial Payment)

$3,206,932.52

$481,039.88

$ 54,361.09