City of Duvall

Contract Provisions

City of Duvall
Small Town. Real Life.

For Construction of:

Coe-Clemons Creek Culvert Replacement

(3rd Avenue NE Reconstruction)

BID DOCUMENT

MAY 2024

City Officials:
Mayor: Amy Ockerlander
City Council: John Isaacson, Rick Shaffer, Amy McHenry, Ronn Mercer, Mike Supple, Jennifer Knaplund, Carol Kufeldt

Owner: City of Duvall
Street: 14525 Main Street NE
Mailing: PO Box 1300
Duvall, WA 98019

City Contacts:
Project Manager: Benjamin Ressler, P.E., 425.939.8046
City Engineer: Larissa Grundell, P.E., 425.939.8040
PW Director: Steve Leniszewski, P.E., 425.939.8042

Prepared by: KPG Psomas, Inc.
3131 Elliott Ave, Suite 400
Seattle, WA 98121
Project Manager: Olivia Paraschiv, P.E., 206.267.1060

Notice to All Planholders

The Project Manager assigned to answer questions regarding these bid documents and to show this project to prospective bidders is:

Benjamin Ressler
14525 Main Street NE
Duvall, WA 98019
(425) 939-8046

As the Engineer in direct responsible care of developing these contract provisions, I certify these provisions have been developed or incorporated into this project under my supervision or as a result of certified specifications provided by other licensed professionals.



Olivia Paraschiv, P.E. — 5/3/2024 (Date)

Approved for Construction:

Signature	Date	Signature	Date
Benjamin Ressler, P.E. Project Manager	5/3/2024	Steven Leniszewski, P.E. Public Works Director**	5/1/2024

**The signature of the Public Works Director or City Engineer on these Contract Provisions shall serve as written approval for all variations of the Public Works Standards contained within this project as required by DMC 8.04.075.

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PART 1

INFORMATION FOR BIDDERS

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CALL FOR BIDS

CITY OF DUVALL
DEPARTMENT OF PUBLIC WORKS
P.O. BOX 1300
DUVALL, WA 98019

Coe-Clemons Creek Culvert Replacement

DESCRIPTION OF WORK: The work in this contract includes the installation of a 3-sided box culvert and stream restoration of Coe-Clemons Creek at 3rd Ave NE and associated asphalt roadway restoration between NE Kennedy Drive and NE Taylor Street. The work also includes temporary stream bypass, earthwork, constructing retaining walls, curb and gutters, planters, and sidewalks. Other improvements include water main relocation, new storm drainage conveyance, illumination, irrigation, and other related activities as specified in the contract documents. The Work must be completed within 140 working days after the commencement date stated in the Notice to Proceed.

RECEIPT OF BIDS: Sealed Bids will be received by the City of Duvall until 10:00 a.m. (as determined by the clock in the Clerk's office) on Wednesday, May 29, 2024. Bids may be delivered to City Hall, 15535 Main Street NE, Duvall, Washington 98019 or mailed to the mailing address of P.O. Box 1300, Duvall, Washington 98019. Bids mailed to the address set forth for delivery of Bids will not be delivered by the postal service. Any Bids received after the specified time and date will not be considered.

OBTAINING CONTRACT DOCUMENTS: The Contract Documents are available through the City of Duvall's online plan room at http://bxwa.com. Contact Builders Exchange of Washington at (425) 258-1303 should assistance be required.

BIDS TO REMAIN OPEN: The Bidder shall guarantee the total Bid price for a period of 60 calendar days from the date of Bid opening.

PROJECT ADMINISTRATION: All communications relating to the Project shall be directed to the following PROJECT REPRESENTATIVE prior to the opening of the Bids:

Benjamin Ressler, P.E., Project Manager, 14525 Main Street, Duvall, WA 98019
425-939-8046, benjamin.ressler@duvallwa.gov

Dates of Publication:

Daily Journal of Commerce:	May 8 and May 15, 2024
Seattle Times:	May 8 and May 15, 2024

Office of Minority & Women-Owned Business Enterprises

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INSTRUCTIONS TO BIDDERS

1. DEFINED TERMS. Terms used in these Instructions to Bidders and the Advertisement for Bids which are defined in the Washington State Department of Transportation Standard Specifications have the meanings assigned to them in the Definitions and Terms (1-01). The term "Bidder" means one who submits a Bid directly to the CITY, as distinct from a sub-bidder, who submits a price or quote to a Bidder.

2. LOCAL BUSINESS LICENSE. All Contractors, including Subcontractors, not already having a local business license for the work contemplated, will be required to secure the appropriate license before an Agreement can be executed.

3. INTERPRETATIONS AND ADDENDA. All questions about the meaning or intent of the Contract Documents are to be directed to the PROJECT REPRESENTATIVE no later than 10:00 a.m. five (5) days prior to the scheduled bid opening date. Additions, deletions, or revisions to the Contract Documents considered necessary by the PROJECT REPRESENTATIVE in response to such questions will be issued by addenda uploaded to Builders Exchange by the PROJECT REPRESENTATIVE or CITY. Questions received less than 5 days prior to the date of Bids may not be answered. Only answers to such questions issued by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Addenda may also be issued to make other additions, deletions, or revisions to the Contract Documents.

4. BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND SITE.

   4.1 It is the responsibility of each Bidder before submitting a Bid to:

   Examine thoroughly the Contract Documents and other related data referred to in the Contract Documents;

   Attend the pre-bid conference and Site visit, if any, described in the Advertisement for Bids;

   Visit and examine thoroughly the Site and surrounding area so as to become familiar with any conditions at the Site, and other local conditions, which may affect cost, progress, or performance of the Work;

   Consider federal, state, and local laws and regulations that may affect cost, progress, or performance of the Work;

   Study and carefully correlate the Bidder's observations with the Contract Documents; and

   Notify in writing the PROJECT REPRESENTATIVE of all conflicts, errors, ambiguities, or discrepancies in or between the Contract Documents and other related data.

   4.2 To the extent such information is available, reference is made to the Information Available to Bidders for the identification of:

   Those reports of explorations and tests of subsurface conditions at the Site which have been utilized by the CITY in preparing the Contract Documents;

   Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except underground utilities) which are at or contiguous to the Site that have been utilized by the CITY in preparing the Contract Documents;

   Those environmental reports or drawings relating to asbestos, hazardous waste, PCBs, petroleum and like materials identified at the Site which have been utilized by the CITY in preparing the Contract Documents.

4.3 The CITY makes no representation as to the completeness of the reports referred to in Section 4.2 above or the accuracy of any data or technical information contained therein. The Bidder may rely upon the accuracy of the technical data contained in such reports or drawings. However, the Bidder may not rely upon any interpretation of such technical data, including any extrapolation thereof, or any non-technical data, interpretations or opinions contained therein

4.4 If available, copies of the reports and drawings referred to above will be made available by the CITY to any Bidder upon request, if said reports or drawings are not bound herein. Those reports and drawings are not part of the Contract Documents, but the technical data contained therein upon which the Bidder is entitled to rely are incorporated herein by reference.

4.5 Information and data reflected in the Contract Documents with respect to underground utilities at or contiguous to the site are based upon information and data furnished to the CITY by the owners of such underground utilities or others, and the CITY does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Contract Documents.

4.6 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground utilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in the General Conditions.

4.7 Before submitting a Bid, each Bidder will, at Bidder's expense, make or obtain any additional examinations, investigations, explorations, tests and studies, and obtain any additional information and data which pertain to the physical conditions at or contiguous to the Site or otherwise, which may affect the cost, progress or performance of the Work and which a reasonable Bidder would deem necessary to determine its Bid for performing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

4.8 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and other lands designated for use by the Bidder in performing the Work are identified in the Contract Documents. All additional lands and access thereto as may be required for temporary construction facilities or storage of materials and equipment are to be provided by the Bidder. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the CITY unless otherwise provided in the Contract Documents.

4.9 The submission of a Bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of this Section 4 and the following:

- That the Bid is premised upon performing the Work required by the Contract Documents without exception and such means, methods, techniques, sequences, or procedures of construction (if any) as may be required by the Contract Documents;
- That Bidder has given the PROJECT REPRESENTATIVE written notice of all conflicts, errors, ambiguities and discrepancies in the Contract Documents and the written resolution thereof by the PROJECT REPRESENTATIVE is acceptable to Bidder; and
- That the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

5. BID FORMS. All blanks on the Bid Forms shall be completed in ink. All names must be printed below the signatures. The Bid shall be submitted in a sealed envelope which shall be plainly marked in the upper left-hand corner with the name and address of the Bidder and shall bear the words "BID FOR" followed by the title of the Project, the name of the CITY, the address where Bids are to be delivered or mailed to, and the date and hour for opening of Bids.

6. BID SIGNATURES.

   6.1 Bids by corporations must be executed in the corporate name by the president, a vice-president or other corporate officer. The corporate title of the signatory, corporate address and state of incorporation must appear below the signature.

   6.2 Bids by partnerships must be executed in the partnership name and be signed by a managing partner. Their title and the address of the partnership must appear below the signature.

   6.3 Bids by joint ventures must be executed in the joint venture name and be signed by a joint venture managing partner. Their title and the address of the joint venture must appear below the signature.

7. DISQUALIFICATION OF BIDDERS. More than one Bid from an individual, firm, partnership, corporation, or other type of entity under the same or different names will not be considered. If the CITY believes that any Bidder is involved in more than one Bid for the Project, all Bids in which such Bidder is involved will be rejected. If the CITY believes that collusion exists among the Bidders, all Bids will be rejected. A party who has quoted prices to a Bidder is not hereby disqualified from quoting prices to other Bidders, or from submitting a Bid directly for the Project.

8. COMPETENCY OF BIDDERS. In selecting the lowest responsive, responsible Bidder, consideration may be given to the financial standing and the general competency of the Bidder for the performance of the Work covered by the Bid. Therefore, after opening of the Bids the CITY may request additional information regarding the Bidder's recent work experience, references, and financial standing.

9. SUBMISSION OF BIDS. The Bid shall be delivered by the time and to the place designated in the Advertisement for Bids. It is the Bidder’s sole responsibility to see that its Bid is received in proper time and at the proper place.

   9.1 Delivery of Bids. Bids may be delivered to 15535 Main Street NE, Duvall, Washington 98019.

   9.2 Mailing of Bids. Bids may be mailed to the mailing address of P.O. Box 1300, Duvall, Washington 98019. Bids mailed to address set forth above for the delivery of Bids will not be delivered by the postal service.

10. DISCREPANCIES IN BIDS. If there is more than one Bid Item in the Bid Schedule, the Bidder shall furnish a price for all Bid Items in the Schedule and failure to do so will render the Bid non-responsive and shall cause its rejection. If there are unit price Bid Items in the Bid Schedule and the amount indicated for a unit price item does not equal the product of the unit price and quantity, the unit price shall govern and the amount will be corrected accordingly and the Bidder will be bound by the correction. If there is more than one Bid Item in the Bid Schedule and the total indicated for the Schedule does not agree with the sum of the prices Bid on the individual items, the prices Bid on the individual items shall govern and the total for the Schedule will be corrected accordingly and the Bidder shall be bound by the correction.

11. MODIFICATIONS AND ALTERATIONS TO BIDS. Unauthorized conditions, limitations or provisos attached to the Bid shall render it non-responsive and shall cause its rejection. The Bid forms shall be completed without interlineations, alterations, or erasures in the printed text. Alternative Bids will not be considered unless requested. Oral, telegraphic, facsimile, or telephonic Bids or modifications will not be considered.

12. WITHDRAWAL OF BIDS. The Bid may be withdrawn by the Bidder by means of a written request, signed by the Bidder or its properly authorized representative. Such written request must be delivered to the place stipulated in the Advertisement for Bids and must be received prior to the scheduled closing time for receipt of Bids.

13. AWARD OF CONTRACT. The contract, if awarded, will be made to the Lowest Bid offered by a responsive, responsible Bidder whose Bid complies with the requirements of the Contract Documents.

Unless otherwise specified, any such award will be made within the period stated in the Advertisement for Bids that Bids are to remain open. Unless otherwise indicated, a single award will be made for all the Bid Items in an individual Bid Schedule. The amount of unit prices or sales or use taxes to be collected from the CITY on the Bid price stated will not be considered as a competitive Bid Items and will not be included in determining the lowest priced Bid and will be considered to be an estimate only. The CITY reserves the right to reject any bid, any portion of any bid and/or to reject all bids. The CITY also reserves the right, but without obligation, to waive informalities and irregularities.

14. EXECUTION OF AGREEMENT. The Bidder to whom the award is made shall execute a written Agreement with the CITY in the form of Agreement bound herein, and shall secure and furnish all insurance, certificates and bonds required by the Contract Documents within 14 calendar days after receipt of the Agreement form from the CITY. The Certificate of Insurance must name the City of Duvall as additional insured. Failure or refusal to enter into the Agreement or to conform to any of the stipulated requirements in connection therewith shall be just cause for annulment of the award and forfeiture of the Bid Security. In that case, the CITY may award the contract to the next lowest responsive, responsible Bidder and so-on. If any Bidder which is subsequently awarded the contract as set forth in this Section fails or refuses to execute the Agreement or furnish the necessary insurance and bonds, each such Bidder's Bid securities shall likewise be forfeited to the CITY. The CITY reserves the right to reject all Bids or waive minor informalities in the Bidding process.

15. LIQUIDATED DAMAGES. Provisions for liquidated damages, if any, are set forth Section 1-08.9 of the Special Provisions.

16. SUBCONTRACTORS.

    16.1 The Bidder shall submit with the Bid, the names and phone numbers of all Subcontractors whose subcontract will amount to 10% or more of the total Bid. The list shall include the name and telephone number of the Subcontractor, the category of work to be performed by the Subcontractor, and the percentage of the total Bid price, which is comprised of such Subcontractor's work. Failure to submit this list may render the Bidder's Bid non-responsive and, therefore, void. The form provided as bound herein shall be used. The successful Bidder must have the written permission of the City to make any changes to the list submitted, which permission may be withheld unless the Bidder provides justification sufficient to the City for such change. To prevent bid shopping after the award of the Bid, the Bidder's ability to subcontract intended work at a lesser price than that set forth in the list shall not, in and of itself, be deemed reasonable justification.

    16.2 After award of the contract, the Bidder to whom the contract is awarded must submit at the Pre-Construction Conference a list of all Subcontractors and major Suppliers the Bidder intends to use on the Project, regardless of the value of the work such Subcontractor or Supplier will be performing. The list shall contain the name and telephone number of the Subcontract or Supplier and the category of work to be performed by the Subcontractor, or the materials or equipment to be furnished by the Supplier.

BIDDER'S CHECKLIST

1. REQUIRED FORMS

The Bidder shall submit the following forms as part of the proposal. The forms must be executed in full and submitted with the Proposal.

- ☐ Proposal
- ☐ Bid Schedule
- ☐ Bid Security Form
- ☐ Bidder Information and Signature
- ☐ Non-Collusion and Debarment Affidavit
- ☐ Minimum Wage Affidavit Form
- ☐ Certification of Compliance with Wage Payment Statutes
- ☐ Subcontractors List (Submittal required within one (1) hour after bid opening)

The two lowest bidders shall submit the following forms within 48 hours after the bid opening. Failure to submit these forms may result in the Contracting Agency refusal to accept the Bid.

- ☐ Statement of Bidder's Qualifications
- ☐ Responsible Bidder Criteria

2. AGREEMENT FORMS

Agreement

Retainage Forms (multiple options)

Performance Bond

Payment Bond

Maintenance Bond

3. OTHER REQUIREMENTS

Certificate of Insurance

City of Duvall Business License

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PART 2

PROPOSAL

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PROPOSAL

BID TO: CITY OF DUVALL

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the CITY in the form included in the Contract Documents to perform the Work as specified or indicated in said Contract Documents entitled "**Coe-Clemons Creek Culvert Replacement**".
2. Bidder accepts all of the terms and conditions of the Contract Documents including, without limitation, those in the Advertisement for Bids and Instructions to Bidders dealing with the disposition of the Bid Security.
3. This Bid will remain open for the 60 day period stated in the "Advertisement for Bids". Bidder will enter into an Agreement within the time and in the manner required in the "Advertisement for Bids" and the "Instructions to Bidders", and will furnish the insurance certificates, Payment Bond, Performance Bond, and proof of local business license as required by the Contract Documents.
4. Bidder has examined copies of all the Contract Documents including the following addenda (receipt of all of which is hereby acknowledged):

Addendum Number	**Date Received**
_____	_____
_____	_____
_____	_____

(Failure to acknowledge addenda shall render the Bid non-responsive and shall be cause for its rejection.)

5. Bidder has familiarized itself with the nature and extent of the Contract Documents, the Work required, the Site and locality where the Work is to be performed, the legal requirements (federal, state, and local laws, ordinances, rules, and regulations), and the other conditions which may affect cost, progress or performance of the Work and has made such independent investigations as Bidder deems necessary.
6. Bidder has familiarized itself with the Equal Employment Opportunity requirements contained in these Contract documents.
7. To all the foregoing, and including all Bid forms contained in this Bid, said Bidder further agrees to complete the Work required under the Contract Documents within the Contract Time stipulated in said Contract Documents, and to accept in full payment therefore the Contract Price based on the total Bid Price(s) set forth in the Bid Schedule.

Date: _____ Bidder: _____

By: _____
(Signature)

_____
(Print Name)

Title: _____

Address: _____

_____

Place of Execution: _____

BID SCHEDULE

MUST BE SUBMITTED WITH PROPOSAL

NOTE:

- Unit prices for all items, all extensions, and the total amount bid must be shown.
- The project must be in its entirety, including all bid items and any bid additive items as specifically listed in the Proposal, in order to be considered a responsive bid.
- Where conflict occurs between the unit price and the total amount named for any item, the unit price shall prevail, and totals shall be corrected to conform thereto.
- All entries must be typed or printed and entered in indelible ink.
- Award of the Contract shall be based on the lowest responsive bid as determined by the total amount.

ITEM NO.	SECTION	ITEM	QTY	UNIT	UNIT PRICE	TOTAL
1	1-04	Minor Change	1	EST	$ 25,000.00	$ 25,000.00
2	1-05	Roadway Surveying	1	LS	LUMP SUM	$
3	1-05	Structure Surveying	1	LS	LUMP SUM	$
4	1-05	Record Drawings (Minimum Bid $2,000)	1	LS	LUMP SUM	$
5	1-07	SPCC Plan	1	LS	LUMP SUM	$
6	1-08	Type B Progress Schedule (Minimum Bid $2,000)	1	LS	LUMP SUM	$
7	1-09	Mobilization	1	LS	LUMP SUM	$
8	1-10	Project Temporary Traffic Control	1	LS	LUMP SUM	$
9	2-01	Clearing and Grubbing	1	LS	LUMP SUM	$
10	2-01	Removing Tree 12 In. Caliper or Larger Incl. Haul	1	LS	LUMP SUM	$
11	2-02	Tree Protection	1	LS	LUMP SUM	$
12	2-02	Removal of Structure and Obstruction	1	LS	LUMP SUM	$
13	2-03	Roadway Excavation Incl. Haul	180	CY	$	$
14	2-03	Channel Excavation Incl. Haul	1111	CY	$	$
15	2-03	Unsuitable Foundation Excavation Incl. Haul	80	CY	$	$
16	2-03	Gravel Borrow Incl. Haul	1920	TON	$	$

ITEM NO.	SECTION	ITEM	QTY	UNIT	UNIT PRICE	TOTAL
17	2-09	Structure Excavation Class A Incl. Haul	2756	CY	$	$
18	2-09	Structure Excavation Class B Incl. Haul	331	CY	$	$
19	2-09	Shoring or Extra Excavation Class B	1500	SF	$	$
20	2-09	Controlled Density Fill	380	CY	$	$
21	4-04	Crushed Surfacing Base Course	430	TON	$	$
22	4-04	Crushed Surfacing Top Course	420	TON	$	$
23	5-04	HMA Cl. 1/2 In. PG 58H-22	360	TON	$	$
24	6-02	Conc. Class 4000 for Moment Slab Barrier	109	CY	$	$
25	6-02	St. Reinf. Bar for Moment Slab Barrier	15638	LBS	$	$
26	6-11	Conc. Class 4000 for Retaining Wall	9	CY	$	$
27	6-11	St. Reinf. Bar for Retaining Wall	1794	LBS	$	$
28	6-13	Structural Earth Wall	1474	SF	$	$
29	6-13	Gravel Borrow for Structural Earth Wall Incl. Haul	192	CY	$	$
30	6-20	Installation of Buried Structure	1	LS	LUMP SUM	$
31	7-04	Ductile Iron Storm Sewer Pipe 12 In. Diam	25	LF	$	$
32	7-04	Corrugated Metal Storm Sewer Pipe 18 In. Diam.	15	LF	$	$
33	7-04	Profile Wall PVC Storm Sewer Pipe 18 In. Diam.	170	LF	$	$
34	7-05	Catch Basin Type 1	1	EA	$	$
35	7-05	Catch Basin Type 2, 48 In. Diam.	2	EA	$	$
36	7-05	Connection to Drainage Structure	1	EA	$	$
37	7-05	Adjust Manhole	1	EA	$	$
38	7-08	CSBC for Trench Backfill Incl. Haul	250	TON	$	$

ITEM NO.	SECTION	ITEM	QTY	UNIT	UNIT PRICE	TOTAL
39	7-09	Ductile Iron Pipe for Water Main 12 In. Diam.	170	LF	$	$
40	7-09	Connection to Existing Water Main, 12 In.	2	EA	$	$
41	7-09	Blowoff Assembly	1	EA	$	$
42	7-15	Irrigation Service Connection 1 In. Diam.	1	EA	$	$
43	8-01	Erosion Control and Water Pollution Prevention	1	LS	LUMP SUM	$
44	8-01	ESC Lead	140	DAY	$	$
45	8-01	Erosion Control Blanket	480	SY	$	$
46	8-02	Topsoil Type A	80	CY	$	$
47	8-02	Bark or Wood Chip Mulch	15	CY	$	$
48	8-02	Arborist Wood Chip Mulch	90	CY	$	$
49	8-02	Fine Compost	90	CY	$	$
50	8-02	Sod Installation	70	SY	$	$
51	8-02	PSIPE Cornus kousa x nuttallii 'KN4-43'/ Starlight Dogwood, 2.75" Cal. 12'-14' HT.	8	EA	$	$
52	8-02	PSIPE Pseudotsuga menziesii/ Douglas Fir; 8'-10' HT.	3	EA	$	$
53	8-02	PSIPE Thuja plicata 'Excelsa'/ Exelsa Western Red Cedar; 8'-10' HT.	5	EA	$	$
54	8-02	PSIPE Rhamnus purshiana/ Cascara; 6'-8' HT.	4	EA	$	$
55	8-02	PSIPE Cornus sericea 'Kelseyi'/ Kelsey's Dwarf Red Twig Dogwood; 2 Gal. Cont.	21	EA	$	$
56	8-02	PSIPE Vaccinium ovatum 'Vacsid 1'/ Scarlet Ovation Evergreen Huckleberry; 2 Gal Cont.	17	EA	$	$
57	8-02	PSIPE Spiraea betulifolia var. lucida/ Birchleaf Spirea; 2 Gal. Cont.	19	EA	$	$
58	8-02	PSIPE Deschampsia cespitosa/ Turfted Harigrass; 1 Gal. Cont.	32	EA	$	$
59	8-02	PSIPE Achillea millefolum/ Common Yarrow; 1 Gal. Cont.	30	EA	$	$
60	8-02	PSIPE Armeria maritima/ Sea Thrift; 1 Gal. Cont.	30	EA	$	$

ITEM NO.	SECTION	ITEM	QTY	UNIT	UNIT PRICE	TOTAL
61	8-02	PSIPE Arctostaphylos uva-ursi/ Kinnikinnick; 1 Gal. Cont.	30	EA	$	$
62	8-02	PSIPE Polystichum munitum/ Western Sword Fern; 1 Gal. Cont.	460	EA	$	$
63	8-02	PSIPE Fragaria vesca/ Woodland Strawberry; 4" Pots.	360	EA	$	$
64	8-02	PSIPE Mahonia nervosa/ Low Oregon Grape; 1 Gal. Cont.	220	EA	$	$
65	8-02	PSIPE Acer macrophyllum/ Big Leaf Maple; 5 Gal. Cont.	11	EA	$	$
66	8-02	PSIPE Rhamnus purshiana/ Cascara; 5 Gal. Cont.	8	EA	$	$
67	8-02	PSIPE Thuja plicata/ Western Red Cedar; 5 Gal. Cont.	16	EA	$	$
68	8-02	PSIPE Pseudotsuga menziesii/ Douglas Fir; 5 Gal. Cont.	6	EA	$	$
69	8-02	PSIPE Acer circinatum/ Vine Maple; 1 Gal. Cont.	13	EA	$	$
70	8-02	PSIPE Corylus cornuta/ Beaked Hazelnut; 1 Gal. Cont.	32	EA	$	$
71	8-02	PSIPE Oemleria cerasiformis/ Osoberry; 1 Gal. Cont.	32	EA	$	$
72	8-02	PSIPE Sambucus racemosa/ Red Elderberry; 1 Gal. Cont.	32	EA	$	$
73	8-02	PSIPE Rubus spectabilis/ Salmonberry; 1 Gal. Cont.	86	EA	$	$
74	8-02	PSIPE Pteridium aquilinum/ Bracken Fern; 1 Gal. Cont.	200	EA	$	$
75	8-02	Additional 2-Year Landscape Establishment and Maintenance	1	LS	LUMP SUM	$
76	8-02	Root Barrier	240	LF	$	$
77	8-02	Property Restoration	1	EST	$ 5,000.00	$ 5,000.00
78	8-03	Automatic Irrigation System, Complete	1	LS	LUMP SUM	$
79	8-04	Cement Conc. Traffic Curb and Gutter	680	LF	$	$
80	8-14	Cement Conc. Sidewalk	420	SY	$	$
81	8-14	Surface Treament Type A	30	SY	$	$
82	8-14	Surface Treament Type B	20	SY	$	$

ITEM NO.	SECTION	ITEM	QTY	UNIT	UNIT PRICE	TOTAL
83	8-14	Accent Band Treatment	12	SY	$	$
84	8-14	Cement Conc. Curb Ramp Type Single Direction A	1	EA	$	$
85	8-14	Thickened Slab Sidewalk	103	LF	$	$
86	8-19	Streambed Boulder	1506	EA	$	$
87	8-19	Engineered Streambed Mix	406	TON	$	$
88	8-19	Streambed Sand	67	TON	$	$
89	8-20	Decorative Illumination System, Complete	1	LS	LUMP SUM	$
90	8-20	City Spare Conduit System, Complete	1	LS	LUMP SUM	$
91	8-21	Permanent Signing	1	LS	LUMP SUM	$
92	8-22	Plastic Line	400	LF	$	$
93	8-22	Plastic Stop Line	50	LF	$	$
94	8-22	Shared Use Path Marker	1	EA	$	$
95	8-26	Large Woody Material - Rootwad Log	34	EA	$	$
96	8-26	Small Woody Material and Slash	39	CY	$	$
97	8-28	Metal Inlay	1	LS	LUMP SUM	$
98	8-29	Pedestrian Railing	1	LS	LUMP SUM	$
99	8-31	Temporary Stream Diversion	1	LS	LUMP SUM	$
100	8-33	Boulder Bench Area	1	LS	LUMP SUM	$
101	8-33	Metal Bench	2	EA	$	$
				TOTAL AMOUNT =	**$**	

BID SECURITY FORM

BID SECURITY DESCRIPTION

This Section contains a form that may be used by the Bidder for the Bid Security. Refer to the Instructions to Bidders for specific requirements.

BID GUARANTY BOND

KNOW ALL PERSONS BY THESE PRESENTS THAT: _____, hereinafter called "Principal", and _____, hereinafter called the "Surety", are jointly and severally held and firmly bound unto the City of Duvall, hereinafter called "Owner", in the penal sum of five percent (5%) of the aggregate of the Bid proposal of Principal for the Work, this sum not to exceed _____ dollars ($_____) lawful money of the United States, for the payment whereof unto Owner, Principal and Surety jointly and severally bind themselves forever firmly by these presents.

WHEREAS, said Principal is herewith submitting a Bid for the fulfillment of all Work required for the

COE-CLEMONS CREEK CULVERT REPLACEMENT

NOW, THEREFORE, the condition of this obligation is such that if Principal is awarded a contract for the Work, and if Principal within the time specified in the Contract Documents enters into, executes, and delivers to Owner a signed Agreement and the Performance Bond, Payment Bond and appropriate insurance certificates as required by the Contract Documents, then this obligation shall be void. If, however, the Principal fails or refuses to furnish, execute, and deliver to Owner said Agreement, Performance Bond, Payment Bond and appropriate insurance certificates as required, and within the time required, by the Contract Documents, then Principal and Surety shall forfeit to Owner the penal sum hereof.

AND IT IS HEREBY DECLARED AND AGREED the Surety shall be liable under this obligation as Principal, and that nothing of any kind or nature whatsoever that will not discharge Principal shall operate as a discharge or a release of liability of Surety.

IT IS HEREBY FURTHER DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of Principal, Surety and Owner and their respective heirs, executors, administrators, successors, and assigns.

SIGNED AND SEALED THIS _____ day of _____, 2024.

Seal

_____
Name of CONTRACTOR

_____
Print Name

Its: _____

Seal

_____
Name of Surety

By: _____
Signature

_____
Print Name

Its: _____

[Power of Attorney Must be Attached]

_____

_____

_____
Surety's Mailing Address

_____
Surety's Phone and Fax Numbers

BID SECURITY DEPOSIT STATEMENT

Herewith find the deposit in the form of a certified check, cashiers check or cash in the amount of $ _____, which amount is not less than five percent (5%) of the total Bid.

Seal

_____
Name of CONTRACTOR

By: _____
Signature

_____
Print Name

Its: _____

BIDDER INFORMATION AND SIGNATURE

The Bidder proposes to accept as full payment for the Work proposed herein, the amount computed under the provisions of the Contract Provisions. The undersigned Bids for the following described Project:

COE-CLEMONS CREEK CULVERT REPLACEMENT

The party by whom this Bid is submitted and by whom the Contract will be entered into, in the event the award is made to this party, is:

CONTRACTOR (Firm Name)	Signature
Address	Name (Print) & Title
Phone Number	Date of Signing
CONTRACTOR's Washington State License Number	(Indicate whether contractor is a partnership, joint venture, corporation, or sole proprietorship)*

*If Bidder is a corporation, write State of Incorporation under signature. If partnership, give full names of all partners.

The name of the President, Treasurer, and/or Manager of the Bidding corporation, or the names of all persons and parties interested in this Bid as partners or principals, are as follows:

Name	Address

IF SOLE PROPRIETOR OR PARTNERSHIP

IN WITNESS hereto, the undersigned has set their (its) hand this _____ day of _____, 2024.

_____
Signature of Bidder

_____
Title

IF CORPORATION

IN WITNESS WHEREOF, the undersigned corporation has caused this instrument to be executed by its duly authorized officers this _____ day of _____, 20___.

Attest:

_____
Name of Corporation

_____ by _____
Secretary

_____
Title

Sworn to me before me this _____ day of

_____, 20___.
Notary Public in and for the State of Washington
Residing at

_____

NOTES:
If the Bidder is a co-partnership, give firm name under which business is transacted; Proposal must be executed by a partner. If the Bidder is a corporation, Proposal must be executed in the corporate name by the president or vice-president (or any other corporate officer accompanied by evidence of authority to sign).

NON-COLLUSION AND DEBARMENT AFFIDAVIT

This form must be submitted by all Bidders with their Bid. Failure to submit this form may cause the Bid to be determined non-responsive and, therefore, void.

STATE OF WASHINGTON }
} ss
COUNTY OF _____ }

_____, being first duly sworn, on her/his oath says that the Bid above submitted is a genuine and not a sham or collusive Bid, or made in the interest or on behalf of any person not therein named; and he/she further says that the said Bidder has not directly or indirectly induced or solicited any Bidder on the above Work or supplies for the Work to put in a sham Bid, or any other person or entity to refrain from bidding; and that said Bidder has not in any manner sought by collusion to secure itself an advantage over any other Bidder or Bidders.

_____
Signature

_____
Print Name

_____
Print Title and Company Name

Sworn to me before me this _____ day of

_____, 20____.
Notary Public in and for the State of Washington
Residing at_____

Appointment Expires_____

MINIMUM WAGE AFFIDAVIT FORM

STATE OF WASHINGTON }
} ss
COUNTY OF _____ }

I, the undersigned, having been duly sworn, deposed, say and certify that in connection with the performance of the work of this project, I will pay each classification of laborer, workman, or mechanic employed in the performance of such work; not less than the prevailing rate of wage or not less than the minimum rate of wages as specified in the principal contract; that I have read the above and foregoing statement and certificate, know the contents thereof and the substance as set forth therein is true to my knowledge and belief.

_____
Name of Project

_____
Name of Bidder's Firm

_____
Signature of Authorized Representative of Bidder

_____
Printed Name of Authorized Representative of Bidder

_____
Date

I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that they signed this instrument and acknowledged it to be their free and voluntary act for the uses and purposes mentioned in the instrument.

This _____ day of _____, 20____.
Notary Public in and for the State of Washington
Residing at_____
Appointment Expires_____

CERTIFICATE OF COMPLIANCE WITH WAGE PAYMENT STATUTES

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date, May 8, 2024, the bidder is not a "willful" violator, as defined in RCW 49.48.082, of any provision of Chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

I certify under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct.

_____
Bidder's Business Name

_____
Signature of Authorized Official*

_____
Printed Name

_____
Title

_____ _____ _____
Date CITY State

Check One:
Sole Proprietorship ☐ Partnership ☐ Joint Venture ☐ Corporation ☐

State of Incorporation, or if not a corporation, State where business entity was formed:

_____

If a co-partnership, give firm name under which business is transacted:

_____

**If a corporation, proposal must be executed in the corporate name by the president or vice-president (or any other corporate officer accompanied by evidence of authority to sign). If a co-partnership, proposal must be executed by a partner.*

SUBCONTRACTOR LIST

Failure to list subcontractors with whom the bidder, if awarded the contract, will directly subcontract for performance of the work of structural steel installation, rebar installation, heating, ventilation and air conditioning, plumbing, as described in Chapter 18.106 RCW, and electrical, as described in Chapter 19.28 RCW or naming more than one subcontractor to perform the same work will result in your bid being non-responsive and therefore void.

Subcontractor(s) with whom the bidder will directly subcontract that are proposed to perform the work of structural steel installation, rebar installation, heating, ventilation and air conditioning, plumbing, as described in Chapter 18.106 RCW, and electrical as described in Chapter 19.28 RCW must be listed below. The work to be performed is to be listed below the subcontractor(s) name.

To the extent the Project includes one or more categories of work referenced in RCW 39.30.060, and no subcontractor is listed below to perform such work, the bidder certifies that the work will either (i) be performed by the bidder itself, or (ii) be performed by a lower tier subcontractor who will not contract directly with the bidder.

Subcontractor Name & Phone No.:	**Work to be Performed:**

* Bidder's are notified that it is the opinion of the enforcement agency that PVC or metal conduit, junction boxes, etc., are considered electrical equipment and therefore considered part of electrical work, even if the installation is for future use and no wiring or electrical current is connected during the project.

STATEMENT OF BIDDER'S QUALIFICATIONS

Name of Firm: _____

Address: _____

Telephone No. _____

Contact Person for this Project: _____

Number of years the CONTRACTOR has been engaged in the construction business under the present firm name, as indicated above: _____

Gross dollar amount of work currently under contract: _____

Gross dollar amount of contracts currently not completed: _____

General character of work performed by the firm: _____

List all of the projects over one million dollars total of a similar nature which have been completed by the CONTRACTOR within the last five (5) years and the gross dollar amount of each project, together with the Owner's name and phone number, and the Engineer's name.

Project Name	Amount	Owner	Phone	Engineer's Name

List five major pieces of equipment which are anticipated to be used on this project by the CONTRACTOR and note which items are owned by the CONTRACTOR and which are to be leased or rented from others:

1. _____
2. _____
3. _____
4. _____
5. _____

Bank Reference: _____

How many general superintendents or other responsible employees in a supervisory position do you have at this time, and how long have they been with the firm?

Identify who will be the general superintendent or project superintendent on this Project and list the number of years with the firm.

Have you changed bonding company within the last three (3) years? _____

If so, why? _____

_____

Have you ever been sued or engaged in arbitration by the Owner or have you ever sued or demanded arbitration from an Owner on any public works contract for a special utility district, private utility company, municipality, county, or state government? _____

For what reason?_____

_____

Disposition of case, if settled: _____

Do you have any outstanding payments due to the Department of Revenue? _____

If yes, explain: _____

Bidder agrees that the Owner shall retain the right to obtain any and all credit reports. ☐ Yes ☐ No

RESPONSIBLE BIDDER CRITERIA

In accordance with RCW 39.04, before award of a Public Works Contract, a Bidder must meet the following responsibility criteria to be considered a responsible Bidder and qualified to be awarded a Public Works Project. The Bidder must:

1. At the time of Bid submittal, have a certificate of registration in compliance with chapter 18.27 RCW
2. Have a current state unified business identifier (UBI) number
3. If applicable, have industrial insurance coverage for the Bidder's employees working in Washington as required in Title 51 RCW
4. If applicable, have an employment security department number as required in Title 50 RCW
5. If applicable, have a state excise tax registration number as required in Title 82 RCW
6. Not be disqualified from Bidding on any Public Works Contract under RCW 39.06.010 or 39.12.065(3)

In accordance with RCW 39.06, a Public Works CONTRACTOR must verify responsibility criteria for each first tier Subcontractor, and a Subcontractor of any tier that hires other Subcontractors must verify responsibility criteria for each of its Subcontractors, Verification shall include that each Subcontractor, at the time of Subcontract execution, meets the responsibility criteria and possesses an electrical contractor license, if required by RCW 19.28, or an elevator contractor license, if required by RCW 70.87. This verification requirement, as well as the responsibility criteria, must include every Public Works Contract and subcontract of every tier.

Providing the following information is MANDATORY in order to meet "Responsible Bidder" requirements. Failure to provide this information may disqualify your Bid as being "Non-Responsive." If your business is not required to have one of the following numbers, provide an explanation.

1. State of Washington CONTRACTOR Registration No. _____
2. State of Washington Unified Business Identifier No. _____
3. Employment Security Department No. _____
4. State Excise Tax Registration No. _____
5. Is the payment of Worker's Compensation (Industrial Insurance) Premiums current? If your business does not have a Worker's Comp account with the WA State Dept. of Labor & Industry please explain why.
   - ☐ Yes
   - ☐ No (If No, you are not eligible to bid on this project
   - ☐ No Account – Explain why: _____
6. Are you disqualified from Bidding on Public Works Projects in the State of Washington?
   - ☐ Yes (If Yes, you are not eligible to Bid on this Project)
   - ☐ No

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PART 3

CONTRACT DOCUMENT FORMS

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AGREEMENT

THIS AGREEMENT made this _____ day of _____, 2024, by and between The City of Duvall, hereinafter called "CITY" and _____, hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR shall commence and complete the construction of the **Coe-Clemons Creek Culvert Replacement** (the "Project") in accordance with the Contract Documents.
2. The CONTRACTOR shall provide all labor, materials, tools, equipment, transportation, supplies and any other services necessary for the construction and completion of the Project.
3. The CONTRACTOR shall fully complete all Work required by the Contract Documents within **140 working days** of the date set forth in the Notice to Proceed, unless the period for completion is extended otherwise in accordance with the Contract Documents.
4. The CITY and CONTRACTOR recognize that time is of the essence of this Agreement and that the CITY will suffer financial loss and inconvenience if the Work is not completed within the time specified in Section 3 of this Agreement, plus any extensions allowed by the Contract Documents. They also recognize the delays, expense and the difficulties involved in proving in a legal proceeding the actual loss suffered by the CITY if the Work is not completed on time. Accordingly, instead of requiring any such proof, the CITY and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) the CONTRACTOR shall pay the CITY as set forth in Section 1-08.9 of the Special Provisions for each calendar day that expires after the date for full completion of the Work until full completion is obtained.
5. The CONTRACTOR agrees to perform all of the Work described in the Contract Documents and comply with the terms therein for the principal sum of $_____ plus Washington State sale tax (8.9%) of _____ for a total amount of _____ ($_____).
6. The term "Contract Documents" means and includes the following: Notice to Contractors, Instructions to Bidders, Proposal, Bid Bond, Payment Bond, Performance Bond, Maintenance Bond, this Agreement, Washington State Department of Transportation Standard Specifications, Supplementary Special Provisions (if any), General Requirements, Notice of Award, Notice to Proceed, Change Orders, Addenda, Drawings and Specifications.
7. The CITY shall pay to the CONTRACTOR in the manner and at such times as set forth in the Contract Documents such amounts as required by the Contract Documents.
8. Indemnification
   A. To the fullest extent permitted by Laws and Regulations, the CONTRACTOR shall, to the extent of the CONTRACTOR's negligence, indemnify, defend, and hold harmless the CITY, the PROJECT REPRESENTATIVE, their consultants, subconsultants, and the officers, directors, employees, and agents of each and any of them, against and from all claims and liability arising

under, by reason of, related, or incidental to the Contract Documents or any performance of the WORK, but not from the sole negligence or willful misconduct of the CITY and/or the PROJECT REPRESENTATIVE. Such indemnification by the CONTRACTOR shall include, but not be limited to, the following:

1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR, Subcontractors, Suppliers or any of their employees or agents in the performance of the Work, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR, its employees, or agents;
2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the CONTRACTOR's, Subcontractor's, or Supplier's own employees, or agents engaged in the Work resulting in actions brought by or on behalf of such employees against the CITY and/or the PROJECT REPRESENTATIVE;
3. Liability or claims arising directly or indirectly from or based on the violation of any Laws or Regulations, whether by the CONTRACTOR, Subcontractors, Suppliers or their employees or agents;
4. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, Subcontractors, Suppliers or any of their employees or agents in the performance of the Work of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliance, unless otherwise specifically stipulated in this Agreement;
5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the CITY and/or PROJECT REPRESENTATIVE or any other parties by the CONTRACTOR, Subcontractors, Suppliers or any of their employees or agents;
6. Liability or claims arising directly or indirectly from the willful misconduct of the CONTRACTOR, Subcontractors, Suppliers or any of their employees or agents;
7. Liability or claims arising directly or indirectly from any breach of the obligations assumed in the Contract Documents by the CONTRACTOR;
8. Liability or claims arising directly or indirectly from, relating to, or resulting from a hazardous condition created by the CONTRACTOR, Subcontractors, Suppliers, or any of their employees or agents, and;
9. Liability or claims arising directly, or indirectly, or consequentially out of any action, legal or equitable, brought against the CITY, the PROJECT REPRESENTATIVE, their consultants, subconsultants, and the officers, directors, employees and agents of each or any of them, to the extent caused by the CONTRACTOR's, Subcontractors', Suppliers' or any of their employees' or agents' use of any premises acquired by permits, rights of way, or easements, the Site, or any land or areas contiguous thereto or its performance of the Work thereon.

B. The CONTRACTOR shall reimburse the CITY and the PROJECT REPRESENTATIVE for all costs and expenses, (including but not limited to fees and charges of architects, attorneys, and

other professionals and court costs including all costs of appeals) incurred by the CITY and/or PROJECT REPRESENTATIVE in enforcing the provisions of this Section.

C. The indemnification obligation under this Section shall not be limited in any way by any limitation on the amount or type of insurance carried by CONTRACTOR or by the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts and CONTRACTOR specifically waives the protection afforded CONTRACTOR under such acts provided, however, that such waiver shall not apply to actions directly against CONTRACTOR by CONTRACTOR's employees. By bidding on this Project, CONTRACTOR agrees that the waiver provided for by this paragraph has been specifically negotiated.

9. Severability

If any term or provision of the Contract Documents is declared invalid or unenforceable by any court of lawful jurisdiction, the remaining terms and provisions of the Contract Documents shall not be affected thereby and shall remain in full force and effect.

10. Maintenance Bond, General Guarantee, and Warranty

A. Prior to the payment of the Final Application for Payment, the CONTRACTOR shall provide a one (1) year maintenance bond from the date of final completion of the Work in the amount of 20% of the total final Contract Price. All parts of the Work shall be guaranteed and bonded by the CONTRACTOR to remain in perfect working order and condition except where abused or neglected by the CITY (normal wear and tear excepted), and the CONTRACTOR shall repair or replace, at it's own expense, any Work, or material that may prove to be defective during the period of the guarantee. The Maintenance Bond should be provided at the time of submittal of the final Application for Payment.

B. The form of the guarantee to be executed by the CONTRACTOR is attached to the end of this Section.

C. CONTRACTOR shall submit the guarantee at the time of submittal of CONTRACTOR's final Application for Payment.

11. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement of which shall be deemed an original on the date first above written.

Signature	CITY OF DUVALL – Mayor
Print Name	
Print Company Name and Title	

DECLARATION OF OPTION FOR MANAGEMENT OF STATUTORY RETAINED PERCENTAGE

Do not execute the Declaration of Option for Management of Statutory Retained Percentage as part of the Bid submission. It is to be submitted once award of the contract has been made and the Agreement has been executed. Sample forms for the escrow agreements are at the end of this Section.

DECLARATION OF OPTION FOR MANAGEMENT OF STATUTORY RETAINED PERCENTAGE

I hereby elect to have the retained percentage of this Agreement held in a fund by the City of Duvall until final acceptance of the Work and all required releases are obtained.

Signed: _____ Date: _____

I hereby elect to have City of Duvall place the retained percentage of this Agreement in an interest-bearing account from time to time as such retained percentage accrues in accordance with RCW 60.28.011.

I hereby designate _____ as the repository for the escrow of said funds.

I hereby further agree to be fully responsible for payment of all costs or fees incurred as a result of placing said retained percentage in escrow as authorized by statute. The City of Duvall shall not be liable in any way for any costs or fees in connection therewith.

Signed: _____ Date: _____

I hereby elect to have the City of Duvall invest the retained percentage of this Agreement from time to time as such retained percentage accrues in accordance with RCW 60.28.011.

I hereby designate _____ as the repository for the escrow of said funds.

I hereby further agree to be fully responsible for payment of all costs or fees incurred as a result of placing said retained percentage in escrow and investing it as authorized by statute. The City of Duvall shall not be liable in any way for any costs or fees in connection therewith.

Signed: _____ Date: _____

I hereby elect submit a Retainage Bond in lieu of a withholding in accordance with RCW 60.28.011.

Signed: _____ Date: _____

ESCROW NO. _____
PUBLIC BODY: City of Duvall
CONTRACT NO. _____
COMPLETION DATE _____

INTEREST BEARING ACCOUNT ESCROW AGREEMENT

TO: _____
(Bank Name)

_____
(Address)

_____
(CITY, State, Zip Code)

_____
(Phone and Fax)

The undersigned, _____ (the "CONTRACTOR"), has entered into written agreement dated _____ (the "Contract") with the City of Duvall (the "CITY") for a construction project known as _____ (the "Project").

Under the terms of the Contract, and pursuant to Chapter 60.28 RCW, the CONTRACTOR and CITY have agreed to deposit any and all retainage from the Contract into an interest-bearing depository account (the "Retainage Account") with _____(the "Bank"), subject to the following instructions:

INSTRUCTIONS

1. The CONTRACTOR and the CITY agree to send all notices and instructions to the Bank at the above listed address. The CONTRACTOR and the CITY understand that notices sent elsewhere may not reach the Bank.
2. The Bank shall have the right to withhold funds from any payment to the CONTRACTOR from the retainage Account which the Bank deems reasonable to cover items not finally paid, deposits which are not fully collected, transactions which have been previously executed or guaranteed by the Bank, or any other amount which the CONTRACTOR may owe to the Bank.
3. The CONTRACTOR agrees to pay the Bank for its services hereunder in accordance with the Bank's usual and customary schedule for the same. Payment of all fees incurred by the Bank shall be the sole and separate responsibility of the CONTRACTOR, and shall not be deducted from the Retainage Account. If the Bank is made a party to any litigation with respect to the Retainage Account, or if the conditions of this agreement are not promptly fulfilled, or if the Bank is required to render any service not provided for in these instructions, the Bank shall be entitled to reasonable compensation from the CONTRACTOR for all costs and expenses, including attorney fees, occasioned by such default, delay, controversy or litigation.
4. If conflicting demands are made upon the Bank by the CONTRACTOR, the CITY, or any third party with respect to this agreement or the deposit of any funds in the Retainage Account, the Bank may, in its sole discretion and without liability, (a) hold any funds in the Retainage Account pending (i) its determination of the rights of the parties, (ii) receipt of a final order from a court having jurisdiction directing or authorizing the Bank to make payment, (iii) the party making notice of the conflict withdrawing the notice, (iv) receipt of other assurances or indemnities satisfactory to the Bank; (b) suspend or terminate its services under this agreement; and/or (c) seek judicial relief, including the

filing of interpleader or other actions, to determine the proper accounting or disposition of any funds in the Retainage Account.

5. The CONTRACTOR agrees to indemnify and hold harmless the Bank from and against all claims, losses, liabilities, damages, or costs (including reasonable attorney fees) which the Bank may incur and which result directly or indirectly from the Bank's compliance with the instructions contained herein.
6. The Bank is instructed, on reasonable request, to provide to the CITY any information about the Retainage Account, which the Bank would make available to the CONTRACTOR, including regular statements.
7. Promptly upon written notification by the CITY to do so, pursuant to Chapter 60.28 RCW, the Bank shall release to the CONTRACTOR the specified funds in the Retainage Account (including accrued interest).
8. This agreement and these instructions shall become effective after execution by the CONTRACTOR, the CITY and the Bank, and when a fully executed original has been delivered to the Bank. This agreement and these instructions shall remain in full force and effect until the Bank receives written notice of revocation from the CITY. The Bank may comply with the written instructions from the CONTRACTOR or the CITY in regard to the investment type (e.g., time deposit, length of term, or other interest-bearing deposit), but any time deposits shall mature on or before the date set for completion of the Contract, including extensions thereof.
9. This instrument contains the entire agreement by and among the Bank, the CONTRACTOR and the CITY with respect to the Retainage Account, and the Bank is not a party to nor bound by any other instrument or agreement. The Bank shall not be required to take notice of any default or any other matter, not be bound by nor required to give notice or demand, or required to take any action whatever except as expressly provided herein. The Bank shall not be liable for any loss or damage not caused by the Bank's own negligence or willful misconduct.
10. The foregoing provisions shall be binding upon the assigns, successors, personal representatives and heirs of the parties hereto.

The undersigned have read and hereby approve the instructions as given above governing the administration of the Retainage Account and do hereby execute this Agreement on this _____ day of _____, 2024.

_____
(CONTRACTOR)

By _____

Its _____

_____
(Address)

_____
(Tax I.D. Number)

Telephone _____

Facsimile _____

CITY OF DUVALL

By _____

Its _____

_____
(Address)

Telephone _____

Facsimile _____

The above agreement and instructions are received and approved by the Bank this _____ day of _____, 2024.

_____
(Name of Bank)

By _____

Its _____

Telephone _____

Facsimile _____

ESCROW NO. _____
PUBLIC BODY: City of Duvall
CONTRACT NO. _____
COMPLETION DATE _____

INVESTMENT ESCROW AGREEMENT

TO: _____
(Bank Name)

_____
(Address)

_____
(CITY, State, Zip Code)

_____
(Phone and Fax)

This Investment Escrow Agreement is for the investment of the retained percentages of the above contract in accordance with RCW 60.28.011.

The Undersigned, _____, hereinafter referred to as the CONTRACTOR, has directed the City of Duvall, hereinafter referred to as the Public Body, to deliver to the Bank its warrants, checks or drafts which shall be payable to the Bank, and are to be held and disposed of by the Bank in accordance with the following instructions and upon the terms and conditions hereinafter set forth.

INSTRUCTIONS

1. Upon delivery to the Bank, warrants, checks or drafts made payable to the Bank shall be endorsed by the Bank and forwarded for collection. The moneys from all such warrants, checks or drafts received hereunder shall be used by the Bank to purchase bonds or other securities selected by the CONTRACTOR and approved by the Public Body. For the purpose of each such purchase, the Bank may follow the last written direction received by the Bank from the CONTRACTOR, provided said direction otherwise conforms with the restrictions on investments recited herein. Attached is a list of such bonds or other securities approved by the Public Body. Other bonds or securities, except stocks, may be selected by the CONTRACTOR, subject to express written approval of the Public Body.
2. The investments selected by the CONTRACTOR, approved by the Public Body and purchased by the Bank must mature on or prior to the date set for the completion of the contract, including extensions thereof. After the completion date of the contract, the Bank shall not be required to invest the money held by the Bank and derived from the sale or redemption of matured investments until authorized to do so by the CONTRACTOR and the Public Body, which authorization shall include the completion date of the extension.
3. When and as interest on the securities held by the Bank pursuant to this agreement accrues and is paid, the Bank shall collect such interest and forward it to the CONTRACTOR at its address designated below unless otherwise directed by the CONTRACTOR.
4. The Bank are not authorized to deliver to the CONTRACTOR all or any part of the securities held by the Bank pursuant to this agreement (or any moneys derived from the sale of such securities, or the negotiation of the Public body's warrants) except in accordance with written instructions from the Public Body. Compliance with such instructions shall relieve the Bank of any further liability related thereto.

5. The Bank is directed to mail on not less than a monthly basis a copy of all statements regarding the receipt and disposition of all funds received by the Bank pursuant to this agreement to the Public Body at the address set forth below.
6. The CONTRACTOR agrees to pay the Bank for the Banker services hereunder compensation in accordance with the Banker published schedule of Escrow Fees-Public Works Contracts. Payments of all fees shall be the sole responsibility of the CONTRACTOR and shall not be deducted from any property placed with the Bank pursuant to this agreement until and unless the Public Body directs the release to the CONTRACTOR of the securities and moneys held hereunder whereupon the Bank shall be granted a first lien upon such property released and shall be entitled to reimburse the Banker self from such property for the entire amount of the Banker fees as provided for herein above. In the event that the Bank are made a party to any litigation with respect to the property held by the Bank hereunder, or in the event that the conditions of this escrow are not promptly fulfilled or that the Bank are required to render any service not provided for in these instructions, or that there is any assignment of the interests of this escrow or any modification hereof, the Bank shall be entitled to reasonable compensation for such extraordinary services from the CONTRACTOR and reimbursement from the CONTRACTOR for all costs and expenses, including attorney fees occasioned by such default, delay, controversy or litigation.
7. This agreement shall not be binding until executed by the CONTRACTOR and the Public Body and accepted by the Bank.
8. This instrument contains the entire agreement between the Bank, the CONTRACTOR and the Public Body with respect to this escrow and the Bank are not a party to nor bound by any instrument or agreement other than this; the Bank shall not be required to take notice of any default or any other matter, nor be bound by nor required to give notice or demand, nor required to take any action whatever except as herein expressly provided; the Bank shall not be liable for any loss or damage not caused by the Banks own negligence or willful misconduct.
9. The foregoing provisions shall be binding upon the assigns, successors, personal representatives and heirs of the parties hereto.

The undersigned have read and hereby approve the instructions as given above governing the administration of the Retainage Account and do hereby execute this agreement on this _____ day of _____, 2024.

_____
(CONTRACTOR)

By _____

Its _____

_____
(Address)

_____
(Tax I.D. Number)

Telephone _____

Facsimile _____

CITY OF DUVALL

By _____

Its _____

_____
(Address)

Telephone _____

Facsimile _____

RETAINAGE BOND

Bond No._____

KNOW ALL MEN BY THESE PRESENTS, that _____ as Principal" authorized to do business in the State of Washington and _____ as Surety, a corporation organized and existing under the laws of the State of _____ and authorized to transact business in the State of Washington as Surety, are jointly and severally held and bound unto City of Duvall as Obligee in the penal sum of _____ Dollars ($ _____), which is 5% of the Principal's bid.

WHEREAS, on the _____ day of _____, _____ the said Principal, herein, executed a contract with the Obligee, for the **Coe-Clemons Creek Culvert Replacement** project.

WHEREAS, said contract and RCW 60.28 require the Obligee to withhold from the Principal the sum of 5% from monies earned on estimated during the progress of the construction, hereinafter referred to as earned retained funds.

AND NOW WHEREAS, Principal has requested that the Obligee not retain any earned retained funds as allowed under RCW 60.28.

NOW THEREFORE, the condition of this obligation is such that the Principal and Surety are held and bound unto the beneficiaries of the trust fund created by RCW 60.28 in the penal sum of 5% of the final contract costs which shall include any increased due to change orders, increases in quantities of work or the addition of any new item of work. If the Principal shall use the earned retained funds, which will not be retained, for the trust fund preposes of RCW 60.28, then this obligation shall be null and void; otherwise, it shall remain in full force and effect. This bond and any proceeds therefrom shall be made subject to all claims and liens and in the same manner and priority as set forth for retained percentages in RCW 60.28.

PROVIDED HOWEVER, that:

1. The liability of the Surety under this bond shall not exceed 5% of the total amount earned by the Principal if no monies are retained by the Obligee on estimates during the progress of construction.
2. Any suit under this bond must be instated within the time period provided by applicable law.

WITNESS our hands this ____day of _____, 20___.

CONTRACTOR	Surety
Signature	**Signature**
Print Name	**Print Name**
Title	**Its: Attorney-in-Fact**
	[Power of Attorney Must Be Attached]
	Name and Address Local Office of Agent

APPROVED:

CITY OF DUVALL

By: _____

Its: _____

Date: _____

PERFORMANCE BOND

PART 1 – GENERAL

1.1 DESCRIPTION

This Section is the Performance Bond Form that is required to be completed by the successful Bidder as stated in the Contract Documents. Do not execute the Performance Bond as part of the Bid submission.

1.2 PERFORMANCE BOND FORM

KNOW ALL MEN BY THESE PRESENTS: That, WHEREAS, the City of Duvall, State of Washington, on _____ ____, 20___, has awarded the name and corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR	**Surety**
Signature	**Signature**
Print Name	**Print Name**
Title	**Its: Attorney-in-Fact**
	[Power of Attorney Must Be Attached]
	Name and Address Local Office of Agent

APPROVED:

CITY OF DUVALL

By: _____

Its: _____

Date: _____

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PAYMENT BOND

PART 1 – GENERAL

1.1 DESCRIPTION

This section is the Payment Bond Form that is required to be completed by the successful Bidder as stated in the Contract Documents. Do not execute the Payment Bond as part of the Bid submission.

1.2 PAYMENT BOND FORM

KNOW ALL MEN BY THESE PRESENTS: That, WHEREAS, the City of Duvall, State of Washington, on the _____ day of _____, 20____, has awarded to _____, hereinafter designated as "Principal", an Agreement for the construction of **Coe-Clemons Creek Culvert Replacement**, the terms and provisions of which Agreement are incorporated herein by reference, and;

WHEREAS, said Principal is required to furnish a bond in connection with said Agreement, providing that if said Principal, or any of its subcontractors, shall fail to pay for any labor, materials, equipment, provisions, provender or other supplies or teams used in, upon, for, or about the performance of the Work contracted to be done, or any work or labor done thereon of any kind, the Surety of this bond will pay the same to the extent hereinafter set forth;

NOW, THEREFORE, we, the Principal and _____, as "Surety", are held and firmly bound unto the City of Duvall, State of Washington, in the penal sum of _____ Dollars ($_____), lawful money of the United States, being one hundred percent (100%) of the Contract Price for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

NOW, THEREFORE, if the above bounden Principal or any of its subcontractors shall promptly make payment in full all amounts due to all persons who are entitled to assert a claim pursuant to Chapter 39.08 RCW, including, without limitation, all persons supplying labor, material, equipment, provisions, provender or any other supplies or teams in the prosecution of the work provided for in said Agreement, and any and all duly authorized modifications of said Agreement that may hereafter be made, then this obligation shall be void; otherwise, this obligation shall remain in full force and effect; and if the bounden Principal or any of its subcontractors fails to promptly pay any of such persons or amounts due with respect to any work or labor performed, or materials or equipment supplied, by any such claimant, the Surety will pay for the same, in an amount not exceeding the sum specified in this bond.

This bond shall insure to the benefit of any and all persons, companies and corporations entitled to file claims pursuant to Chapter 39.08 RCW, so as to give a right of action to them or their assigns in any suit brought upon this bond.

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Agreement, or to the Work to be performed thereunder, or the Specifications accompanying the same shall in any wise affect its obligations on this bond; and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Agreement, or to the Work or to the Specifications.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this _____ day of _____, 20___, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR	Surety
Signature	Signature
Print Name	Print Name
Title	Its: Attorney-in-Fact

[Power of Attorney Must Be Attached]

Name and Address
Local Office of Agent

APPROVED:

CITY OF DUVALL

By: _____

Its: _____

Date: _____

MAINTENANCE BOND

Bond No._____

WHEREAS, _____, hereinafter referred to as "Principal", has constructed and installed certain improvements in connection with a project known as **Coe-Clemons Creek Culvert Replacement**, within the City of Duvall, hereinafter referred to as "CITY" pursuant to an Agreement between the Principal and the CITY dated _____, 20___; and,

WHEREAS, in order to provide security for the obligation of the Principal to repair or replace any improvement(s) which prove(s) defective within one (1) year(s) of final completion of the improvement(s) by the Principal and to enable the CITY to release the performance bond provided in connection with said improvements, this bond has been secured and is hereby submitted to the CITY.

NOW THEREFORE, the undersigned Principal and _____, a corporation authorized to transact surety business in the State of Washington, hereinafter referred to as "Surety", agrees and bind themselves, their heirs, executors, administrators and assigns, unto the CITY in the sum of _____Dollars ($_____), lawful money of the United States, according to the following terms and conditions:

1. The Principal and Surety agree that in the event any of the improvements installed by the Principal or Surety pursuant to the Contract Documents for the above referenced project fail to remain free from defects in materials, workmanship or installation, or in the case of landscaping, fail to survive, for a period of one (1) year from the date of final completion of the project by the Principal, then the Principal and/or Surety shall, within twenty (20) days demand of the CITY make a written commitment to the CITY that it will either:

    A. remedy the default itself with reasonable diligence pursuant to a time schedule acceptable to the CITY, or

    B. tender to the CITY within an additional ten (10) days the amount necessary, as determined by the CITY, for the CITY to remedy the default, up to the total bond amount.

    The Surety shall then fulfill its obligations under this bond, according to the option it as selected.

    If the Surety elects option "B", then upon completion of the remedy the CITY shall notify the Surety of the actual costs of the remedy. The CITY shall return, without interest, any overpayment made by the Surety, and the Surety shall pay to the CITY any actual costs which exceed the CITY's estimate, limited to the bond amount.

2. If the Principal fails to make repairs or provide maintenance within the time period requested by the CITY, the CITY’s employees and agents are hereby authorized to enter onto said property and to perform such work. This provision shall not be construed as creating any obligation on the party of the CITY of its representatives to perform the work.

3. In the event any lawsuit is instituted to enforce the terms of this bond or to determine the rights of any party hereunder, the prevailing party is such litigation shall be entitled to recover from the losing party its costs, including reasonable attorneys' fees, incurred as a result of such lawsuit.

4. This bond shall remain in full force and effect until the obligations secured hereby have been fully performed and until released in writing by the CITY at the request of the Surety or the Principal.

DATED this ____day of _____, 20___.

_____
Principal

By _____ Dated _____

_____
[Print Name]

Its _____

Countersigned:

_____
Surety

By _____ Dated _____

_____
[Print Name]

Its _____

[Power of Attorney Must Be Attached]

ACCEPTED BY:

CITY OF DUVALL

By _____ Dated _____

_____
[Print Name]

Its _____

GUARANTEE FORM

CITY OF DUVALL
Department of Public Works
P.O. Box 1300 Duvall, WA 98019

Subject: **Coe-Clemons Creek Culvert Replacement**

To Whom It May Concern:

The undersigned CONTRACTOR hereby guarantees and warrants the complete construction and installation of all work, systems and apparatus done and performed in connection with the above referenced Project to be free from defects in materials and workmanship for a period of one (1) year from the date of final completion of the entire Project. The undersigned agrees to remedy and correct at its own expense any such defects appearing during that period of time due to unsatisfactory materials or workmanship, and will pay for any and all damage which may occur to other aspects of the work or the Project which may result from the occurrence of such defects or the correction of the same. It is understood that partial or entire use of the Project by the City of Duvall shall not constitute final completion of the Project.

This Guarantee and its acceptance by the City of Duvall shall in no way be deemed a waiver by the City of Duvall of any rights or remedies (or time limits in which to enforce said rights or remedies) it may have against the undersigned for defective workmanship or defective materials under the laws of this State pertaining to acts of negligence.

This Guarantee shall not be interpreted as holding the undersigned responsible for any deterioration of the Work or the Project due to abnormal use or abuse of the Work (normal wear and tear excepted) by the City of Duvall.

_____
CONTRACTOR Signature

_____
Date

_____
Print - Company Name - Title

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PART 4

SPECIAL PROVISIONS

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INTRODUCTION TO THE SPECIAL PROVISIONS

(January 4, 2024 APWA GSP, Option B)

The work on this project shall be accomplished in accordance with the *Standard Specifications for Road, Bridge and Municipal Construction*, 2024 edition, 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 these Special Provisions, all of which are made a part of the Contract Documents, shall govern all of the 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 GSPs are labeled under the headers of each GSP, with the effective date of the GSP and its source. For example:

(March 8, 2013 APWA GSP)
(April 1, 2013 (for WSDOT GSPs, only use date)
(City of Duvall)

Also incorporated into the Contract Documents by reference are:

- *Manual on Uniform Traffic Control Devices for Streets and Highways*, currently adopted edition, with Washington State modifications, if any
- *Standard Plans for Road, Bridge and Municipal Construction*, WSDOT Manual M21-01, current edition
- *City of Duvall Development Design Standards,* current edition
- *City of Duvall Road Standards,* as found in Ch. 12.10 Duvall Municipal Code

Contractor shall obtain copies of these publications, at Contractor's own expense.

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DIVISION 1
GENERAL REQUIREMENTS

DESCRIPTION OF WORK
(March 13, 1995 WSDOT GSP)

This Contract provides for the improvement of *** 3rd Ave NE including the installation of a 3-sided box culvert, stream restoration of Coe-Clemons Creek, and associated asphalt roadway restoration between NE Kennedy Drive and NE Taylor Street. The work also includes temporary stream bypass, earthwork, constructing retaining walls, curb and gutters, planters, and sidewalks. Other improvements include water main relocation, new storm drainage conveyance, illumination, irrigation, *** and other work, all in accordance with the attached Contract Plans, these Contract Provisions, and the WSDOT Standard Specifications for Road, Bridge, and Municipal Construction.

1-01 DEFINITIONS AND TERMS

1-01.3 Definitions
(January 19, 2022 APWA GSP)

Delete the heading **Completion Dates** and the three paragraphs that follow it, and replace them with the following:

Dates

Bid Opening Date
The date on which the Contracting Agency publicly opens and reads the Bids.

Award Date
The date of the formal decision of the Contracting Agency to accept the lowest responsible and responsive Bidder for the Work.

Contract Execution Date
The date the Contracting Agency officially binds the Agency to the Contract.

Notice to Proceed Date
The date stated in the Notice to Proceed on which the Contract time begins.

Substantial Completion Date
The day the Engineer determines the Contracting Agency has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, any remaining traffic disruptions will be rare and brief, and only minor incidental work, replacement of temporary substitute facilities, plant establishment periods, or correction or repair remains for the Physical Completion of the total Contract.

Physical Completion Date
The day all of the Work is physically completed on the project. All documentation required by the Contract and required by law does not necessarily need to be furnished by the Contractor by this date.

Completion Date
The day all the Work specified in the Contract is completed and all the obligations of the Contractor under the contract are fulfilled by the Contractor. All documentation required by the Contract and required by law must be furnished by the Contractor before establishment of this date.

Final Acceptance Date
The date on which the Contracting Agency accepts the Work as complete.

Supplement this Section with the following:

All references in the Standard Specifications or WSDOT General Special Provisions, to the terms "Department of Transportation", "Washington State Transportation Commission", "Commission", "Secretary of Transportation", "Secretary", "Headquarters", and "State Treasurer" shall be revised to read "Contracting Agency".

All references to the terms "State" or "state" shall be revised to read "Contracting Agency" unless the reference is to an administrative agency of the State of Washington, a State statute or regulation, or the context reasonably indicates otherwise.

All references to "State Materials Laboratory" shall be revised to read "Contracting Agency designated location".

All references to "final contract voucher certification" shall be interpreted to mean the Contracting Agency form(s) by which final payment is authorized, and final completion and acceptance granted.

Additive
A supplemental unit of work or group of bid items, identified separately in the Bid Proposal, which may, at the discretion of the Contracting Agency, be awarded in addition to the base bid.

Alternate
One of two or more units of work or groups of bid items, identified separately in the Bid Proposal, from which the Contracting Agency may make a choice between different methods or material of construction for performing the same work.

Business Day
A business day is any day from Monday through Friday except holidays as listed in Section 1-08.5.

Contract Bond
The definition in the Standard Specifications for "Contract Bond" applies to whatever bond form(s) are required by the Contract Documents, which may be a combination of a Payment Bond and a Performance Bond.

Contract Documents
See definition for "Contract".

Contract Time
The period of time established by the terms and conditions of the Contract within which the Work must be physically completed.

Notice of Award
The written notice from the Contracting Agency to the successful Bidder signifying the Contracting Agency's acceptance of the Bid Proposal.

Notice to Proceed
The written notice from the Contracting Agency or Engineer to the Contractor authorizing and directing the Contractor to proceed with the Work and establishing the date on which the Contract time begins.

Traffic
Both vehicular and non-vehicular traffic, such as pedestrians, bicyclists, wheelchairs, and equestrian traffic.

1-02 BID PROCEDURES AND CONDITION

1-02.1 Prequalification of Bidder

Delete this section and replace it with the following:

1-02.1 Qualifications of Bidder
(January 24, 2011 APWA GSP)

Before award of a public works contract, a bidder must meet at least the minimum qualifications of RCW 39.04.350(1) to be considered a responsible bidder and qualified to be awarded a public works project.

1-02.2 Plans and Specifications
(June 27, 2011 APWA GSP)

Delete this section and replace it with the following:

Information as to where Bid Documents can be obtained or reviewed can be found in the Call for Bids (Advertisement for Bids) for the work.

After award of the contract, plans and specifications will be issued to the Contractor at no cost as detailed below:

To Prime Contractor	No. of Sets	Basis of Distribution
Reduced plans (11" x 17")	3	Furnished automatically upon award.

Contract Provisions	3	Furnished automatically upon award.
Large plans (e.g., 22” x 34”)	1	Furnished only upon request.

Additional plans and Contract Provisions may be obtained by the Contractor from the source stated in the Call for Bids, at the Contractor’s own expense.

1-02.4 Examination of Plans, Specifications, and Site of Work

1-02.4(1) General

(December 30, 2022 APWA GSP Option B)

The first sentence of the ninth paragraph, beginning with “Prospective Bidder desiring…”, is revised to read:

> Prospective Bidders desiring an explanation or interpretation of the Bid Documents, shall request the explanation or interpretation in writing by close of business 5 business days preceding the bid opening to allow a written reply to reach all prospective Bidders before the submission of their Bids.

1-02.5 Proposal Forms

(July 31, 2017 APWA GSP)

Delete this section and replace it with the following:

> The Proposal Form will identify the project and its location and describe the work. It will also list estimated quantities, units of measurement, the items of work, and the materials to be furnished at the unit bid prices. The bidder shall complete spaces on the proposal form that call for, but are not limited to, unit prices; extensions; summations; the total bid amount; signatures; date; and, where applicable, retail sales taxes and acknowledgment of addenda; the bidder’s name, address, telephone number, and signature; the bidder’s UDBE/DBE/M/WBE commitment, if applicable; a State of Washington Contractor’s Registration Number; and a Business License Number, if applicable. Bids shall be completed by typing or shall be printed in ink by hand, preferably in black ink. The required certifications are included as part of the Proposal Form.
>
> The Contracting Agency reserves the right to arrange the proposal forms with alternates and additives, if such be to the advantage of the Contracting Agency. The bidder shall bid on all alternates and additives set forth in the Proposal Form unless otherwise specified.

1-02.6 Preparation of Proposal

(December 10, 2020 APWA GSP, Option B)

Supplement the second paragraph with the following:

4. If a minimum bid amount has been established for any item, the unit or lump sum price must equal or exceed the minimum amount stated.
5. Any correction to a bid made by interlineation, alteration, or erasure, shall be initialed by the signer of the bid.

Delete the last two paragraphs, and replace them with the following:

The Bidder shall submit with their Bid a completed Contractor Certification Wage Law Compliance form, provided by the Contracting Agency. Failure to return this certification as part of the Bid Proposal package will make this Bid Nonresponsive and ineligible for Award. A Contractor Certification of Wage Law Compliance form is included in the Proposal Forms.

The Bidder shall make no stipulation on the Bid Form, nor qualify the bid in any manner.
A bid by a corporation shall be executed in the corporate name, by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign).

A bid by a partnership shall be executed in the partnership name, and signed by a partner. A copy of the partnership agreement shall be submitted with the Bid Form if any UDBE requirements are to be satisfied through such an agreement.

A bid by a joint venture shall be executed in the joint venture name and signed by a member of the joint venture. A copy of the joint venture agreement shall be submitted with the Bid Form if any UDBE requirements are to be satisfied through such an agreement.

1-02.7 Bid Deposit

(March 8, 2013 APWA GSP)

Supplement this section with the following:

Bid bonds shall contain the following:

1. Contracting Agency-assigned number for the project;
2. Name of the project;
3. The Contracting Agency named as obligee;
4. The amount of the bid bond stated either as a dollar figure or as a percentage which represents five percent of the maximum bid amount that could be awarded;
5. Signature of the bidder's officer empowered to sign official statements. The signature of the person authorized to submit the bid should agree with the signature on the bond, and the title of the person must accompany the said signature;
6. The signature of the surety's officer empowered to sign the bond and the power of attorney.

If so stated in the Contract Provisions, bidder must use the bond form included in the Contract Provisions.

If so stated in the Contract Provisions, cash will not be accepted for a bid deposit.

1-02.9 Delivery of Proposal

(May 2022 City of Duvall GSP)

Delete Section 1-02.9 and replace it with the following:

Bids for this project shall be delivered in person to the front desk of City Hall or by mail and are due at the date and time specified in the Notice to Contractors or subsequent addenda. All items in the Bidding Checklist section of the specifications shall be included with the bid submittal.

Bids must be submitted in a sealed envelope stating on the outside the name and address of the Bidder, and "**Bid Proposal for Coe-Clemons Creek Culvert Replacement**". Bids shall be received at City Hall, 15535 Main Street NE, Duvall, WA 98019, no later than date and time noted in the Notice to Contractors.

Please note that if mailing, use the address PO Box 1300, Duvall, WA 98019. Bids mailed directly to the City Hall address will not be received.

Proposals that are received as required will be publicly opened and read as specified in Section 1-02.12. The Contracting Agency will not open or consider any Bid Proposal that is received after the time specified in the Notice to Contractors for receipt of Bid Proposals, or received in a location other than that specified in the Notice to Contractors. The Contracting Agency will not open or consider any "Supplemental Information" that is received after the time specified above, or in a location other than that specified in the Notice to Contractors unless the form is legally allowed to be returned following a bid opening and the submittals are within the allowable time.

If an emergency or unanticipated event interrupts normal work processes of the Contracting Agency so that Proposals cannot be received at the office designated for receipt of bids as specified in Section 1-02.12 the time specified for receipt of the Proposal will be deemed to be extended on the same time of day specified in the solicitation on the first workday on which the normal work processes of the Contracting Agency resume. This information will be posted on Builder's Exchange.

The Contracting Agency will not open or consider any Bid Proposal that is received after the time specified in the Notice to Contractors for receipt of Bid Proposals, or received in a location other than that specified in the Call for Bids.

If an emergency or unanticipated event interrupts normal work processes of the Contracting Agency so that Proposals cannot be received at the office designated for receipt of bids as specified in Section 1-02.12 the time specified for receipt of the Proposal will be deemed to be extended to the same time of day specified in the solicitation on the first workday on which the normal work processes of the Contracting Agency resume.

1-02.10 Withdrawing, Revising, or Supplementing Proposal

(July 23, 2015 APWA GSP)

Delete this section, and replace it with the following:

After submitting a physical Bid Proposal to the Contracting Agency, the Bidder may withdraw, revise, or supplement it if:

1. The Bidder submits a written request signed by an authorized person and physically delivers it to the place designated for receipt of Bid Proposals, and
2. The Contracting Agency receives the request before the time set for receipt of Bid Proposals, and
3. The revised or supplemented Bid Proposal (if any) is received by the Contracting Agency before the time set for receipt of Bid Proposals.

If the Bidder's request to withdraw, revise, or supplement its Bid Proposal is received before the time set for receipt of Bid Proposals, the Contracting Agency will return the unopened Proposal package to the Bidder. The Bidder must then submit the revised or supplemented package in its entirety. If the Bidder does not submit a revised or supplemented package, then its bid shall be considered withdrawn.

Late revised or supplemented Bid Proposals or late withdrawal requests will be date recorded by the Contracting Agency and returned unopened. Mailed, emailed, or faxed requests to withdraw, revise, or supplement a Bid Proposal are not acceptable.

1-02.12 Public Opening of Proposals

(City of Duvall)

Section 1-02.12 is supplemented with the following:

Sealed bids are to be received at the location indicated and prior to the time specified in the Call For Bids.

Bids received will be publicly opened and read at Duvall's Visitors Center, 15619 Main St NE, Duvall, WA 98019 at 10:05 am.

1-02.13 Irregular Proposals

(December 30, 2022 APWA GSP)

Delete this section and replace it with the following:

1. A Proposal will be considered irregular and will be rejected if:
   a. The Bidder is not prequalified when so required;
   b. The authorized Proposal form furnished by the Contracting Agency is not used or is altered;
   c. The completed Proposal form contains any unauthorized additions, deletions, alternate Bids, or conditions;

d. The Bidder adds provisions reserving the right to reject or accept the award, or enter into the Contract;
e. A price per unit cannot be determined from the Bid Proposal;
f. The Proposal form is not properly executed;
g. The Bidder fails to submit or properly complete a subcontractor list (WSDOT Form 271-015), if applicable, as required in Section 1-02.6;
h. The Bidder fails to submit or properly complete a Disadvantaged Business Enterprise Certification (WSDOT Form 272-056), if applicable, as required in Section 1-02.6;
i. The Bidder fails to submit Written Confirmations (WSDOT Form 422-031) from each DBE firm listed on the Bidder's completed DBE Utilization Certification that they are in agreement with the bidder's DBE participation commitment, if applicable, as required in Section 1-02.6, or if the written confirmation that is submitted fails to meet the requirements of the Special Provisions;
j. The Bidder fails to submit DBE Good Faith Effort documentation, if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to demonstrate that a Good Faith Effort to meet the Condition of Award was made;
k. The Bidder fails to submit a DBE Bid Item Breakdown (WSDOT Form 272-054), if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to meet the requirements of the Special Provisions;
l. The Bidder fails to submit DBE Trucking Credit Forms (WSDOT Form 272-058), if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to meet the requirements of the Special Provisions;
m. The Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation; or
n. More than one Proposal is submitted for the same project from a Bidder under the same or different names.

2. A Proposal may be considered irregular and may be rejected if:
   a. The Proposal does not include a unit price for every Bid item;
   b. Any of the unit prices are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the Contracting Agency;
   c. Receipt of Addenda is not acknowledged;
   d. A member of a joint venture or partnership and the joint venture or partnership submit Proposals for the same project (in such an instance, both Bids may be rejected); or
   e. If Proposal form entries are not made in ink.

1-02.14 Disqualification of Bidders

(May 17, 2018 APWA GSP, Option B)

Delete this section and replace it with the following:

A Bidder will be deemed not responsible if the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1), as amended; or does not meet Supplemental Criteria 1-7 listed in this Section.

The Contracting Agency will verify that the Bidder meets the mandatory bidder responsibility criteria in RCW 39.04.350(1), and Supplemental Criteria 1-2. Evidence that the Bidder meets Supplemental Criteria 3-7 shall be provided by the Bidder as stated later in this Section.

1. **Delinquent State Taxes**

   A Criterion: The Bidder shall not owe delinquent taxes to the Washington State Department of Revenue without a payment plan approved by the Department of Revenue.

   B. Documentation: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder does not owe delinquent taxes to the Washington State Department of Revenue, or if delinquent taxes are owed to the Washington State Department of Revenue, the Bidder must submit a written payment plan approved by the Department of Revenue, to the Contracting Agency by the deadline listed below.

2. **Federal Debarment**

   A Criterion: The Bidder shall not currently be debarred or suspended by the Federal government.

   B. Documentation: The Bidder shall not be listed as having an "active exclusion" on the U.S. government's "System for Award Management" database (www.sam.gov).

3. **Subcontractor Responsibility**

   A Criterion: The Bidder's standard subcontract form shall include the subcontractor responsibility language required by RCW 39.06.020, and the Bidder shall have an established procedure which it utilizes to validate the responsibility of each of its subcontractors. The Bidder's subcontract form shall also include a requirement that each of its subcontractors shall have and document a similar procedure to determine whether the sub-tier subcontractors with whom it contracts are also "responsible" subcontractors as defined by RCW 39.06.020.

   B. Documentation: The Bidder, if and when required as detailed below, shall submit a copy of its standard subcontract form for review by the Contracting Agency, and a written description of its procedure for validating the responsibility of subcontractors with which it contracts.

4. **Claims Against Retainage and Bonds**

   A Criterion: The Bidder shall not have a record of excessive claims filed against the retainage or payment bonds for public works projects in the three years prior to the

bid submittal date, that demonstrate a lack of effective management by the Bidder of making timely and appropriate payments to its subcontractors, suppliers, and workers, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

B. Documentation: The Bidder, if and when required as detailed below, shall submit a list of the public works projects completed in the three years prior to the bid submittal date that have had claims against retainage and bonds and include for each project the following information:

- Name of project
- The owner and contact information for the owner;
- A list of claims filed against the retainage and/or payment bond for any of the projects listed;
- A written explanation of the circumstances surrounding each claim and the ultimate resolution of the claim.

5. **Public Bidding Crime**

A Criterion: The Bidder and/or its owners shall not have been convicted of a crime involving bidding on a public works contract in the five years prior to the bid submittal date.

B. Documentation: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder and/or its owners have not been convicted of a crime involving bidding on a public works contract.

6. **Termination for Cause / Termination for Default**

A Criterion: The Bidder shall not have had any public works contract terminated for cause or terminated for default by a government agency in the five years prior to the bid submittal date, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

B. Documentation: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder has not had any public works contract terminated for cause or terminated for default by a government agency in the five years prior to the bid submittal date; or if Bidder was terminated, describe the circumstances.

7. **Lawsuits**

A Criterion: The Bidder shall not have lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date that demonstrate a pattern

of failing to meet the terms of contracts, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency

B. Documentation: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder has not had any lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date that demonstrate a pattern of failing to meet the terms of contracts, or shall submit a list of all lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date, along with a written explanation of the circumstances surrounding each such lawsuit. The Contracting Agency shall evaluate these explanations to determine whether the lawsuits demonstrate a pattern of failing to meet of terms of construction related contracts

As evidence that the Bidder meets the Supplemental Criteria stated above, the apparent low Bidder must submit to the Contracting Agency by 12:00 P.M. (noon) of the second business day following the bid submittal deadline, a written statement verifying that the Bidder meets the supplemental criteria together with supporting documentation (sufficient in the sole judgment of the Contracting Agency) demonstrating compliance with the Supplemental Criteria. The Contracting Agency reserves the right to request further documentation as needed from the low Bidder and documentation from other Bidders as well to assess Bidder responsibility and compliance with all bidder responsibility criteria. The Contracting Agency also reserves the right to obtain information from third-parties and independent sources of information concerning a Bidder's compliance with the mandatory and supplemental criteria, and to use that information in their evaluation. The Contracting Agency may consider mitigating factors in determining whether the Bidder complies with the requirements of the supplemental criteria.

The basis for evaluation of Bidder compliance with these mandatory and supplemental criteria shall include any documents or facts obtained by Contracting Agency (whether from the Bidder or third parties) including but not limited to: (i) financial, historical, or operational data from the Bidder; (ii) information obtained directly by the Contracting Agency from others for whom the Bidder has worked, or other public agencies or private enterprises; and (iii) any additional information obtained by the Contracting Agency which is believed to be relevant to the matter.

If the Contracting Agency determines the Bidder does not meet the bidder responsibility criteria above and is therefore not a responsible Bidder, the Contracting Agency shall notify the Bidder in writing, with the reasons for its determination. If the Bidder disagrees with this determination, it may appeal the determination within two (2) business days of the Contracting Agency's determination by presenting its appeal and any additional information to the Contracting Agency. The Contracting Agency will consider the appeal and any additional information before issuing its final determination. If the final determination affirms that the Bidder is not responsible, the Contracting Agency will not execute a contract with

any other Bidder until at least two business days after the Bidder determined to be not responsible has received the Contracting Agency's final determination.

Request to Change Supplemental Bidder Responsibility Criteria Prior To Bid: Bidders with concerns about the relevancy or restrictiveness of the Supplemental Bidder Responsibility Criteria may make or submit requests to the Contracting Agency to modify the criteria. Such requests shall be in writing, describe the nature of the concerns, and propose specific modifications to the criteria. Bidders shall submit such requests to the Contracting Agency no later than five (5) business days prior to the bid submittal deadline and address the request to the Project Engineer or such other person designated by the Contracting Agency in the Bid Documents.

1-02.15 Pre Award Information

(December 30, 2022 APWA GSP)

Revise this section to read:

Before awarding any contract, the Contracting Agency may require one or more of these items or actions of the apparent lowest responsible bidder:

1. A complete statement of the origin, composition, and manufacture of any or all materials to be used,
2. Samples of these materials for quality and fitness tests,
3. A progress schedule (in a form the Contracting Agency requires) showing the order of and time required for the various phases of the work,
4. A breakdown of costs assigned to any bid item,
5. Attendance at a conference with the Engineer or representatives of the Engineer,
6. Obtain, and furnish a copy of, a business license to do business in the city or county where the work is located.
7. Any other information or action taken that is deemed necessary to ensure that the bidder is the lowest responsible bidder.

1-03 AWARD AND EXECUTION OF CONTRACT

1-03.1 Consideration of Bids

(December 30, 2022 APWA GSP)

Revise the first paragraph to read:

After opening and reading proposals, the Contracting Agency will check them for correctness of extensions of the prices per unit and the total price. If a discrepancy exists between the price per unit and the extended amount of any bid item, the price per unit will control. If a minimum bid amount has been established for any item and the bidder's unit or lump sum price is less than the minimum specified amount, the Contracting Agency will unilaterally revise the unit or lump sum price, to the minimum specified amount and recalculate the extension. The total of extensions, corrected where necessary, including sales taxes where applicable and such additives and/or alternates as selected by the Contracting Agency, will

be used by the Contracting Agency for award purposes and to fix the Awarded Contract Price amount and the amount of the contract bond.

1-03.3 Execution of Contract
(January 19, 2022 APWA GSP)

Revise this section to read:

Within 3 calendar days of Award date (not including Saturdays, Sundays and Holidays), the successful Bidder shall provide the information necessary to execute the Contract to the Contracting Agency. The Bidder shall send the contact information, including the full name, email address, and phone number, for the authorized signer and bonding agent to the Contracting Agency.

Copies of the Contract Provisions, including the unsigned Form of Contract, will be available for signature by the successful bidder on the first business day following award. The number of copies to be executed by the Contractor will be determined by the Contracting Agency.

Within 10 calendar days after the award date, the successful bidder shall return the signed Contracting Agency-prepared contract, an insurance certification as required by Section 1-07.18, a satisfactory bond as required by law and Section 1-03.4, the Transfer of Coverage form for the Construction Stormwater General Permit with sections I, III, and VIII completed when provided. Before execution of the contract by the Contracting Agency, the successful bidder shall provide any pre-award information the Contracting Agency may require under Section 1-02.15.

Until the Contracting Agency executes a contract, no proposal shall bind the Contracting Agency nor shall any work begin within the project limits or within Contracting Agency-furnished sites. The Contractor shall bear all risks for any work begun outside such areas and for any materials ordered before the contract is executed by the Contracting Agency.

If the bidder experiences circumstances beyond their control that prevents return of the contract documents within the calendar days after the award date stated above, the Contracting Agency may grant up to a maximum of 10 additional calendar days for return of the documents, provided the Contracting Agency deems the circumstances warrant it.

1-03.4 Contract Bond
(City of Duvall)

Delete the first paragraph and replace it with the following:

The successful bidder shall provide executed payment and performance bond(s) for the full contract amount. The bond shall be separate payment and performance bonds. In the case of separate payment and performance bonds, each shall be for the full contract amount. The bond(s) shall:

1. Be on Contracting Agency-furnished form(s);
2. Be signed by an approved surety (or sureties) that:
    a. Is registered with the Washington State Insurance Commissioner, and

b. Appears on the current Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner,

3. Guarantee that the Contractor will perform and comply with all obligations, duties, and conditions under the Contract, including but not limited to the duty and obligation to indemnify, defend, and protect the Contracting Agency against all losses and claims related directly or indirectly from any failure:
   a. Of the Contractor (or any of the employees, subcontractors, or lower tier subcontractors of the Contractor) to faithfully perform and comply with all contract obligations, conditions, and duties, or
   b. Of the Contractor (or the subcontractors or lower tier subcontractors of the Contractor) to pay all laborers, mechanics, subcontractors, lower tier subcontractors, material person, or any other person who provides supplies or provisions for carrying out the work;
4. Be conditioned upon the payment of taxes, increases, and penalties incurred on the project under titles 50, 51, and 82 RCW; and
5. Be accompanied by a power of attorney for the Surety's officer empowered to sign the bond; and
6. Be signed by an officer of the Contractor empowered to sign official statements (sole proprietor or partner). If the Contractor is a corporation, the bond(s) must be signed by the president or vice president, unless accompanied by written proof of the authority of the individual signing the bond(s) to bind the corporation (i.e., corporate resolution, power of attorney, or a letter to such effect signed by the president or vice president).

Add the following New Section 1-03.4(1):

1-03.4(1) Bonds, Insurance, and Indemnification
(City of Duvall)

A. Bonds

1. The CONTRACTOR shall furnish Performance and Payment Bonds, each in the amount of the Contract Price, as security for the faithful performance and payment of all the CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until full completion of all Work and the expiration of any claim periods provided for by Chapters 39.08 and 60.28 RCW. Upon full completion of all Work and at the time of CONTRACTOR's final Application for Payment, CONTRACTOR shall provide a Maintenance Bond as required by the Contract Documents. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions.

2. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as the same may be amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury

Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

3. If the surety on any Bond furnished by the CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Washington, the CONTRACTOR shall within 7 days thereafter substitute another Bond and surety, which must be acceptable to the CITY.

4. All Bonds required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety companies that are duly licensed or authorized in the State of Washington to issue Bonds for public works projects. Such surety companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.

Add the following New Section 1-03.4(2):

1-03.4(2) Maintenance Bond, General Guarantee, and Warranty
(City of Duvall)

1. Prior to the payment of the Final Application for Payment, the CONTRACTOR shall provide a one (1) year maintenance bond from the date of final completion of the Work in the amount of 20% of the total final Contract Price. All parts of the Work shall be guaranteed and bonded by the CONTRACTOR to remain in perfect working order and condition except where abused or neglected by the CITY (normal wear and tear excepted), and the CONTRACTOR shall repair or replace, at it's own expense, any Work, or material that may prove to be defective during the period of the guarantee. The Maintenance Bond should be provided at the time of submittal of the final Application for Payment.

2. The form of the guarantee to be executed by the CONTRACTOR is attached to the end of this Section.

3. CONTRACTOR shall submit the guarantee at the time of submittal of CONTRACTOR's final Application for Payment.

1-03.7 Judicial Review
(December 30, 2022 APWA GSP)

Revise this section to read:

All decisions made by the Contracting Agency regarding the Award and execution of the Contract or Bid rejection shall be conclusive subject to the scope of judicial review permitted under Washington Law. Such review, if any, shall be timely filed in the Superior Court of the county where the Contracting Agency headquarters is located, provided that where an action is asserted against a county, RCW 36.01.050 shall control venue and jurisdiction.

1-04 SCOPE OF THE WORK

1-04.2 Coordination of Contract Documents, Plans, Special Provisions, Specifications, and Addenda

(City of Duvall)

Revise the second paragraph to read:

In resolving conflicts resulting from errors or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:

1. Permits (see Appendix D)
2. Addenda
3. Proposal Form
4. Special Provisions
5. Contract Plans
6. Standard Specifications / Washington State Department of Transportation
7. Standard Plans / City of Duvall
8. Standard Plans / Washington State Department of Transportation

1-04.4 Changes

(January 19, 2022 APWA GSP)

The first two sentences of the last paragraph of Section 1-04.4 are deleted.

Add the following New Section 1-04.4(2):

1-04.4(2) Unexpected Site Changes

(City of Duvall)

Unexpected Site Changes, as ordered by the Engineer, shall consist of Work not otherwise provided for in the Contract and paid in accordance with Section 1-09.6. Such Work may include:

1. Design changes to address field conflicts or adjustments needed to complete the Work;
2. Miscellaneous Work, directed by the Contracting Agency, not covered in the Contract, and not exceeding $5,000 per change;

3. Removal of unexpected Structures or obstructions.

1-04.11 Final Cleanup

(City of Duvall)

Section 1-04.11 is supplemented with the following:

All costs associated with “Final Cleanup” shall be considered incidental to the Contract and no additional compensation will be made.

1-05 CONTROL OF WORK

1-05.4 Conformity With and Deviations from Plans and Stakes

(February 6, 2023 WSDOT GSP, Option 1)

Section 1-05.4 is supplemented with the following:

The Contractor shall be responsible for setting, maintaining, and resetting all alignment stakes, slope stakes, and grades necessary for the construction of bridges, noise walls, retaining walls, buried structures, and marine structures. Except for the survey control data to be furnished by the Contracting Agency, calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility.

The Contractor shall inform the Engineer when monuments are discovered that were not identified in the Plans and construction activity may disturb or damage the monuments. All monuments noted on the plans “DO NOT DISTURB” shall be protected throughout the length of the project or be replaced at the Contractor’s expense.

Detailed survey records shall be maintained, including a description of the work performed on each shift, the methods utilized, and the control points used. The record shall be adequate to allow the survey to be reproduced. A copy of each day's record shall be provided to the Engineer within three working days after the end of the shift.

The meaning of words and terms used in this provision shall be as listed in "Definitions of Surveying and Associated Terms" current edition, published by the American Congress on Surveying and Mapping and the American Society of Civil Engineers.

The survey work by the Contractor shall include but not be limited to the following:

1. Verify the primary horizontal and vertical control furnished by the Contracting Agency and expand into secondary control by adding stakes and hubs as well as additional survey control needed for the project. Provide descriptions of secondary control to the Contracting Agency. The description shall include coordinates and elevations of all secondary control points.

2. Establish, by placing hubs and/or marked stakes, the location with offsets of foundation shafts and piles.

3. Establish offsets to footing centerline of bearing for structure excavation.

4. Establish offsets to footing centerline of bearing for footing forms.

5. Establish wing wall, retaining wall, noise wall, and buried structure horizontal alignment.

6. Establish retaining wall top of wall profile grade.

7. Establish buried structure profile grade.

8. Establish elevation benchmarks for all substructure formwork.

9. Check elevations at top of footing concrete line inside footing formwork immediately prior to concrete placement.

10. Check column location and pier centerline of bearing at top of footing immediately prior to concrete placement.

11. Establish location and plumbness of column forms, and monitor column plumbness during concrete placement.

12. Establish pier cap and crossbeam top and bottom elevations and centerline of bearing.

13. Check pier cap and crossbeam top and bottom elevations and centerline of bearing prior to and during concrete placement.

14. Establish grout pad locations and elevations.

15. Establish structure bearing locations and elevations, including locations of anchor bolt assemblies.

16. Establish box girder bottom slab grades and locations.

17. Establish girder and/or web wall profiles and locations.

18. Establish diaphragm locations and centerline of bearing.

19. Establish roadway slab alignment, grades and provide dimensions from top of girder to top of roadway slab. Set elevations for deck paving machine rails.

20. Establish traffic barrier and curb profile.

21. Profile all girders prior to the placement of any deadload or construction live load that may affect the girder's profile.

22. Establish locations for marine structures including fixed and floating berthing structures, vehicle and pedestrian foundations and spans, and marine-based buildings.

The Contractor shall provide the Contracting Agency copies of any calculations and staking data when requested by the Engineer.

The Contractor shall submit the computed elevations at the top of bridge decks as a Type 2 Working Drawing. The elevations shall be computed at tenth points along the centerline of each girder web.

The Contractor shall ensure a surveying accuracy within the following tolerances:

		Vertical	Horizontal
1.	Stationing on structures		±0.02 feet
2.	Alignment on structures		±0.02 feet
3.	Superstructure elevations	±0.01 feet variation from plan elevation	
4.	Substructure	±0.02 feet variation from Plan grades.	

Buried structures shall be within the tolerances described in Section 6-20.3.

The Contracting Agency may spot-check the Contractor's surveying. These spot-checks will not change the requirements for normal checking by the Contractor.

When staking the following items, the Contractor shall perform independent checks from different secondary control to ensure that the points staked for these items are within the specified survey accuracy tolerances:

Piles
Shafts
Footings
Columns

The Contractor shall calculate coordinates for the points associated with piles, shafts, footings and columns. The Contracting Agency will verify these coordinates prior to issuing approval to the Contractor for commencing with the survey work. The Contracting Agency will require up to seven calendar days from the date the data is received to issuing approval.

Contract work to be performed using contractor-provided stakes shall not begin until the stakes are approved by the Contracting Agency. Such approval shall not relieve the Contractor of responsibility for the accuracy of the stakes.

Payment

Payment will be made for the following bid item when included in the proposal:

"Structure Surveying", lump sum.

The lump sum contract price for "Structure Surveying" shall be full pay for all labor, equipment, materials, and supervision utilized to perform the Work specified, including any resurveying, checking, correction of errors, replacement of missing or damaged stakes, and coordination efforts.

(January 13, 2021 WSDOT GSP, Option 2)

Contractor Surveying - Roadway

The Contracting Agency has provided primary survey control in the Plans.

The Contractor shall be responsible for setting, maintaining, and resetting all alignment stakes, slope stakes, and grades necessary for the construction of the roadbed, drainage, surfacing, paving, channelization and pavement marking, illumination and signals, guardrails and barriers, and signing. Except for the survey control data to be furnished by the Contracting Agency, calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility.

The Contractor shall inform the Engineer when monuments are discovered that were not identified in the Plans and construction activity may disturb or damage the monuments. All monuments noted on the plans “DO NOT DISTURB” shall be protected throughout the length of the project or be replaced at the Contractors expense.

Detailed survey records shall be maintained, including a description of the work performed on each shift, the methods utilized, and the control points used. The record shall be adequate to allow the survey to be reproduced. A copy of each day's record shall be provided to the Engineer within three working days after the end of the shift.

The meaning of words and terms used in this provision shall be as listed in "Definitions of Surveying and Associated Terms" current edition, published by the American Congress on Surveying and Mapping and the American Society of Civil Engineers.

The survey work shall include but not be limited to the following:

1. Verify the primary horizontal and vertical control furnished by the Contracting Agency, and expand into secondary control by adding stakes and hubs as well as additional survey control needed for the project. Provide descriptions of secondary control to the Contracting Agency. The description shall include coordinates and elevations of all secondary control points.

2. Establish, the centerlines of all alignments, by placing hubs, stakes, or marks on centerline or on offsets to centerline at all curve points (PCs, PTs, and PIs) and at points on the alignments spaced no further than 50 feet.

3. Establish clearing limits, placing stakes at all angle points and at intermediate points not more than 50 feet apart. The clearing and grubbing limits shall be 5 feet beyond the toe of a fill and 10 feet beyond the top of a cut unless otherwise shown in the Plans.

4. Establish grading limits, placing slope stakes at centerline increments not more than 50 feet apart. Establish offset reference to all slope stakes. If Global Positioning Satellite (GPS) Machine Controls are used to provide grade control, then slope stakes may be omitted at the discretion of the Contractor

5. Establish the horizontal and vertical location of all drainage features, placing offset stakes to all drainage structures and to pipes at a horizontal interval not greater than 25 feet.

6. Establish roadbed and surfacing elevations by placing stakes at the top of subgrade and at the top of each course of surfacing. Subgrade and surfacing stakes shall be set at horizontal intervals not greater than 50 feet in tangent sections, 25 feet in curve sections with a radius less than 300 feet, and at 10-foot intervals in intersection radii with a radius less than 10 feet. Transversely, stakes shall be placed at all locations where the roadway slope changes and at additional points such that the transverse spacing of stakes is not more than 12 feet. If GPS Machine Controls are used to provide grade control, then roadbed and surfacing stakes may be omitted at the discretion of the Contractor.

7. Establish intermediate elevation benchmarks as needed to check work throughout the project.

8. Provide references for paving pins at 25-foot intervals or provide simultaneous surveying to establish location and elevation of paving pins as they are being placed.

9. For all other types of construction included in this provision, (including but not limited to channelization and pavement marking, illumination and signals, guardrails and barriers, and signing) provide staking and layout as necessary to adequately locate, construct, and check the specific construction activity.

10. Contractor shall determine if changes are needed to the profiles or roadway sections shown in the Contract Plans in order to achieve proper smoothness and drainage where matching into existing features, such as a smooth transition from new pavement to existing pavement. The Contractor shall submit these changes to the Engineer for review and approval 10 days prior to the beginning of work.

The Contractor shall provide the Contracting Agency copies of any calculations and staking data when requested by the Engineer.

The Contractor shall ensure a surveying accuracy within the following tolerances:

	Vertical	Horizontal
Slope stakes	±0.10 feet	±0.10 feet
Subgrade grade stakes set 0.04 feet below grade	±0.01 feet	±0.5 feet (parallel to alignment) ±0.1 feet (normal to alignment)
Stationing on roadway	N/A	±0.1 feet
Alignment on roadway	N/A	±0.04 feet
Surfacing grade stakes	±0.01 feet	±0.5 feet (parallel to alignment) ±0.1 feet (normal to alignment)
Roadway paving pins for surfacing or paving	±0.01 feet	±0.2 feet (parallel to alignment) ±0.1 feet (normal to alignment)

The Contracting Agency may spot-check the Contractor's surveying. These spot-checks will not change the requirements for normal checking by the Contractor.

When staking roadway alignment and stationing, the Contractor shall perform independent checks from different secondary control to ensure that the points staked are within the specified survey accuracy tolerances.

The Contractor shall calculate coordinates for the alignment. The Contracting Agency will verify these coordinates prior to issuing approval to the Contractor for commencing with the work. The Contracting Agency will require up to seven calendar days from the date the data is received.

Contract work to be performed using contractor-provided stakes shall not begin until the stakes are approved by the Contracting Agency. Such approval shall not relieve the Contractor of responsibility for the accuracy of the stakes.

Stakes shall be marked in accordance with Standard Plan A10.10. When stakes are needed that are not described in the Plans, then those stakes shall be marked, at no additional cost to the Contracting Agency as ordered by the Engineer.

Payment
Payment will be made for the following bid item when included in the proposal:

"Roadway Surveying", lump sum.

The lump sum contract price for "Roadway Surveying" shall be full pay for all labor, equipment, materials, and supervision utilized to perform the Work specified, including any resurveying, checking, correction of errors, replacement of missing or damaged stakes, and coordination efforts.

1-05.7 Removal of Defective and Unauthorized Work
(October 1, 2005 APWA GSP)

Supplement this section with the following:

If the Contractor fails to remedy defective or unauthorized work within the time specified in a written notice from the Engineer, or fails to perform any part of the work required by the Contract Documents, the Engineer may correct and remedy such work as may be identified in the written notice, with Contracting Agency forces or by such other means as the Contracting Agency may deem necessary.

If the Contractor fails to comply with a written order to remedy what the Engineer determines to be an emergency situation, the Engineer may have the defective and unauthorized work corrected immediately, have the rejected work removed and replaced, or have work the Contractor refuses to perform completed by using Contracting Agency or other forces. An emergency situation is any situation when, in the opinion of the Engineer, a delay in its remedy could be potentially unsafe, or might cause serious risk of loss or damage to the public.

Direct or indirect costs incurred by the Contracting Agency attributable to correcting and remedying defective or unauthorized work, or work the Contractor failed or refused to perform, shall be paid by the Contractor. Payment will be deducted by the Engineer from monies due, or to become due, the Contractor. Such direct and indirect costs shall include in particular, but without limitation, compensation for additional professional services required, and costs for repair and replacement of work of others destroyed or damaged by correction, removal, or replacement of the Contractor’s unauthorized work.

No adjustment in contract time or compensation will be allowed because of the delay in the performance of the work attributable to the exercise of the Contracting Agency’s rights provided by this Section.

The rights exercised under the provisions of this section shall not diminish the Contracting Agency’s right to pursue any other avenue for additional remedy or damages with respect to the Contractor’s failure to perform the work as required.

1-05.11 Final Inspection

Delete this section and replace it with the following:

1-05.11 Final Inspections and Operational Testing

(October 1, 2005 APWA GSP)

1-05.11(1) Substantial Completion Date

When the Contractor considers the work to be substantially complete, the Contractor shall so notify the Engineer and request the Engineer establish the Substantial Completion Date. The Contractor's request shall list the specific items of work that remain to be completed in order to reach physical completion. The Engineer will schedule an inspection of the work with the Contractor to determine the status of completion. The Engineer may also establish the Substantial Completion Date unilaterally.

If, after this inspection, the Engineer concurs with the Contractor that the work is substantially complete and ready for its intended use, the Engineer, by written notice to the Contractor, will set the Substantial Completion Date. If, after this inspection the Engineer does not consider the work substantially complete and ready for its intended use, the Engineer will, by written notice, so notify the Contractor giving the reasons therefor.

Upon receipt of written notice concurring in or denying substantial completion, whichever is applicable, the Contractor shall pursue vigorously, diligently and without unauthorized interruption, the work necessary to reach Substantial and Physical Completion. The Contractor shall provide the Engineer with a revised schedule indicating when the Contractor expects to reach substantial and physical completion of the work.

The above process shall be repeated until the Engineer establishes the Substantial Completion Date and the Contractor considers the work physically complete and ready for final inspection.

1-05.11(2) Final Inspection and Physical Completion Date

When the Contractor considers the work physically complete and ready for final inspection, the Contractor by written notice, shall request the Engineer to schedule a final inspection. The Engineer will set a date for final inspection. The Engineer and the Contractor will then make a final inspection and the Engineer will notify the Contractor in writing of all particulars in which the final inspection reveals the work incomplete or unacceptable. The Contractor shall immediately take such corrective measures as are necessary to remedy the listed deficiencies. Corrective work shall be pursued vigorously, diligently, and without interruption until physical completion of the listed deficiencies. This process will continue until the Engineer is satisfied the listed deficiencies have been corrected.

If action to correct the listed deficiencies is not initiated within 7 days after receipt of the written notice listing the deficiencies, the Engineer may, upon written notice to the Contractor, take whatever steps are necessary to correct those deficiencies pursuant to Section 1-05.7.

The Contractor will not be allowed an extension of contract time because of a delay in the performance of the work attributable to the exercise of the Engineer's right hereunder.

Upon correction of all deficiencies, the Engineer will notify the Contractor and the Contracting Agency, in writing, of the date upon which the work was considered physically complete. That date shall constitute the Physical Completion Date of the contract, but shall not imply acceptance of the work or that all the obligations of the Contractor under the contract have been fulfilled.

1-05.11(3) Operational Testing

It is the intent of the Contracting Agency to have at the Physical Completion Date a complete and operable system. Therefore when the work involves the installation of machinery or other mechanical equipment; street lighting, electrical distribution or signal systems; irrigation systems; buildings; or other similar work it may be desirable for the Engineer to have the Contractor operate and test the work for a period of time after final inspection but prior to the physical completion date. Whenever items of work are listed in the Contract Provisions for operational testing they shall be fully tested under operating conditions for the time period specified to ensure their acceptability prior to the Physical Completion Date. During and following the test period, the Contractor shall correct any items of workmanship, materials, or equipment which prove faulty, or that are not in first class operating condition. Equipment, electrical controls, meters, or other devices and equipment to be tested during this period shall be tested under the observation of the Engineer, so that the Engineer may determine their suitability for the purpose for which they were installed. The Physical Completion Date cannot be established until testing and corrections have been completed to the satisfaction of the Engineer.

The costs for power, gas, labor, material, supplies, and everything else needed to successfully complete operational testing, shall be included in the unit contract prices related to the system being tested, unless specifically set forth otherwise in the proposal.

Operational and test periods, when required by the Engineer, shall not affect a manufacturer's guaranties or warranties furnished under the terms of the contract.

Add New Section 1-05.11(4) as follows:

1-05.11(4) Maintenance Bond, General Guarantee, and Warranty
(City of Duvall)

1. Prior to the payment of the Final Application for Payment, the CONTRACTOR shall provide a one (1) year maintenance bond from the date of final completion of the Work in the amount of 20% of the total final Contract Price. All parts of the Work shall be guaranteed and bonded by the CONTRACTOR to remain in perfect working order and condition except where abused or neglected by the CITY (normal wear and tear excepted), and the CONTRACTOR shall repair or replace, at it's own expense, any Work, or material that may prove to be defective during the period of the guarantee.

The Maintenance Bond should be provided at the time of submittal of the final Application for Payment.

2. The form of the guarantee to be executed by the CONTRACTOR is attached to the end of this Section.

3. CONTRACTOR shall submit the guarantee at the time of submittal of CONTRACTOR's final Application for Payment.

1-05.13 Superintendents, Labor and Equipment of Contractor
(August 14, 2013 APWA GSP)

Delete the sixth and seventh paragraphs of this section.

1-05.14 Cooperation With Other Contractors
(March 13, 1995, WSDOT GSP)

Section 1-05.14 is supplemented with the following:

Other Contracts or Other Work
It is anticipated that the following work adjacent to or within the limits of this project will be performed by others during the course of this project and will require coordination of the work:

*** relocation of gas line by Puget Sound Energy ***

1-05.15 Method of Serving Notices
(December 30, 2022 APWA GSP)

Revise the second paragraph to read:

All correspondence from the Contractor shall be directed to the Project Engineer. All correspondence from the Contractor constituting any notification, notice of protest, notice of dispute, or other correspondence constituting notification required to be furnished under the Contract, must be in paper format, hand delivered or sent via mail delivery service to the Project Engineer's office. Electronic copies such as e-mails or electronically delivered copies of correspondence will not constitute such notice and will not comply with the requirements of the Contract.

Add the following new section:

1-05.16 Water and Power
(October 1, 2005 APWA GSP)

The Contractor shall make necessary arrangements, and shall bear the costs for power and water necessary for the performance of the work, unless the contract includes power and water as a pay item.

Add the following new section:

1-05.18 Record Drawings
(March 8, 2013 APWA GSP)

The Contractor shall maintain one set of full size plans for Record Drawings, updated with clear and accurate red-lined field revisions on a daily basis, and within 2 business days after receipt of information that a change in Work has occurred. The Contractor shall not conceal any work until the required information is recorded.

This Record Drawing set shall be used for this purpose alone, shall be kept separate from other Plan sheets, and shall be clearly marked as Record Drawings. These Record Drawings shall be kept on site at the Contractor's field office, and shall be available for review by the Contracting Agency at all times. The Contractor shall bring the Record Drawings to each progress meeting for review.

The preparation and upkeep of the Record Drawings is to be the assigned responsibility of a single, experienced, and qualified individual. The quality of the Record Drawings, in terms of accuracy, clarity, and completeness, is to be adequate to allow the Contracting Agency to modify the computer-aided drafting (CAD) Contract Drawings to produce a complete set of Record Drawings for the Contracting Agency without further investigative effort by the Contracting Agency.

The Record Drawing markups shall document all changes in the Work, both concealed and visible. Items that must be shown on the markups include but are not limited to:

- Actual dimensions, arrangement, and materials used when different than shown in the Plans.
- Changes made by Change Order or Field Order.
- Changes made by the Contractor.
- Accurate locations of storm sewer, sanitary sewer, water mains and other water appurtenances, structures, conduits, light standards, vaults, width of roadways, sidewalks, landscaping areas, building footprints, channelization and pavement markings, etc. Include pipe invert elevations, top of castings (manholes, inlets, etc.).

If the Contract calls for the Contracting Agency to do all surveying and staking, the Contracting Agency will provide the elevations at the tolerances the Contracting Agency requires for the Record Drawings.

When the Contract calls for the Contractor to do the surveying/staking, the applicable tolerance limits include, but are not limited to the following:

	Vertical	Horizontal
As-built sanitary & storm invert and grate elevations	± 0.01 foot	± 0.01 foot
As-built monumentation	± 0.001 foot	± 0.001 foot

As-built waterlines, inverts, valves, hydrants	± 0.10 foot	± 0.10 foot
As-built ponds/swales/water features	± 0.10 foot	± 0.10 foot
As-built buildings (fin. Floor elev.)	± 0.01 foot	± 0.10 foot
As-built gas lines, power, TV, Tel, Com	± 0.10 foot	± 0.10 foot
As-built signs, signals, etc.	N/A	± 0.10 foot

Making Entries on the Record Drawings:

- Use erasable colored pencil (not ink) for all markings on the Record Drawings, conforming to the following color code:
- Additions - Red
- Deletions - Green
- Comments - Blue
- Dimensions - Graphite
- Provide the applicable reference for all entries, such as the change order number, the request for information (RFI) number, or the approved shop drawing number.
- Date all entries.
- Clearly identify all items in the entry with notes similar to those in the Contract
- Drawings (such as pipe symbols, centerline elevations, materials, pipe joint, pipe joint abbreviations, etc.).

The Contractor shall certify on the Record Drawings that said drawings are an accurate depiction of built conditions, and in conformance with the requirements detailed above. The Contractor shall submit final Record Drawings to the Contracting Agency. Contracting Agency acceptance of the Record Drawings is one of the requirements for achieving Physical Completion.

Payment will be made for the following bid item:

Record Drawings (Minimum Bid $2,000)	Lump Sum

Payment for this item will be made on a prorated monthly basis for work completed in accordance with this section up to 75% of the lump sum bid. The final 25% of the lump sum item will be paid upon submittal and approval of the completed Record Drawings set prepared in conformance with these Special Provisions.

A minimum bid amount has been entered in the Bid Proposal for this item. The Contractor must bid at least that amount.

Add the following New Section:

1-05.19 Daily Construction Report

(City of Duvall)

The CONTRACTOR and subcontractors shall maintain daily, a Daily Construction Report of the Work. The Diary must be kept and maintained by CONTRACTOR's designated project superintendent(s). Entries must be made on a daily basis and must accurately represent all of the project activities on each day. Provide signed copies of diary sheets for the previous week to Engineer at each Weekly Coordination Meeting.

Every single diary sheet/page must have:

- Project name & number;
- Consecutive numbering of pages, and
- Typed or printed name, signature, and date of the person making the entry.

At a minimum, the diary shall, for each day, have a separate entry detailing each of the following:

1. Day and date.
2. Weather conditions, including changes throughout the day.
3. Complete description of work accomplished during the day, with adequate references to the Plans and Contract Provisions so the reader can easily and accurately identify said work on the Plans. Identify location/description of photographs or videos taken that day.
4. Each and every changed condition, dispute or potential dispute, incident, accident, or occurrence of any nature whatsoever which might affect CONTRACTOR, Contracting Agency, or any third party in any manner.
5. List all materials received and stored on or offsite by CONTRACTOR that day for future installation, including the manner of storage and protection of the same.
6. List materials installed that day.
7. List all subcontractors working onsite that day.
8. List the number of CONTRACTOR's employees working during each day, by category of employment.
9. List CONTRACTOR's equipment on the site that day; showing which were in use, and which idle.
10. Notations to explain inspections, testing, stake-out, and all other services furnished by Contracting Agency or other party during the day.
11. Verify the daily (including non-work days) inspection and maintenance of traffic control devices and condition of the traveled roadway surfaces.
12. Any other information that serves to give an accurate and complete record of the nature, quantity, and quality of CONTRACTOR's progress on each day.
13. Hours worked.
14. Specific equipment and vehicle hours used, hours standby and hours worked for each employee.

It is expressly agreed between CONTRACTOR and Contracting Agency that the Daily Diary maintained by CONTRACTOR shall be the "CONTRACTOR's Book of Original Entry" for the documentation of any potential claims or disputes that might arise during this Contract. Failure of CONTRACTOR to maintain this Diary in the manner described above will constitute a waiver of any such claims or disputes by CONTRACTOR.

All costs associated with the Daily Construction Report are considered incidental to and included in the various bid items.

1-06 CONTROL OF MATERIAL

1-06.1 Approval of Materials Prior to Use
(April 3, 2017 WSDOT GSP Option 1)

Section 1-06.1 is supplemented with the following:

For each proposed material that is required to be submitted for approval using either the QPL or RAM process the Contractor will be allowed to submit for approval two material sources or manufacturers per material type at no cost. Additional material sources or manufacturers may be submitted for approval and will be processed at a cost of $125.00 per material source or manufacturer submitted by QPL submittal and $400.00 per material submitted by RAM. All costs for processing additional material sources or manufacturers will be deducted from monies due or that may come due to the Contractor. Subject to a request by the Contractor and a determination by the Engineer the costs for processing may be waived.

1-06.1(4) Fabrication Inspection Expense
(June 27, 2011 APWA GSP)

Delete this section in its entirety.

1-06.6 Recycled Materials
(January 4, 2016 APWA GSP)

Delete this section, including its subsections, and replace it with the following:

The Contractor shall make their best effort to utilize recycled materials in the construction of the project. Approval of such material use shall be as detailed elsewhere in the Standard Specifications.

Prior to Physical Completion the Contractor shall report the quantity of recycled materials that were utilized in the construction of the project for each of the items listed in Section 9-03.21. The report shall include hot mix asphalt, recycled concrete aggregate, recycled glass, steel furnace slag and other recycled materials (e.g. utilization of on-site material and aggregates from concrete returned to the supplier). The Contractor's report shall be provided on DOT form 350-075 Recycled Materials Reporting.

1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

1-07.1 Laws to be Observed

(October 1, 2005 APWA GSP)

Supplement this section with the following:

In cases of conflict between different safety regulations, the more stringent regulation shall apply.

The Washington State Department of Labor and Industries shall be the sole and paramount administrative agency responsible for the administration of the provisions of the Washington Industrial Safety and Health Act of 1973 (WISHA).

The Contractor shall maintain at the project site office, or other well known place at the project site, all articles necessary for providing first aid to the injured. The Contractor shall establish, publish, and make known to all employees, procedures for ensuring immediate removal to a hospital, or doctor's care, persons, including employees, who may have been injured on the project site. Employees should not be permitted to work on the project site before the Contractor has established and made known procedures for removal of injured persons to a hospital or a doctor's care.

The Contractor shall have sole responsibility for the safety, efficiency, and adequacy of the Contractor's plant, appliances, and methods, and for any damage or injury resulting from their failure, or improper maintenance, use, or operation. The Contractor shall be solely and completely responsible for the conditions of the project site, including safety for all persons and property in the performance of the work. This requirement shall apply continuously, and not be limited to normal working hours. The required or implied duty of the Engineer to conduct construction review of the Contractor's performance does not, and shall not, be intended to include review and adequacy of the Contractor's safety measures in, on, or near the project site.

(April 3, 2006 WSDOT GSP, Option 3)

Confined Space

Confined spaces are known to exist at the following locations:

*** buried structure, catch basins, stormwater and sewer manholes ***

The Contractor shall be fully responsible for the safety and health of all on-site workers and compliant with Washington Administrative Code (WAC 296-809).

The Contractor shall prepare and implement a confined space program for each of the confined spaces identified above. The Contractors Confined Space program shall be sent to the Contracting Agency at least 30 days prior to the Contractor beginning work in or adjacent to the confined space. No work shall be performed in or adjacent to the confined space until the plan is submitted to the Engineer as required. The Contractor shall communicate with the

Engineer to ensure a coordinated effort for providing and maintaining a safe worksite for both the Contracting Agency's and Contractor's workers when working in or near a confined space.

All costs to prepare and implement the confined space program shall be included in the bid prices for the various items associated with the confined space work.

1-07.2 State Taxes

Delete this section, including its sub-sections, in its entirety and replace it with the following:

1-07.2 State Sales Tax

(June 27, 2011 APWA GSP)

The Washington State Department of Revenue has issued special rules on the State sales tax. Sections 1-07.2(1) through 1-07.2(3) are meant to clarify those rules. The Contractor should contact the Washington State Department of Revenue for answers to questions in this area. The Contracting Agency will not adjust its payment if the Contractor bases a bid on a misunderstood tax liability.

The Contractor shall include all Contractor-paid taxes in the unit bid prices or other contract amounts. In some cases, however, state retail sales tax will not be included. Section 1-07.2(2) describes this exception.

The Contracting Agency will pay the retained percentage (or release the Contract Bond if a FHWA-funded Project) only if the Contractor has obtained from the Washington State Department of Revenue a certificate showing that all contract-related taxes have been paid (RCW 60.28.051). The Contracting Agency may deduct from its payments to the Contractor any amount the Contractor may owe the Washington State Department of Revenue, whether the amount owed relates to this contract or not. Any amount so deducted will be paid into the proper State fund.

1-07.2(1) State Sales Tax — Rule 171

WAC 458-20-171, and its related rules, apply to building, repairing, or improving streets, roads, etc., which are owned by a municipal corporation, or political subdivision of the state, or by the United States, and which are used primarily for foot or vehicular traffic. This includes storm or combined sewer systems within and included as a part of the street or road drainage system and power lines when such are part of the roadway lighting system. For work performed in such cases, the Contractor shall include Washington State Retail Sales Taxes in the various unit bid item prices, or other contract amounts, including those that the Contractor pays on the purchase of the materials, equipment, or supplies used or consumed in doing the work.

1-07.2(2) State Sales Tax — Rule 170

WAC 458-20-170, and its related rules, apply to the constructing and repairing of new or existing buildings, or other structures, upon real property. This includes, but is not limited to, the construction of streets, roads, highways, etc., owned by the state of Washington;

water mains and their appurtenances; sanitary sewers and sewage disposal systems unless such sewers and disposal systems are within, and a part of, a street or road drainage system; telephone, telegraph, electrical power distribution lines, or other conduits or lines in or above streets or roads, unless such power lines become a part of a street or road lighting system; and installing or attaching of any article of tangible personal property in or to real property, whether or not such personal property becomes a part of the realty by virtue of installation.

For work performed in such cases, the Contractor shall collect from the Contracting Agency, retail sales tax on the full contract price. The Contracting Agency will automatically add this sales tax to each payment to the Contractor. For this reason, the Contractor shall not include the retail sales tax in the unit bid item prices, or in any other contract amount subject to Rule 170, with the following exception.

Exception: The Contracting Agency will not add in sales tax for a payment the Contractor or a subcontractor makes on the purchase or rental of tools, machinery, equipment, or consumable supplies not integrated into the project. Such sales taxes shall be included in the unit bid item prices or in any other contract amount.

1-07.2(3) Services

The Contractor shall not collect retail sales tax from the Contracting Agency on any contract wholly for professional or other services (as defined in Washington State Department of Revenue Rules 138 and 244).

1-07.5 Environmental Regulations

(September 20, 2010 WSDOT GSP)

Section 1-07.5 is supplemented with the following:

Environmental Commitments

The following Provisions summarize the requirements, in addition to those required elsewhere in the Contract, imposed upon the Contracting Agency by the various documents referenced in the Special Provision **Permits and Licenses**. Throughout the work, the Contractor shall comply with the following requirements:

1-07.5(2) State Department Fish and Wildlife

(April 2, 2018 WSDOT GSP, Option 1)

Section 1-07.5(2) is supplemented with the following:

The following Provisions summarize the requirements, in addition to those required elsewhere in the Contract, imposed upon the Contracting Agency by the Washington State Department of Fish and Wildlife. Throughout the work, the Contractor shall comply with the following requirements:

The Contractor may begin Work below the Ordinary High Water Line on **August 1, 2024** and must complete all the Work by **August 31, 2024**.

(April 2, 2018 WSDOT GSP, Option 2)

All costs to comply with this special provision are incidental to the Contract and are the responsibility of the Contractor. The Contractor shall include all related costs in the associated bid prices of the Contract.

1-07.5(3) State Department of Ecology
(April 2, 2018 WSDOT GSP, Option 1)

Section 1-07.5(3) is supplemented with the following:

The following Provisions summarize the requirements, in addition to those required elsewhere in the Contract, imposed upon the Contracting Agency by the Washington State Department of Ecology. Throughout the work, the Contractor shall comply with the following requirements:

(August 3, 2009 WSDOT GSP)
A mixing zone is established within which the turbidity standard is waived during actual in-water work. The mixing zone is established to only temporarily allow exceeding the turbidity criteria (such as a few hours or days) and is not authorization to exceed the turbidity standard for the entire duration of the construction. The mixing zone shall not exceed 100 feet downstream from the construction area.

(April 1, 2019 WSDOT GSP)
Stormwater, dewatering water, or other authorized non-stormwater discharges that has come into contact with pH modifying substances such as concrete rubble, cast concrete or amended soils, need to be maintained between 6.5 – 8.5 standard units (su). If pH exceeds 8.5 su, the Contractor shall immediately discontinue work and initiate treatment to prevent discharges outside the acceptable range from occurring. All neutralization methods used shall be in accordance with the permit. Work may resume once treatment has been implemented and pH of the stormwater or authorized non-stormwater discharge is between 6.5 - 8.5 su or it can be demonstrated that high pH waters will not discharge to surface waters.

Stormwater, dewatering water, and other authorized non-stormwater discharges are monitored weekly for compliance with the turbidity benchmark (25 nephelometric turbidity units (ntu)) and the phone reporting trigger value (250 ntu) by the Contracting Agency. When the turbidity benchmark is breached, the best management practices (BMPs) installed on-site are not working adequately and need to be adapted, maintained or more BMPs shall be installed. When the turbidity phone reporting trigger value is breached, immediate action is required in order to lower the turbidity to $\leq$25 ntu or to eliminate the discharge. Daily follow-up discharge samples will be collected at all locations where a discharge of 250 ntu or higher was collected unless the discharge was stopped or eliminated.

1-07.6 Permits and Licenses

(January 2, 2018 WSDOT Option 1)

Section 1-07.6 is supplemented with the following:

The Contracting Agency has obtained the below-listed permit(s) for this project. A copy of the permit(s) is attached as an appendix for informational purposes. Copies of these permits, including a copy of the Transfer of Coverage form, when applicable, are required to be onsite at all times.

Contact with the permitting agencies, concerning the below-listed permit(s), shall be made through the Engineer with the exception of when the Construction Stormwater General Permit coverage is transferred to the Contractor, direct communication with the Department of Ecology is allowed. The Contractor shall be responsible for obtaining Ecology's approval for any Work requiring additional approvals (e.g. Request for Chemical Treatment Form). The Contractor shall obtain additional permits as necessary. All costs to obtain and comply with additional permits shall be included in the applicable Bid items for the Work involved.

***

- Washington Dept of Fish & Wildlife – Fish Habitat Enhancement Hydraulic Project Approval (FHE-HPA), including exemptions from SEPA and local (City) permits
- U.S. Army Corps of Engineers – Nationwide Permit 27 – Restoration (Clean Water Act Section 404 Permit, Section 401 Certification, and Coastal Zone Management Act Consistency Determination)
- Washington Dept of Ecology – National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit.

***

1-07.7 Load Limits

(March 13, 1995 WSDOT GSP Option 6)

Section 1-07.7 is supplemented with the following:

If the sources of materials provided by the Contractor necessitates hauling over roads other than State Highways, the Contractor shall, at the Contractor's expense, make all arrangements for the use of the haul routes.

1-07.13 Contractor's Responsibility for Work

1-07.13(1) General

(City of Duvall)

Section 1-07.13(1) is supplemented with the following:

Obtaining a site for the Contractors mobilization, storage of materials and other general operations shall be the responsibility of the CONTRACTOR. All costs associated with securing

sites shall be included in other bid items on the project and no other compensation will be made for this item. CONTRACTOR to provide City of Duvall with copy(s) of agreement(s).

1-07.14 Responsibility for Damage

(City of Duvall)

Supplement this section with the following:

The CONTRACTOR shall defend, indemnify, and hold harmless the CITY and consultant, their officers, employees, and agents, from all claims, losses, damages, demands, suits, judgments, and attorney fees and other expenses of any kind of account of injury to or death of any and all persons and/or on account of all property damage of any kind, whether tangible or intangible, including loss of use resulting therefrom, in connection with the work performed under this contract or caused or occasioned in whole or in part by reason of the presence of the CONTRACTOR or its subcontractors or their property, employees, or agents, upon or in proximity to the property of the CITY, or any other property upon which the CONTRACTOR is performing any work called for or in connection with this contract, except only for those losses resulting solely from the negligence of the CITY, its officers, employees, and agents.

Should a court of competent jurisdiction determine that this Agreement is subject to RCW 4.24.115, then in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the CONTRACTOR and the CITY, its members, officers, employees, and agents, the CONTRACTOR's liability hereunder shall be limited to the extent of the CONTRACTOR's negligence. It is further specifically and expressly understood that the indemnification provided herein constitutes CONTRACTOR's waiver of immunity under industrial insurance, Title 51 RCW, solely for the purposes of this indemnification. Such waiver has been mutually negotiated by the parties. The provisions of this section shall survive the expiration or termination of this Contract. CONTRACTOR's and CITY's initials in the Contract Form indicate specific waiver of CONTRACTOR's immunity under Industrial Insurance, Title 51 RCW, in order to fulfill this indemnity.

If a lawsuit is filed against the CITY in connection with the work performed under this contract the CONTRACTOR shall appear and defend CITY at its own cost and expense, and if judgment is rendered or settlement made requiring payment of damages by the CITY, its officers, agents, and employees, the CONTRACTOR shall pay the same.

For purposes of applying RCW 4.24.115 to this contract, CONTRACTOR and CITY agree that the term "damages" applies only to a finding in a judicial proceeding and is exclusive of third party claims for damages preliminary thereto.

The CONTRACTOR shall complete the work without damaging the existing pavement surface beyond the limits of the asphalt patch, as shown on the typical trench section in the plans. If the existing pavement is damaged by scoring or marking, the CONTRACTOR, at the discretion of the Engineer, may be required to provide a 0.15-foot thickness overlay through the damaged roadway section. This overlay shall be placed at the Contractors expense and no additional payment will be made by the Owner.

1-07.15 Temporary Water Pollution/Erosion Control

1-07.15(1) Spill Prevention, Control, and Countermeasures Plan

(City of Duvall)

Supplement this section with the following:

The CONTRACTOR shall prepare and implement a project-specific spill prevention, control, and countermeasures plan (SPCC Plan) for the duration of the project. The CONTRACTOR shall submit the plan to the Project Engineer no later than the date of the preconstruction conference. No onsite construction activities may commence until the Contracting Agency accepts an SPCC Plan for the project. An SPCC Plan template and guidance information is available at www.wsdot.wa.gov/environment/hazmat/spillprevention.htm. The SPCC Plan shall address all fuels, petroleum products, and hazardous materials, as defined in Chapter 447 of the WSDOT Environmental Procedures Manual M 31-11. Occupational safety and health requirements that may pertain to SPCC Plan implementation are contained in, but not limited to, WAC 296-824 and WAC 296-843. The SPCC Plan shall address conditions that may be required by Section 3406 of the current International Fire Code, or as approved by the local Fire Marshal.

Implementation Requirements

The CONTRACTOR shall update the SPCC Plan throughout project construction so that the written plan reflects actual site conditions and practices. The CONTRACTOR shall update the SPCC Plan at least annually and maintain a copy of the updated SPCC Plan on the project site. The CONTRACTOR shall fully implement the SPCC Plan, as accepted and updated, at all times.

SPCC Plan Element Requirements

The SPCC Plan shall set forth the following information in the following order:

1. Responsible Personnel – Identify the names, titles, and contact information for the personnel responsible for implementing and updating the plan and for responding to spills.
2. Spill Reporting – List the names and telephone numbers of the Federal, State, and local agencies the CONTRACTOR shall notify in the event of a spill.
3. Project and Site Information – Describe the following items:
4. The project Work.
5. The site location and boundaries.
6. The drainage pathways from the site.
7. Nearby waterways and sensitive areas and their distances from the site.
8. Potential Spill Sources – Describe each of the following for all potentially hazardous materials brought or generated onsite (including materials used for equipment operation, refueling, maintenance, or cleaning):
    a. Name of material and its intended use.
    b. Estimated maximum amount onsite at any one time.

c. Location(s) (including any equipment used below the ordinary high water line) where the material will be staged, used, and stored and the distance(s) from nearby waterways and sensitive areas.

d. Preexisting Contamination – Describe any preexisting contamination and contaminant sources (such as buried pipes or tanks) in the project area that are described in the Contract provisions and plans. Identify equipment and Work practices that shall be used to prevent the release of contamination.

e. Spill Prevention and Response Training – Describe how and when all project personnel, including refueling personnel and other Subcontractors, shall be trained in spill prevention, containment, and response and in the location of spill response kits.

9. Spill Prevention – Describe the following items:

a. The contents and locations of spill response kits that the CONTRACTOR shall supply and maintain that are appropriately stocked, located in close proximity to hazardous materials and equipment, and immediately accessible.

b. Security measures for potential spill sources to prevent accidental spills and vandalism.

c. Methods used to prevent stormwater from contacting hazardous materials.

d. Secondary containment for each potential spill source listed in 4, above. Secondary containment structures shall be in accordance with Section S9.D.9 of Ecology's Construction Stormwater General NPDES Permit, where secondary containment means placing tanks or containers within an impervious structure capable of containing 110 percent of the volume contained in the largest tank within the containment structure. Double-walled tanks do not require additional secondary containment.

e. BMP methods used to prevent discharges to ground or water during mixing and transfer of hazardous materials and fuel. Methods to control pollutants shall use BMPs in accordance with Ecology's Construction Stormwater General NPDES Permit. BMP guidance is provided in Ecology's Stormwater Management Manuals, such as Volume II – Construction Stormwater Pollution Prevention, BMP C153, and Volume IV – Source Control BMPs.

f. Refueling procedures for equipment that cannot be moved from below the ordinary high-water line.

g. Daily inspection and cleanup procedures that ensure all equipment used below the ordinary high-water line is free of all external petroleum-based products.

h. Routine equipment, storage area, and structure inspection and maintenance practices to prevent drips, leaks, or failures of hoses, valves, fittings, containers, pumps, or other systems that contain or transfer hazardous materials.

10. Site inspection procedures and frequency

a. Spill Response – Outline the response procedures the CONTRACTOR shall follow for each scenario listed below, indicating that if hazardous materials

are encountered or spilled during construction, the CONTRACTOR shall do everything possible to control and contain the material until appropriate measures can be taken. Include a description of the actions the CONTRACTOR shall take and the specific onsite spill response equipment that shall be used to assess the spill, secure the area, contain and eliminate the spill source, clean up spilled material, decontaminate equipment, and dispose of spilled and contaminated material:

1. A spill of each type of hazardous material at each location identified in 4, above.
2. Stormwater that has come into contact with hazardous materials.
3. A release or spill of any preexisting contamination and contaminant source described in 5, above.
4. A release or spill of any unknown preexisting contamination and contaminant sources (such as buried pipes or tanks) encountered during project Work.
5. A spill occurring during Work with equipment used below the ordinary high-water line.

If the CONTRACTOR will use a Subcontractor for spill response, provide contact information for the Subcontractor under item 1 (above), identify when the Subcontractor shall be used, and describe actions the CONTRACTOR shall take while waiting for the Subcontractor to respond.

1. Project Site Map – Provide a map showing the following items:
   a. Site location and boundaries.
   b. Site access roads.
   c. Drainage pathways from the site.
   d. Nearby waterways and sensitive areas.
   e. Hazardous materials, equipment, and decontamination areas identified in 4, above.
   f. Preexisting contamination or contaminant sources described in 5, above.
   g. Spill prevention and response equipment described in 7 and 8, above.
2. Spill Report Forms – Provide a copy of the spill report form(s) that the CONTRACTOR shall use in the event of a release or spill.

1-07.16 Protection and Restoration of Property

1-07.16(1) Private/Public Property

(City of Duvall)

Section 1-07.16(1) is supplemented with the following:

Materials shall not be deposited upon private property without the approval of the property

owner and Engineer. All material so deposited shall be in compliance with the City of Duvall Municipal Code and other applicable laws.

1-07.16(4) Archeological and Historical Objects

(City of Duvall)

Section 1-07.16(4) is supplemented with the following:

If archeological or historical objects are encountered, the Contractor shall follow the Inadvertent Discovery Plan (IDP) for the project, as described in Appendix F.

1-07.17 Utilities and Similar Facilities

(April 2, 2007 WSDOT GSP)

Section 1-07.17 is supplemented with the following:

Locations and dimensions shown in the Plans for existing facilities are in accordance with available information obtained without uncovering, measuring, or other verification.

The following addresses and telephone numbers of utility companies known or suspected of having facilities within the project limits are supplied for the Contractor's convenience:

Utility	Company	Contact	Phone
Electric	Puget Sound Energy	Kiara Skye	(425) 213-9205
Natural Gas	Puget Sound Energy	Kiara Skye	(425) 213-9205
Street Lights	Puget Sound Energy	Lyndsey Goldsmith	(425) 396-3838
Communications	Ziply Fiber	Cheryl Schneider	(509) 218-1294
Communications	Astound (Wave)	Oscar Palucha	(425) 393-5022
Water & Sewer	City of Duvall	Joe Chriest	(425) 951-0334
Storm Drainage	City of Duvall	Joe Chriest	(425) 951-0334
School District Transportation	Riverview School District	Sabrina Warren	(425) 844-4537

1-07.18 Public Liability and Property Damage Insurance

Delete this section in its entirety, and replace it with the following:

1-07.18 Insurance

(City of Duvall)

A. DESCRIPTION

CONTRACTOR shall not commence any work until it has obtained, at its own expense, all insurance including the required insurance. CONTRACTOR shall include all costs for

insurance in the Bid. CONTRACTOR shall take out, pay for and maintain throughout the duration of the Work and specifically for the Work the following specified insurance.

B. INSURANCE REQUIREMENTS

1. The CONTRACTOR shall obtain and keep in force during the term of the Agreement, Commercial General Liability insurance policies and any and all other insurance, which will fully protect the CITY from any and all losses, costs and damages. Such insurance shall be with insurance companies which have an A.M. Best's rating of "A VII" or better, and who are approved by the Insurance Commissioner of the State of Washington pursuant to Title 48 RCW.

2. Providing of coverages in the stated amounts shall not be construed to relieve the CONTRACTOR from liability in excess of such limits.

3. Prior to the execution of the Agreement, the CONTRACTOR shall purchase a Commercial General Liability insurance policy meeting the requirements set forth by the Contract Documents. The CONTRACTOR shall file with the CITY at the time of execution of the Agreement, a certificate of insurance evidencing and confirming that all required insurance coverages have been obtained and are in force. The certificate shall be accompanied by such policy endorsements as are necessary to comply with the requirements set forth herein. The certificate must also be accompanied by the Insurance Questionnaire. Failure of the CONTRACTOR to fully comply with the requirements regarding insurance may be considered a material breach of the Agreement and may be cause for immediate termination of the Agreement and of any and all CITY obligations regarding same.

4. The CONTRACTOR shall not begin work under the Contract Documents until all insurance required by law and the Contract Documents has been obtained and is in effect. Said insurance shall provide coverage to the CONTRACTOR, Subcontractors, and the CITY. The coverage so provided shall protect against claims from bodily injuries, including accidental death, as well as claims for property damages which may arise from any act or omission of the CONTRACTOR, the CONTRACTOR's Subcontractors, or by anyone directly or indirectly employed or retained by either of them to do all or any part of the Work.

5. In the event the CONTRACTOR is required to make corrections on the Work after the Work has been inspected and accepted, it shall obtain at its own expense, and prior to commencement of any corrective work, such insurance coverage as is required herein above for such periods when corrective operations are being performed.

6. The insurance policies shall specifically name the CITY, its elected or appointed officers, officials, employees, volunteers, the Design Engineer, and PROJECT REPRESENTATIVE as Insured with regards to damages and defense of claims arising from: (a) activities performed by or on behalf of the CONTRACTOR; or (b) products and completed operations of the CONTRACTOR, or (c) premises owned, leased, or used by the CONTRACTOR. The insurance shall be maintained in full force and effect at the CONTRACTOR's expense throughout the term of the Agreement.

7. The commercial general liability and property damage insurance shall include coverage to protect the CONTRACTOR from contingent liability that may arise from operations of its Subcontractors. Also, the CONTRACTOR shall secure certificates of insurance as evidence that each Subcontractor carries insurance to provide coverage

under the Contract Documents for the same limits as is required by the CONTRACTOR.

8. The CITY shall be given at least 45 days written notice of cancellation, non-renewal, material reduction or modification of coverage. Such notice to shall be by "certified mail".

9. The coverage's provided by the CONTRACTOR's insurance policies are to be primary to any insurance maintained by the CITY, except as respects losses attributable to the sole negligence of the CITY. Any insurance that might cover this Agreement which are maintained by the CITY shall be in excess of the CONTRACTOR's insurance and shall not contribute with it.

10. The CONTRACTOR's insurance policies shall protect each Insured in the same manner as though a separate policy had been issued to each. The inclusion of more than one Insured shall not affect the rights of any Insured as respects any claim, suit or judgment made or brought by or for any other Insured or by or for any employee of any other insured.

11. The General Aggregate provision of the CONTRACTOR's insurance policies shall be amended to show that the General Aggregate Limit of the policies apply separately to this Agreement.

12. The CONTRACTOR's insurance policies shall not contain deductible or self-insured retentions in excess of $10,000 unless approved by the CITY.

13. The CONTRACTOR's insurance policies shall contain a provision that the CITY has no obligation to report events that might give rise to a claim until a claim has been filed with the CITY’s Clerk.

14. The CONTRACTOR shall advise all insurance companies to familiarize themselves with all of the conditions and provisions of the Contract Documents, and it shall waive the right of special notification of any change or modification of the Contract Documents or of extension of time, or of decreased or increased work, or of the termination of the Agreement or of any other act or acts by the CITY or its authorized employees and agents, under the terms of the Contract Documents and failure to so notify the aforesaid insurance companies of changes shall in no way relieve the insurance companies of their obligation under the Contract Documents.

15. The CONTRACTOR shall maintain Workers' Compensation Insurance and/or Longshore and Harbor Workers Insurance as required by State or Federal statute, for all of their employees to be engaged in work on the Work under the Agreement and in case any such work is sublet, the CONTRACTOR shall require the Subcontractor similarly to provide Workers' Compensation Insurance and/or Longshore and Harbor Workers' Insurance for all of the latter's employees engaged in such work. The CONTRACTOR's Labor & Industries account number shall be noted on the Certificate of Insurance.

16. Workmen's Occupational Disease Insurance shall be taken out covering all persons whom the CONTRACTOR may employ in carrying out the Work contemplated under the Agreement.

17. In the event any class of employees engaged in the Work under the Agreement is not covered under Worker's Compensation Insurance or Longshore and Harbor Workers'

Insurance as required by State and Federal statute, the CONTRACTOR shall maintain and cause each Subcontractor to maintain Employer's Liability Insurance for limits of at least $1,000,000 for each employee for disease or accident.

18. The CONTRACTOR shall file with the CITY three copies of an employer's first report of injury or illness immediately following any incident requiring the filing of a report during the prosecution of the Work under the Agreement. The CONTRACTOR shall also furnish to the CITY three copies of the employer's first report of injury or illness involving any Subcontractor on the Work.

19. The CONTRACTOR shall be solely and completely responsible for safety and safety conditions on the job Site, including the safety of all persons and property during performance of the Work. The services of the CITY's or its agents' or consultants' personnel in conducting construction review of the CONTRACTOR's performance is not intended to include review of the adequacy of the CONTRACTOR's work methods, equipment, bracing, scaffolding, or trenching, or safety measures in, on, or near the Site. The CONTRACTOR shall provide safe access for the CITY and its inspectors to adequately inspect quality of Work and the conformance with Contract Documents.

20. The CONTRACTOR shall be solely and completely responsible to perform all Work and furnish all material in strict compliance with all applicable State, CITY, County and Federal laws, regulations, ordinances, orders and codes. The CONTRACTOR's attention is directed to the requirements of the Washington Industrial Safety and Health Act, WISHA, RCW 49.17.

21. The CITY will not pay any progress payments until the CONTRACTOR has fully complied with this Section. This remedy is not exclusive and the CITY may take such other action as is available under other provisions of the Contract Documents, or otherwise in law.

22. The contractual coverage of the CONTRACTOR's policy shall be sufficiently broad enough to insure the provisions of the Hold Harmless Agreement and/or Indemnification Agreements of the Contract Documents.

C. TYPES AND LIMITS OF INSURANCE REQUIRED:

2. Commercial General Liability

$2,000,000 each occurrence Bodily Injury and Property Damage Liability
$2,000,000 General Aggregate
Employees and Volunteers as Additional Insured
Premises and Operations
Broad form property damage including underground, explosion and collapse hazards (XCU)
Products completed operations (through guaranty period)
Blanket contractual Subcontractors
Personal Injury with EE exclusion deleted
Employers' liability (Stop gap)

3. Automobile Liability

$2,000,000 per accident Bodily Injury and Property Liability covering:
Any owned automobile
Hired automobiles and Non-owned automobiles

4. Umbrella Liability

$2,000,000 per occurrence
$2,000,000 aggregate

As an alternative to the above indicated Commercial General Liability and Umbrella Liability Insurance policies the CONTRACTOR may provide the CITY with an OWNERS and CONTRACTOR's Protective Policy with a limit of coverage of $5,000,000.

1-07.23 Public Convenience and Safety

1-07.23(1) Construction Under Traffic

(City of Duvall)

Section 1-07.23(1) is supplemented with the following:

With the exception of times specified in Special Provision Section 1-07.23(2), lane closures are subject to the following restrictions:

- Lane closures are limited to hours of 7 a.m. to 5 p.m. when the Riverview School District is not in session.
- Lane closures are limited to hours of 9:30 a.m. to 3:30 p.m.

With the exception of times specified in Special Provision Section 1-07.23(2), lane closures are not allowed on any of the following:

- Saturdays unless preapproved by the City. Request must be submitted to the City at least 6 working days prior to requested Saturday.
- Sundays
- A City holiday
- A holiday weekend; holidays that occur on Friday, Saturday, Sunday, or Monday are considered a holiday weekend. A holiday weekend includes Saturday, Sunday, and the holiday.

Upon written request, the Engineer may permit expansion of lane closure hours and one-way traffic when school is not in session or if the construction operations will not have an impact on school traffic.

If the Engineer determines the permitted closure hours adversely affect traffic, the Engineer may adjust the hours accordingly. The Engineer will notify the Contractor in writing of any change in the closure hours. No additional costs shall be incurred by the Contracting Agency for changes to lane closure time limits.

It is the Contractor's responsibility to know when the Riverview School District is in session.

Within the Project Limits the Contractor shall keep at least one lane in each direction open to traffic at all times, unless specifically approved in Contractor's Traffic Control Plan; and

The Contractor shall notify the Duvall Police, Fire, Riverview Shool District, adjacent residents, and all other entities who might be affected by construction activities in writing at least (4 days in advance of any temporary lane closures or detours, with copies delivered to the Engineer.)

Any asphalt concrete pavement, crushed surfacing, or gravel borrow required to maintain traffic during the life of this contract shall be furnished and placed by the Contractor immediately upon request by the Engineer. The items designated shall be paid for per the unit contract bid prices.

1-07.23(2) Construction and Maintenance of Detours
(City of Duvall)

This section is supplemented with the following:

The Contracting Agency will allow the Contractor to implement the following detours:

- **3rd Avenue NE, from NE Kennedy Drive to NE Taylor Street -** Traffic may be detoured as shown on the Road Closure Detour Plan. The Contractor will not be allowed to close the entire intersections of 3rd Avenue NE with NE Kennedy Drive and NE Taylor Street. At no time shall more than one block be closed. The Contractor shall coordinate with the local School District. The Contractor shall provide local access to adjacent properties at all times. The block closure shall be permitted for a maximum of seventy (70) working days total.

The lump sum contract price for Project Temporary Traffic Control shall include construction, maintenance, and removal of all detours.

1-07.24 Rights of Way
(May 2022 City of Duvall)

Delete this section and replace it with the following:

Street Right-of-Way lines, limits of easements, and limits of construction permits are indicated in the Plans. The CONTRACTOR's construction activities shall be confined within these limits, unless arrangements for use of private property are made.

Generally, the Contracting Agency will have obtained, prior to bid opening, all rights of way and easements, both permanent and temporary, necessary for carrying out the work. Exceptions to this are noted in the Bid Documents or will be brought to the CONTRACTOR's attention by a duly issued Addendum.

Whenever any of the work is accomplished on or through property other than public Right of Way, the CONTRACTOR shall meet and fulfill all covenants and stipulations of any easement agreement obtained by the Contracting Agency from the owner of the private property. Copies

of the easement agreements may be included in the Contract Provisions or made available to the CONTRACTOR as soon as practical after they have been obtained by the Engineer.

Whenever easements or rights of entry have not been acquired prior to advertising, these areas are so noted in the Plans. The CONTRACTOR shall not proceed with any portion of the work in areas where right of way, easements or rights of entry have not been acquired until the Engineer certifies to the CONTRACTOR that the right of way or easement is available or that the right of entry has been received. If the CONTRACTOR is delayed due to acts of omission on the part of the Contracting Agency in obtaining easements, rights of entry or right of way, the CONTRACTOR will be entitled to an extension of time. The CONTRACTOR agrees that such delay shall not be a breach of contract.

Each property owner shall be ***notified twice prior to entry by the CONTRACTOR. The first notification shall be a door hanger or written notification seven (7) days prior to entry and the second shall be forty-eight (48) hours prior). *** This includes entry onto easements and private property where private improvements must be adjusted. ***It is the CONTRACTOR'S responsibility to document their notification process.***

The CONTRACTOR shall be responsible for providing, without expense or liability to the Contracting Agency, any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, storage of materials, or other CONTRACTOR needs. However, before using any private property, whether adjoining the work or not, the CONTRACTOR shall file with the Engineer a written permission of the private property owner, and, upon vacating the premises, a written release from the property owner of each property disturbed or otherwise interfered with by reasons of construction pursued under this contract. The statement shall be signed by the private property owner, or proper authority acting for the owner of the private property affected, stating that permission has been granted to use the property and all necessary permits have been obtained or, in the case of a release, that the restoration of the property has been satisfactorily accomplished. The statement shall include the parcel number, address, and date of signature. Written releases must be filed with the Engineer before the Completion Date will be established.

1-08 PROSECUTION AND PROGRESS

Add the following new section:

1-08.0 Preliminary Matters

(May 25, 2006 APWA GSP)

Add the following new section:

1-08.0(1) Preconstruction Conference

(October 10, 2008 APWA GSP)

Prior to the Contractor beginning the work, a preconstruction conference will be held between the Contractor, the Engineer and such other interested parties as may be invited. The purpose of the preconstruction conference will be:

1. To review the initial progress schedule;

2. To establish a working understanding among the various parties associated or affected by the work;
3. To establish and review procedures for progress payment, notifications, approvals, submittals, etc.;
4. To establish normal working hours for the work;
5. To review safety standards and traffic control; and
6. To discuss such other related items as may be pertinent to the work.

The Contractor shall prepare and submit at the preconstruction conference the following:

1. A breakdown of all lump sum items;
2. A preliminary schedule of working drawing submittals; and
3. A list of material sources for approval if applicable.

Add the following new section:

1-08.0(2) Hours of Work
(December 8, 2014 APWA GSP)

Except in the case of emergency or unless otherwise approved by the Engineer, the normal working hours for the Contract shall be any consecutive 8-hour period between 7:00 a.m. and 6:00 p.m. Monday through Friday, exclusive of a lunch break. If the Contractor desires different than the normal working hours stated above, the request must be submitted in writing prior to the preconstruction conference, subject to the provisions below. The working hours for the Contract shall be established at or prior to the preconstruction conference.

All working hours and days are also subject to local permit and ordinance conditions (such as noise ordinances).

If the Contractor wishes to deviate from the established working hours, the Contractor shall submit a written request to the Engineer for consideration. This request shall state what hours are being requested, and why. Requests shall be submitted for review no later than 2 working days prior to the day(s) the Contractor is requesting to change the hours.

If the Contracting Agency approves such a deviation, such approval may be subject to certain other conditions, which will be detailed in writing. For example:

1. On non-Federal aid projects, requiring the Contractor to reimburse the Contracting Agency for the costs in excess of straight-time costs for Contracting Agency representatives who worked during such times. (The Engineer may require designated representatives to be present during the work. Representatives who may be deemed necessary by the Engineer include, but are not limited to: survey crews; personnel from the Contracting Agency's material testing lab; inspectors; and other Contracting Agency employees or third party consultants when, in the opinion of the Engineer, such work necessitates their presence.)

2. Considering the work performed on Saturdays, Sundays, and holidays as working days with regard to the contract time.
3. Considering multiple work shifts as multiple working days with respect to contract time even though the multiple shifts occur in a single 24-hour period.
4. If a 4-10 work schedule is requested and approved the non working day for the week will be charged as a working day.
5. If Davis Bacon wage rates apply to this Contract, all requirements must be met and recorded properly on certified payroll

1-08.3 Progress Schedule

Add the following New Section:

1-08.3(1)A Weekly Coordination Meeting

(City of Duvall)

A coordination meeting will be held each week on site or in the Engineer's conference room (CITY Public Works or Job Site Trailer) to discuss the work schedule. The CONTRACTOR shall make a presentation of interim and updated schedules to the Engineer, to provide an overview of the project's schedule and provide an opportunity to discuss items of coordination. Consideration of materials, crews, and equipment shall be addressed to ascertain their respective availability. The meeting shall identify actions necessary to provide adherence to the Schedule.

1-08.3(2) Progress Schedule Types

1-08.3(2)B Type B Progress Schedule

(December 30, 2022 APWA GSP)

Revise the first paragraph to read:

The Contractor shall submit a preliminary Type B Progress Schedule at or prior to the preconstruction conference. The preliminary Type B Progress Schedule shall comply with all of these requirements and the requirements of Section 1-08.3(1), except that it may be limited to only those activities occurring within the first 60-working days of the project.

Revise the first sentence of the second paragraph to read:

The Contractor shall submit 2 copies of a Type B Progress Schedule depicting the entire project no later than 21-calendar days after the preconstruction conference.

1-08.4 Prosecution of Work

Delete this section and replace it with the following:

1-08.4 Notice to Proceed and Prosecution of Work

(July 23, 2015 APWA GSP)

Notice to Proceed will be given after the contract has been executed and the contract bond and evidence of insurance have been approved and filed by the Contracting Agency. The Contractor shall not commence with the work until the Notice to Proceed has been given by the Engineer. The Contractor shall commence construction activities on the project site within ten days of the Notice to Proceed Date, unless otherwise approved in writing. The Contractor shall diligently pursue the work to the physical completion date within the time specified in the contract. Voluntary shutdown or slowing of operations by the Contractor shall not relieve the Contractor of the responsibility to complete the work within the time(s) specified in the contract.

When shown in the Plans, the first order of work shall be the installation of high visibility fencing to delineate all areas for protection or restoration, as described in the Contract. Installation of high visibility fencing adjacent to the roadway shall occur after the placement of all necessary signs and traffic control devices in accordance with 1-10.1(2). Upon construction of the fencing, the Contractor shall request the Engineer to inspect the fence. No other work shall be performed on the site until the Contracting Agency has accepted the installation of high visibility fencing, as described in the Contract.

1-08.5 Time for Completion

(March 13, 1995 WSDOT GSP, Option 7)

Section 1-08.5 is supplemented with the following:

This project shall be physically completed within *** **140** *** working days.

(December 30, 2022 APWA GSP, Option A)

Revise the third and fourth paragraphs to read:

Contract time shall begin on the first working day following the Notice to Proceed Date.

Each working day shall be charged to the contract as it occurs, until the contract work is physically complete. If substantial completion has been granted and all the authorized working days have been used, charging of working days will cease. Each week the Engineer will provide the Contractor a statement that shows the number of working days: (1) charged to the contract the week before; (2) specified for the physical completion of the contract; and (3) remaining for the physical completion of the contract. The statement will also show the nonworking days and all partial or whole days the Engineer declares as unworkable The statement will be identified as a Written Determination by the Engineer. If the Contractor does not agree with the Written Determination of working days, the Contractor shall pursue the protest procedures in accordance with Section 1-04.5. By failing to follow the procedures of Section 1-04.5, the Contractor shall be deemed as having accepted the statement as correct.

If the Contractor is approved to work 10 hours a day and 4 days a week (a 4-10 schedule) and the fifth day of the week in which a 4-10 shift is worked would ordinarily be charged as a working day then the fifth day of that week will be charged as a working day whether or not the Contractor works on that day.

Revise the sixth paragraph to read:

The Engineer will give the Contractor written notice of the completion date of the contract after all the Contractor's obligations under the contract have been performed by the Contractor. The following events must occur before the Completion Date can be established:

1. The physical work on the project must be complete; and
2. The Contractor must furnish all documentation required by the contract and required by law, to allow the Contracting Agency to process final acceptance of the contract. The following documents must be received by the Project Engineer prior to establishing a completion date:
   a. Certified Payrolls (per Section 1-07.9(5)).
   b. Material Acceptance Certification Documents
   c. Monthly Reports of Amounts Credited as DBE Participation, as required by the Contract Provisions.
   d. Final Contract Voucher Certification
   e. Copies of the approved "Affidavit of Prevailing Wages Paid" for the Contractor and all Subcontractors
   f. A copy of the Notice of Termination sent to the Washington State Department of Ecology (Ecology); the elapse of 30 calendar days from the date of receipt of the Notice of Termination by Ecology; and no rejection of the Notice of Termination by Ecology. This requirement will not apply if the Construction Stormwater General Permit is transferred back to the Contracting Agency in accordance with Section 8-01.3(16).
   g. Property owner releases per Section 1-07.24

1-08.9 Liquidated Damages
(March 3, 2021 APWA GSP, Option B)

Revise the second and third paragraphs to read:

Accordingly, the Contractor agrees:

1. To pay (according to the following formula) liquidated damages for each working day beyond the number of working days established for Physical Completion, and
2. To authorize the Engineer to deduct these liquidated damages from any money due or coming due to the Contractor.

Liquidated Damages Formula

LD=0.15C/T

Where:

LD = liquidated damages per working day (rounded to the nearest dollar)

C = original Contract amount

T = original time for Physical Completion

When the Contract Work has progressed to Substantial Completion as defined in the Contract, the Engineer may determine the Contract Work is Substantially Complete. The Engineer will notify the Contractor in writing of the Substantial Completion Date. For overruns in Contract time occurring after the date so established, the formula for liquidated damages shown above will not apply. For overruns in Contract time occurring after the Substantial Completion Date, liquidated damages shall be assessed on the basis of direct engineering and related costs assignable to the project until the actual Physical Completion Date of all the Contract Work. The Contractor shall complete the remaining Work as promptly as possible. Upon request by the Project Engineer, the Contractor shall furnish a written schedule for completing the physical Work on the Contract.

1-09 MEASUREMENT AND PAYMENT

1-09.2 Weighing Equipment

1-09.2(1) General Requirements for Weighing Equipment

(December 30, 2022 APWA GSP Option 2)

Revise item 4 of the fifth paragraph to read:

4. Test results and scale weight records for each day's hauling operations are provided to the Engineer daily. Reporting shall utilize WSDOT form 422-027, Scaleman's Daily Report, unless the printed ticket contains the same information that is on the Scaleman's Daily Report Form. The scale operator must provide AM and/or PM tare weights for each truck on the printed ticket.

1-09.2(5) Measurement

(December 30, 2022 APWA GSP)

Revise the first paragraph to read:

Scale Verification Checks – At the Engineer's discretion, the Engineer may perform verification checks on the accuracy of each batch, hopper, or platform scale used in weighing contract items of Work.

1-09.6 Force Account

(December 30, 2022 APWA GSP)

Supplement this section with the following:

The Contracting Agency has estimated and included in the Proposal, dollar amounts for all items to be paid per force account, only to provide a common proposal for Bidders. All such dollar amounts are to become a part of Contractor's total bid. However, the Contracting Agency does not warrant expressly or by implication, that the actual amount of work will correspond with those estimates. Payment will be made on the basis of the amount of work actually authorized by the Engineer.

1-09.7 Mobilization

(December 30, 2022 APWA GSP)

Delete this Section and replace it with the following:

Mobilization consists of preconstruction expenses and the costs of preparatory Work and operations performed by the Contractor typically occurring before 10 percent of the total original amount of an individual Bid Schedule is earned from other Contract items on that Bid Schedule. Items which are not to be included in the item of Mobilization include but are not limited to:

1. Portions of the Work covered by the specific Contract item or incidental Work which is to be included in a Contract item or items.
2. Profit, interest on borrowed money, overhead, or management costs.
3. Costs incurred for mobilizing equipment for force account Work.

Based on the lump sum Contract price for “Mobilization”, partial payments will be made as follows:

1. When 5 percent of the total original Bid Schedule amount is earned from other Contract items on that original Bid Schedule, excluding amounts paid for materials on hand, 50 percent of the Bid Item for mobilization on that original Bid Schedule, 5 percent of the total of that original Bid Schedule, or 5 percent of the total original Contract amount, whichever is the least, will be paid.
2. When 10 percent of the total original Bid Schedule amount is earned from other Contract items on that original Bid Schedule, excluding amounts paid for materials on hand, 100 percent of the Bid Item for mobilization on that original Bid Schedule, 10 percent of the total of that original Bid Schedule, or 10 percent of the total original Contract amount, whichever is the least, will be paid.
3. When the Substantial Completion Date has been established for the project, payment of any remaining amount Bid for mobilization will be paid.

Nothing herein shall be construed to limit or preclude partial payments otherwise provided by the Contract.

1-09.8 Payment for Material on Hand
(August 3, 2009 WSDOT GSP)

The last paragraph of Section 1-09.8 is revised to read:

The Contracting Agency will not pay for material on hand when the invoice cost is less than $2,000. As materials are used in the work, credits equaling the partial payments for them will be taken on future estimates. Each month, no later than the estimate due date, the Contractor shall submit a letter to the Engineer that clearly states: 1) the amount originally paid on the invoice (or other record of production cost) for the items on hand, 2) the dollar amount of the material incorporated into each of the various work items for the month, and 3) the amount that should be retained in material on hand items. If work is performed on the items and the Contractor does not submit a letter, all of the previous material on hand payment will be deducted on the estimate. Partial payment for materials on hand shall not constitute acceptance. Any material will be rejected if found to be faulty even if partial payment for it has been made.

1-09.9 Payments
(March 13, 2012 APWA GSP)

Supplement this section with the following:

Lump sum item breakdowns are not required when the bid price for the lump sum item is less than $20,000.

1-09.9 Payments
(December 30, 2022 APWA GSP)

Section 1-09.9 is revised to read:

The basis of payment will be the actual quantities of Work performed according to the Contract and as specified for payment.

The Contractor shall submit a breakdown of the cost of lump sum bid items at the Preconstruction Conference, to enable the Project Engineer to determine the Work performed on a monthly basis. A breakdown is not required for lump sum items that include a basis for incremental payments as part of the respective Specification. Absent a lump sum breakdown, the Project Engineer will make a determination based on information available. The Project Engineer's determination of the cost of work shall be final.

Progress payments for completed work and material on hand will be based upon progress estimates prepared by the Engineer. A progress estimate cutoff date will be established at the preconstruction conference.

The initial progress estimate will be made not later than 30 days after the Contractor commences the work, and successive progress estimates will be made every month thereafter until the Completion Date. Progress estimates made during progress of the work are tentative, and made only for the purpose of determining progress payments. The progress estimates are subject to change at any time prior to the calculation of the final payment.

The value of the progress estimate will be the sum of the following:

1. Unit Price Items in the Bid Form — the approximate quantity of acceptable units of work completed multiplied by the unit price.
2. Lump Sum Items in the Bid Form — based on the approved Contractor's lump sum breakdown for that item, or absent such a breakdown, based on the Engineer's determination.
3. Materials on Hand — 100 percent of invoiced cost of material delivered to Job site or other storage area approved by the Engineer.
4. Change Orders — entitlement for approved extra cost or completed extra work as determined by the Engineer.

Progress payments will be made in accordance with the progress estimate less:

1. Retainage per Section 1-09.9(1), on non FHWA-funded projects;
2. The amount of progress payments previously made; and
3. Funds withheld by the Contracting Agency for disbursement in accordance with the Contract Documents.

Progress payments for work performed shall not be evidence of acceptable performance or an admission by the Contracting Agency that any work has been satisfactorily completed. The determination of payments under the contract will be final in accordance with Section 1-05.1.

Failure to perform obligations under the Contract by the Contractor may be decreed by the Contracting Agency to be adequate reason for withholding any payments until compliance is achieved.

Upon completion of all Work and after final inspection (Section 1-05.11), the amount due the Contractor under the Contract will be paid based upon the final estimate made by the Engineer and presentation of a Final Contract Voucher Certification to be signed by the Contractor. The Contractor's signature on such voucher shall be deemed a release of all claims of the Contractor unless a Certified Claim is filed in accordance with the requirements of Section 1-09.11 and is expressly excepted from the Contractor's certification on the Final Contract Voucher Certification. The date the Contracting Agency signs the Final Contract Voucher Certification constitutes the final acceptance date (Section 1-05.12).

If the Contractor fails, refuses, or is unable to sign and return the Final Contract Voucher Certification or any other documentation required for completion and final acceptance of the Contract, the Contracting Agency reserves the right to establish a Completion Date (for the purpose of meeting the requirements of RCW 60.28) and unilaterally accept the Contract. Unilateral final acceptance will occur only after the Contractor has been provided the

opportunity, by written request from the Engineer, to voluntarily submit such documents. If voluntary compliance is not achieved, formal notification of the impending establishment of a Completion Date and unilateral final acceptance will be provided by email with delivery confirmation from the Contracting Agency to the Contractor, which will provide 30 calendar days for the Contractor to submit the necessary documents. The 30 calendar day period will begin on the date the email with delivery confirmation is received by the Contractor. The date the Contracting Agency unilaterally signs the Final Contract Voucher Certification shall constitute the Completion Date and the final acceptance date (Section 1-05.12). The reservation by the Contracting Agency to unilaterally accept the Contract will apply to Contracts that are Physically Completed in accordance with Section 1-08.5, or for Contracts that are terminated in accordance with Section 1-08.10. Unilateral final acceptance of the Contract by the Contracting Agency does not in any way relieve the Contractor of their responsibility to comply with all Federal, State, tribal, or local laws, ordinances, and regulations that affect the Work under the Contract.

Payment to the Contractor of partial estimates, final estimates, and retained percentages shall be subject to controlling laws.

1-09.11 Disputes and Claims

1-09.11(3) Time Limitation and Jurisdiction

(December 30, 2022 APWA GSP)

Revise this section to read*:*

For the convenience of the parties to the Contract it is mutually agreed by the parties that all claims or causes of action which the Contractor has against the Contracting Agency arising from the Contract shall be brought within 180 calendar days from the date of final acceptance (Section 1-05.12) of the Contract by the Contracting Agency; and it is further agreed that all such claims or causes of action shall be brought only in the Superior Court of the county where the Contracting Agency headquarters is located, provided that where an action is asserted against a county, RCW 36.01.050 shall control venue and jurisdiction. The parties understand and agree that the Contractor's failure to bring suit within the time period provided, shall be a complete bar to all such claims or causes of action. It is further mutually agreed by the parties that when claims or causes of action which the Contractor asserts against the Contracting Agency arising from the Contract are filed with the Contracting Agency or initiated in court, the Contractor shall permit the Contracting Agency to have timely access to all records deemed necessary by the Contracting Agency to assist in evaluating the claims or action.

1-09.13(3)A Arbitration General

(January 19, 2022 APWA GSP)

Revise the third paragraph to read:

The Contracting Agency and the Contractor mutually agree to be bound by the decision of the arbitrator, and judgment upon the award rendered by the arbitrator may be entered in the Superior Court of the county in which the Contracting Agency's headquarters is located, provided that where claims subject to arbitration are asserted against a county, RCW

36.01.050 shall control venue and jurisdiction of the Superior Court. The decision of the arbitrator and the specific basis for the decision shall be in writing. The arbitrator shall use the Contract as a basis for decisions.

1-09.13(4) Venue for Litigation
(December 30, 2022 APWA GSP)

Revise this section to read:

Litigation shall be brought in the Superior Court of the county in which the Contracting Agency's headquarters is located, provided that where claims are asserted against a county, RCW 36.01.050 shall control venue and jurisdiction of the Superior Court. It is mutually agreed by the parties that when litigation occurs, the Contractor shall permit the Contracting Agency to have timely access to all records deemed necessary by the Contracting Agency to assist in evaluating the claims or action.

1-10 TEMPORARY TRAFFIC CONTROL

1-10.2 Traffic Control Management

1-10.2(1) General
(October 3, 2022 WSDOT GSP Option 1)

Section 1-10.2(1) is supplemented with the following:

The Traffic Control Supervisor shall be certified by one of the following:

The Northwest Laborers-Employers Training Trust
27055 Ohio Ave.
Kingston, WA 98346
(360) 297-3035
https://www.nwlett.edu

Evergreen Safety Council
12545 135th Ave. NE
Kirkland, WA 98034-8709
1-800-521-0778
https://www.esc.org

The American Traffic Safety Services Association
15 Riverside Parkway, Suite 100
Fredericksburg, Virginia 22406-1022
Training Dept. Toll Free (877) 642-4637
Phone: (540) 368-1701
https://atssa.com/training

Integrity Safety
13912 NE 20th Ave.
Vancouver, WA 98686
(360) 574-6071
https://www.integritysafety.com

US Safety Alliance
(904) 705-5660
https://www.ussafetyalliance.com

K&D Services Inc.
2719 Rockefeller Ave.
Everett, WA 98201
(800) 343-4049
https://www.kndservices.net

END OF DIVISION 1

DIVISION 2
EARTHWORK

2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

2-01.1 Description

(City of Duvall)

Section 2-01.1 is supplemented with the following:

Clearing and grubbing shall include the removal and disposal of all trees less than 12 inches caliper, stumps, vegetation, and organic matter within the project clearing limits except where otherwise noted on the Plans. The area to be cleared shall extend 1 foot beyond the improvements (i.e., toe of fill, top of cut slope, fence, sidewalk, pavement, curb, etc.) Work shall also include creating habitat snags where shown on the plans as as specified herein, and pruning or limbing of existing vegetation intended to remain as required to maintain required clearances as noted below or as directed by the Engineer.

Trees denoted on the plans for removal shall be flagged by the Contractor and approved by the Engineer prior to removal. Tree removal means cutting, hauling away and disposing an existing tree, grinding stumps and removing all of the stump and its roots under the sidewalk and pavement.

2-01.2 Disposal of Usable Material and Debris

2-01.2(2) Disposal Method No. 2 – Waste Site

(City of Duvall)

Section 2-01.2(2) is supplemented with the following:

No waste site has been provided for the disposal of excess material. All material removed by clearing and grubbing operations shall be disposed of by the Contractor at a legal disposal site obtained by the Contractor, unless wood from downed trees is preferred for retention by the adjoining property owner or if approved by the Engineer to be used as Large Woody Material, Small Woody Material, or Slash for stream restoration. No separate payment will be made for waste disposal of clearing and grubbing materials, and all fees shall be borne by the Contractor.

Contractor shall provide receipt or proof that the waste site utilized is a legal disposal site.

2-01.3 Construction Requirements

2-01.3(1) Clearing

(City of Duvall)

Section 2-01.3(1) is revised to read:

1. Fell trees only within the clearing limits as identified on the Plans.
2. Leave standing and protect all trees, roots, and native growth outside of the clearing limits or that have not been identified by the Engineer for removal. Where roots extend into the improvement area and conflict with the proposed improvements, they shall be pruned in accordance with the Plans.
3. Removal of trees shall include removal of stumps and roots to minimum 6 inches below existing or finished subgrade, whichever is lower, unless noted otherwise on the Plans.
4. Completely remove all stumps in conflict with proposed utilities, structures, walls and foundations.
5. To avoid disturbance outside clearing limits, roots requiring removal shall be cut at the clearing limits.
6. Contractor shall take all necessary precautions to protect adjacent trees, utilities, and other improvements from damage.
7. Trim all trees to remain to the height specified by the Engineer or to a minimum height of 8 feet above proposed sidewalk and 14 feet above the finish roadway surface. Neatly cut all limbs close to the tree trunk.
8. Trim trees, brush, and shrubs encroaching over the right-of-way line as necessary to accommodate the proposed improvements.
9. Trim trees and other vegetation as necessary to provide clear, unobstructed view of roadway signs. Determination of “clear and unobstructed” shall be at the sole discretion of the Engineer.
10. Trees designated on the Plans as habitat snags shall be cut at 10-15 feet above existing ground, as directed by the Engineer based on distance from potential fall targets. The final height of the snag should be less than the distance to any potential target such as the roadway or adjacent structures. Rough up the top of the snag to create a jagged surface with deep grooves and fissures that allow water to penetrate into the snag. Remove all lateral branches.
11. Clearing and grading limits shall be limited to areas within existing right-of-way and temporary construction easements. The city will provide temporary construction easement information prior to beginning construction.

Add the New Section below:

2-01.3(3) Tree Protection
(City of Duvall)

For full tree protection requirements, see Arborist Memo and Tree Retention Plans, Appendix G (Note that only tree numbers 83-107 apply to this project).

Tree protection shall include all of the following items:

- Installation of tree protection around all existing trees to remain within the construction zone is required prior to any construction beginning. Not all trees requiring tree protection may be shown in the plans. Tree protection shall be installed where shown and as detailed on the Plans.
- A tree protection inspection is required through Public Works and/or Planning. Corrections shall be made at no cost to the City. Construction cannot progress until the tree protection has been approved.
- Maintaining tree protection through the life of construction at the specific sites. Tree protection shall not be moved or adjusted without City Approval.
- No construction debris or equipment shall be allowed under the tree canopy drip line.
- It is the contractor's responsibility to replace any trees that were damaged during construction where tree protection methods were not properly implemented.

2-01.4 Measurement

(City of Duvall)

Section 2-01.4 is supplemented with the following:

"Removing Tree 12 In. Caliper or Larger Incl. Haul" will be measured per lump sum.

All work outlined in Section 2-01.3(3) for Tree Protection will be measured per lump sum.

2-01.5 Payment

(City of Duvall)

Section 2-01.5 is supplemented with the following:

"Clearing and Grubbing", lump sum.

The lump sum contract price for "Clearing and Grubbing" shall include all costs to notify property owners, protect landscaping to remain, down, waste haul and dispose of downed trees smaller than 12-inch caliper, including stumps, vegetation, trimmings, pruning/shear existing vegetation to remain, and create habitat snags, in accordance with the Plans and Special Provisions.

"Removing Tree 12 In. Caliper or Larger Incl. Haul", per lump sum.

The lump sum contract price for "Removing Tree 12 In. Caliper or Larger Incl. Haul" shall include all costs to notify property owners, down trees, and dispose of downed trees, grind stumps, dispose of stump grinding, and all root structure removal under the area of proposed improvements, and removal and waste haul of debris. Any tree removal under 12-inch caliper size shall be incidental to "Clearing and Grubbing", and no separate payment will be made for its removal.

"Tree Protection", per lump sum.

The lump sum contract price for "Tree Protection" shall be full pay for all costs necessary to complete the work as shown and detailed on the Plans.

2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

2-02.1 Description

(City of Duvall)

Section 2-02.1 is supplemented with the following:

For the purpose of this Contract, "*Removal of Structure and Obstruction*" shall include the removing, abandoning, protecting, storing, and salvaging, of miscellaneous objects required to complete the new construction.

The lump sum contract price for "*Removal of Structure and Obstruction*" shall be full compensation for furnishing all labor, tools, materials, and equipment necessary to:

- Satisfactorily remove and dispose of the items specified, backfill and compact the resulting void.

- Satisfactorily salvage the items specified for re-use or to be returned to the property owner or the City.

The items tabulated below shall be removed, abandoned, reset, or salvaged and shall be included in the lump sum contract price for 'Removal of Structure and Obstruction'.

ITEM	ACTION	APPROX. LOCATION	APPROX. QUANTITY
Extruded Curb	Remove	~STA 30+86 to STA 31+90	159 LF
Metal Fence	Remove	~STA 30+87, RT to STA 31+35, RT	48 LF
Retaining Wall	Remove	~STA 30+87, RT to STA 31+35, RT	48 LF
Water Line	Remove	~STA 31+04, RT to STA 31+82, RT	149 LF
Blowoff Assembly	Remove and Salvage to City	~STA 31+48, RT	1 EA
Storm Pipe	Remove	Varies, See Stormwater Plan & Profiles	293 LF
Storm Structure	Remove	Varies, See Stormwater Plan & Profiles	2 EA

Quantities shown are approximate. Quantities are for the Contractor's convenience and should be verified prior to bidding.

If requested by a specific property owner, existing features (such as fencing, etc.) shall be protected, salvaged, and returned to the property owner.

2-02.3 Construction Requirements

(City of Duvall)

Section 2-02.3 is supplemented with the following:

The Contractor shall minimize disruption to private property outside of the project limits.

The removal of any existing improvements shall be conducted in such a manner as not to damage utilities and any portion of the infrastructure that is to remain in place. Any deviation in this matter will obligate the Contractor at his own expense, to repair, replace or otherwise make proper restoration to the satisfaction of the Contracting Agency.

When sawing of concrete or combinations of materials is required, the depth of cut shall be as required to accomplish the intended purpose, without damaging surfaces to be left in place and will be determined in the field to the satisfaction of the Engineer.

Unless otherwise indicated on the Plans or in the Special Provisions, all structures, castings, pipe and other material of recoverable value removed from the Project site shall be carefully salvaged and delivered to the Owner of said utility items in good condition and in such order of salvage as the Engineer may direct. Materials and other items deemed of no value by the Engineer shall be promptly removed, loaded and waste hauled by the Contractor and becomes his property, to be disposed of at his discretion, in compliance with regulatory requirements.

Waste materials shall be loaded and hauled to a waste site secured by the Contractor and shall be disposed of in such a manner as to meet all requirements of state, county and municipal regulations regarding health, safety and public welfare. No waste haul materials shall be stockpiled on the site.

2-02.3(2) Removal of Bridges, Box Culverts, and Other Drainage Structures

(City of Duvall)

Section 2-02.3(2) is supplemented with the following:

Removal of Existing Drainage and Sanitary Sewer Pipe

Where shown in the Plans or at other locations as determined by the Engineer, the Contractor shall remove pipe regardless of the size or type. Pipe shall be removed either in its entirety or a portion of pipe, as called for in the Plans. Any pipe that is to remain when a portion of the pipe is to be removed, but is damaged during the removal operation, shall be repaired or replaced by the Contractor at no expense to the Contracting Agency.

Voids left by drainage pipe removal shall be backfilled with a granular material and compacted in accordance with Section 2-03.3(14)C.

All materials removed shall become the property of the Contractor and shall be disposed of outside the project limits.

Removal of Structures
Where shown in the Plans, or at other locations as determined by the Engineer, the Contractor shall remove catch basins, manholes, or inlets regardless of the size or type. Each structure shall be removed in its entirety. Prior to backfilling the resultant void, the Contractor shall plug and abandon the existing pipe(s) with commercial concrete in accordance with Section 7-08.3(4).

Voids left by structure removal shall be backfilled and compacted in accordance with Section 2-03.3(14)C.

2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters
(City of Duvall)
Section 2-02.3(3) is supplemented with the following:

Pavement, sidewalks, and curbs shall be sawcut in such a fashion to form a neat break line. Removal, disposal, and saw cutting is incidental to the work involved unless specific bid items have been provided.

Replace at no expense to the City of Duvall any existing pavement designated to remain that is damaged during the removal of other pavement.

Broken pieces of pavement, sidewalks, and curbing shall not be placed in any embankment or fill on the project site and shall be disposed of at an approved fill site or recycling facility.

Add New Section:

2-02.3(4) Sawcutting
(City of Duvall)

In accordance with the Department of Ecology guidelines, wastewater from Portland Cement Concrete, masonry, and asphalt concrete cutting operations shall not be discharged to storm drainage systems or surface waters. Cutting operations increase the pH of wastewater, therefore, filtering prior to discharge is NOT acceptable.

To thoroughly clean saw cuts where necessary, the CONTRACTOR shall use high pressure water (high pressure water is considered greater than 1400 p.s.i.).

All wastewater shall be collected using a wet-dry vacuum and transferred into drums for disposal. Impervious surfaces contaminated with sediment and grit from cutting operations shall be cleaned by sweepers to prevent contaminants from entering the storm drainage system or surface waters when it rains.

2-02.5 Payment

(City of Duvall)

Section 2-02.5 is supplemented with the following:

"Removal of Structure and Obstruction", per lump sum.

All items noted for removal, abandonment, relocation, or salvage to which other Bid items do not apply shall be considered included in the lump sum Bid item for "Removal of Structure and Obstruction". Saw cutting, demolition, haul, and disposal/salvage of materials to which this Bid item applies shall also be considered incidental. Contractor shall provide receipt or proof that the waste site utilized is a legal disposal site.

2-03 ROADWAY EXCAVATION AND EMBANKMENT

2-03.3 Construction Requirements

2-03.3(7) Disposal of Surplus Material

2-03.3(7)B Haul

(City of Duvall)

Delete this section and replace it with the following:

There shall be no separate payment for haul of excess or unsuitable excavated material, or debris to the Contractor provided disposal site. The Contracting Agency is not providing a disposal site for this Project. All costs for haul shall be included in the bid prices for other work.

2-03.3(7)C Contractor-Provided Disposal Site

(City of Duvall)

This section is supplement with the following:

The Contracting Agency will not supply a disposal site for excess excavation and other materials. The Contractor shall arrange for the haul and disposal at no expense to the Contracting Agency.

2-03.3(14)E Unsuitable Foundation Excavation

(City of Duvall)

Section 2-03.3(14)E is supplemented with the following:

Excavation required and approved by the Engineer to remove unsuitable subgrade materials shall be measured and paid under "Unsuitable Foundation Excavation Incl. Haul" for which a unit price bid item has been provided in the Proposal. This unit bid price is applicable for removal of unsuitable subgrade within the roadway, beneath retaining wall footings and reinforcement zones, beneath utility trenches, and beneath sidewalks, curbs, and private driveways and parking lots.

The provisions of 2-03.3(14)E of the Standard Specifications shall apply except that **Sub Excavation** below grade described in 2-03.3(3) of the Standard Specifications and **Removal of Unstable Base Material** per 2-09.3(1)C of the Standard Specifications shall also be included in the "Unsuitable Foundation Excavation Incl. Haul" bid item. All excavated unsuitable foundation materials shall be disposed of by the Contractor.
Measurement and payment for "Unsuitable Foundation Excavation Including Haul" shall be limited to a depth of one (1) foot beneath proposed subgrade surface, unless otherwise approved by the Engineer. Backfill of unsuitable foundation shall be with materials meeting the requirements for gravel borrow in accordance with Section 9-03.14(1) of the Standard Specifications.

If excessive unsuitable foundation is encountered, and at the direction of the Engineer, the Contractor shall furnish and install Construction Geotextile for Separation per 2-12 of the Standard Specifications.

The Contractor is advised that "Unsuitable Foundation Excavation Incl. Haul" is contingent on the presence of unsuitable foundation materials. A quantity has been provided in the Bid Proposal solely to provide a common basis for bidders. The quantity may be greatly increased, decreased or reduced to zero. Payment shall be only for actual work performed based upon the unit contract price and shall be considered full compensation for the Work.

2-03.4 Measurement

(City of Duvall)

Section 2-03.4 is supplemented with the following:

No separate measurement will be made for embankment compaction.

Measurement for "Roadway Excavation Incl. Haul" will be per cubic yard.

Only one determination of the original ground elevation will be made on this project. Measurement for roadway excavation and embankment will be based on the original Ground elevations recorded previous to the award of this contract. Control stakes will be set during construction to provide the Contractor with all essential information for the construction of excavation and embankments. Staking work is included in the lump sum contract price for Roadway Surveying.

If discrepancies are discovered in the ground elevations which will materially affect the quantities of earthwork, the original computations of earthwork quantities will be adjusted accordingly.

Earthwork quantities will be computed, either manually or by means of electronic data processing equipment, by use of the average end area method or by the finite element analysis method utilizing digital terrain modeling techniques.

Measurement for "Unsuitable Foundation Excavation Incl. Haul" will be per cubic yard.

2-03.5 Payment

(City of Duvall)

Section 2-03.5 is supplemented with the following:

"Roadway Excavation Incl. Haul", per cubic yard.

The unit contract price per cubic yard for "Roadway Excavation Incl. Haul" shall include costs associated with removal of existing materials (including but not limited to curbs and gutter, sidewalks, asphalt pavement and concrete pavement), loading, hauling, and disposing of the material at a Contractor-furnished site, as well as stockpiling, placing, shaping, and grading per Section 2-03, Subgrade Preparation per Section 2-06, Watering per Section 2-07, compacting, loading, hauling to waste and disposing of all excess or unsuitable material, including logs, rocks, cobbles, etc.

No separate payment will be made for embankment compaction. Costs for embankment compaction for Section 2-03 bid items shall be included in other bid items.

In the event the Contractor overcuts a street, due to his oversight or error, the structural fill material (as approved by Contracting Agency) and compaction required to bring the roadway section back to subgrade elevation shall be furnished and accomplished at their sole expense, as no additional payment will be due the Contractor for this work.

Should solid rock be encountered, the excavation, removal and waste haul will be paid by change order per Section 1-04.4. Boulders or broken rock less than 2 cubic yards in volume will not be classified as solid rock, nor will so called "hard-pan" or cemented gravel, even though it may be advantageous to use explosives in its removal.

"Gravel Borrow Incl. Haul", per ton.

The unit contract price per ton for "Gravel Borrow Incl. Haul" shall be full pay for all costs relative to furnishing, hauling, placing, shaping and compacting the gravel borrow material, as indicated on the Plans, and as otherwise required and approved in the field by the Engineer.

"Unsuitable Foundation Excavation Incl. Haul", per cubic yard.

The cubic yard price shall include all costs associated with removal of unsuitable soils, loading, hauling, and disposing of the material. The unit price shall also include furnishing and installing Construction Geotextile for Separation, for excessive foundation excavation as described herein under Special Provision Section 2-03.3(14)E.

2-04 HAUL

2-04.1 Description

(City of Duvall)

Section 2-04.1 is supplemented with the following:

In reference to the term “haul” as used in Section 2-04 and Section 2-09.3(1)D of the Standard Specifications, all costs and expense involved in haul will be considered incidental to the unit contract prices of the bid items and no additional compensation will be made.

2-06 SUBRGRADE PREPARATION

2-06.3 Construction Requirements

(City of Duvall)

Section 2-06.3 is supplemented with the following:

Compaction of the subgrade shall be considered incidental to and included in the unit contract prices of other items in the contract, and all costs thereof shall be included by the CONTRACTOR in other pay items. The subgrade shall be shaped and maintained to drain at all times during construction, including temporary ditches, and modifications to drainage structures necessary to eliminate standing water on the subgrade.

The City’s project manager shall be notified when the roadway or flatwork subgrade is compacted. The City’s inspector or testing agency may test the subgrade prior to additional construction.

END OF DIVISION 2

DIVISION 3
AGGREGATE PRODUCTION AND ACCEPTANCE

3-01 PRODUCTION FROM QUARRY AND PIT SITES

3-01.2 Material Sources, General Requirements

3-01.2(1) Approval of Source

(City of Duvall)

Section 3-01.2(1) is supplemented with the following:

The Contractor is responsible for all costs associated with approval of the material source.

3-01.4 Contractor Furnished Material Sources

(City of Duvall)

Section 3-01.4 is supplemented with the following:

No source has been provided for any materials necessary for the construction of this improvement.

The Contractor shall arrange to obtain the necessary materials at no expense to the Contracting Agency, and all costs of acquiring, producing, and placing this material in the finished work shall be included in the unit contract prices for the various items involved.

3-01.6 Payment

(City of Duvall)

Section 3-01.6 is supplemented with the following:

All costs of any work required under Division 3 shall be incidental to and included in the unit contract prices for the various items in the Proposal.

3-02 STOCKPILING AGGREGATES

3-02.2 General Requirements

3-02.2(2) Stockpile Site Provided by the Contractor

(City of Duvall)

Section 3-02.2(2) is supplemented with the following:

If the Contractor chooses to stockpile crushed surfacing materials, and backfill materials on or near the site, the Contractor shall establish and maintain separate stockpile areas for:

1. Materials that are to be measured and paid for separately.

2. Materials which are incidental to other bid items.

3-02.3 Additional Requirements for Specific Aggregates
(City of Duvall)

Section 3-02.3 is supplemented with the following:

Each stockpile will be completely covered between October 1 and April 30.

3-02.4 Measurement
(City of Duvall)
Section 3-02.4 is supplemented with the following:

The specific materials in each stockpile will be measured as designated in the Standard Specifications and these Special Provisions.

3-02.5 Payment
(City of Duvall)
Section 3-02.5 is supplemented with the following:

All costs of any work under Section 3-02 shall be incidental to and included in the unit Contract prices for the various items in the Proposal, unless designated otherwise in these Special Provisions.

END OF DIVISION 3

DIVISION 4
BASES

4-04 BALLAST AND CRUSHED SURFACING

4-04.2 Materials

(City of Duvall)
Section 4-04.2 is supplemented with the following:

Contractors are encouraged to consider using recycled concrete that meets the requirements of Section 4-04 of the Standard Specifications and these Special Provisions. Recycled concrete is encouraged for use as a base course or top course material under cement concrete sidewalk or portland cement concrete pavement. Recycled concrete crushed surfacing is not acceptable as a top course under asphalt concrete pavement.

4-04.3 Construction Requirements

4-04.3(1) Equipment

(City of Duvall)
Section *4-04.3(1)* is supplemented with the following:

All equipment necessary for the satisfactory performance of this construction shall be on the project and approved by the Engineer prior to beginning work. If central mix plant methods are used, the central mixing plant shall comply with the following requirements:

The cold aggregate feeder shall be mechanically operated and adjustable to the extent necessary to provide a uniform and continuous flow of materials. These materials shall be deposited in an approved mixer with a sufficient amount of water being added to obtain the required density when spread and compacted. The water shall be weighed or metered, and dispensed through a device providing uniform dispersion across the mixer.

The mixing plant shall be provided with weighing or calibrating devices, feeders, provisions for sampling, and other devices and equipment so designed, coordinated, and operated to produce a uniform mixture, and to permit the sampling of the materials before and after mixing. The mixer shall be kept in good condition, and mixing blades or paddles shall be of proper size, adjustment, and clearance to provide positive and uniform mixing of the mixture at all times.

The capacity of the plant and equipment furnished for the Work shall be adequate at all times to provide for efficient and continuous operations insofar as practical.

4-04.3(2) Subgrade

(City of Duvall)

Section 4-04.3(2) is supplemented with the following:

The Subgrade shall be prepared as specified in Section 2-06 and shall be approved by the Engineer before placing ballast or surfacing materials.

In locations where the subgrade needs to be excavated beyond the depths shown in the plans, work with be tracked by Force Account. Additional excavation shall be preapproved by the City prior to removal and replacement. Excavated depths will be determined by the Engineer or Inspector in the field.

4-04.3(5) Shaping and Compaction

(City of Duvall)

Section 4-04.3(5) is supplemented with the following:

Immediately following spreading and final shaping each layer of surfacing shall be compacted to at least 95 percent of maximum density determined by the requirements of Section 2-03.3(14)D before the next succeeding layer of surfacing or pavement is placed.

The City's inspector or material inspection agency may test the density for compliance with compaction specifications.

4-04.3(7) Miscellaneous Requirements

(City of Duvall)

Section 4-04.3(7) is supplemented with the following:

The surface of each layer of surfacing material shall be maintained true to line, grade, and cross-section by grading, watering, and rolling until placing the next succeeding course. The first course of surfacing material shall be placed on all available Subgrade before placing the succeeding course unless otherwise authorized by the Engineer. Unless otherwise approved, there shall be a distance of not less than one station between the construction of any two courses of surfacing or ballast.

Should irregularities develop in any surface during or after compaction, they shall be remedied by loosening the surface and correcting the defects after which the entire area including the surrounding surface shall be thoroughly recompacted. Any additional materials necessary to make the repairs shall be furnished by the CONTRACTOR at the unit Contract price.

4-04.3(8) Weather Limitations

(City of Duvall)

Section 4-04.3(8) is supplemented with the following:

When, in the opinion of the Engineer, the weather is such that satisfactory results cannot be obtained, the CONTRACTOR shall suspend operations until the weather is favorable. No surfacing materials shall be placed in snow or on a soft, muddy, or frozen Subgrade.

Inability to demonstrate reliable and satisfactory results will be reason to order termination of night operations, and the CONTRACTOR shall procure additional equipment and personnel necessary to satisfactorily complete the Work as specified while operating during daylight hours only.

END OF DIVISION 4

DIVISION 5
SURFACE TREATMENTS AND PAVEMENTS

5-04 HOT MIX ASPHALT

(City of Duvall)

Delete Section 5-04, Hot Mix Asphalt, and replace it with the following:

5-04.1 Description

This Work shall consist of providing and placing one or more layers of plant-mixed hot mix asphalt (HMA) on a prepared foundation or base in accordance with these Specifications and the lines, grades, thicknesses, and typical cross-sections shown in the Plans. The manufacture of HMA may include warm mix asphalt (WMA) processes in accordance with these Specifications. WMA processes include organic additives, chemical additives, and foaming.

HMA shall be composed of asphalt binder and mineral materials as may be required, mixed in the proportions specified to provide a homogeneous, stable, and workable mixture.

5-04.2 Materials

Materials shall meet the requirements of the following sections:

Asphalt Binder	9-02.1(4)
Cationic Emulsified Asphalt	9-02.1(6)
Anti-Stripping Additive	9-02.4
HMA Additive	9-02.5
Aggregates	9-03.8
Recycled Asphalt Pavement (RAP)	9-03.8(3)B, 9-03.21
Reclaimed Asphalt Shingles (RAS)	9-03.8(3)B, 9-03.21
Mineral Filler	9-03.8(5)
Recycled Material	9-03.21

The Contract documents may establish that the various mineral materials required for the manufacture of HMA will be furnished in whole or in part by the Contracting Agency. If the documents do not establish the furnishing of any of these mineral materials by the Contracting Agency, the Contractor shall be required to furnish such materials in the amounts required for the designated mix. Mineral materials include coarse and fine aggregates, and mineral filler.

The Contractor may choose to utilize recycled asphalt pavement (RAP) in the production of HMA. The RAP may be from pavements removed under the Contract, if any, or pavement material from an existing stockpile.

The Contractor may use up to 20 percent RAP by total weight of HMA with no additional sampling or testing of the RAP.

If the Contractor wishes to utilize High RAP/Any RAS, the design must be listed on the WSDOT Qualified Products List (QPL).

The grade of asphalt binder shall be as required by the Contract. Blending of asphalt binder from different sources is not permitted.

The Contractor may only use warm mix asphalt (WMA) processes in the production of HMA with 20 percent or less RAP by total weight of HMA. The Contractor shall submit to the Engineer for approval the process that is proposed and how it will be used in the manufacture of HMA.

Production of aggregates shall comply with the requirements of Section 3-01.
Preparation of stockpile site, the stockpiling of aggregates, and the removal of aggregates from stockpiles shall comply with the requirements of Section 3-02.

5-04.2(1) How to Get an HMA Mix Design on the QPL

If the Contractor wishes to submit a mix design for inclusion in the Qualified Products List (QPL), please follow the WSDOT process outlined in Standard Specification 5-04.2(1).

5-04.2(1)A Vacant

5-04.2(2) Mix Design - Obtaining Project Approval

No paving shall begin prior to the approval of the mix design by the Engineer.

Nonstatistical evaluation will be used for all HMA not designated as Commercial HMA in the Contract documents.

Commercial evaluation will be used for Commercial HMA and for other classes of HMA in the following applications: sidewalks, road approaches, ditches, slopes, paths, trails, gores, prelevel, temporary pavement, and pavement repair. Other nonstructural applications of HMA accepted by commercial evaluation shall be as approved by the Project Engineer. Sampling and testing of HMA accepted by commercial evaluation will be at the option of the Project Engineer. The Proposal quantity of HMA that is accepted by commercial evaluation will be excluded from the quantities used in the determination of nonstatistical evaluation.

Nonstatistical Mix Design. Fifteen days prior to the first day of paving the Contractor shall provide one of the following mix design verification certifications for Contracting Agency review;

- The WSDOT Mix Design Evaluation Report from the current WSDOT QPL, or one of the mix design verification certifications listed below.
- The proposed HMA mix design on WSDOT Form 350-042 with the seal and certification (stamp & signature) of a valid licensed Washington State Professional Engineer.

- The Mix Design Report for the proposed HMA mix design developed by a qualified City or County laboratory that is within one year of the approval date.

The mix design shall be performed by a lab accredited by a national authority such as Laboratory Accreditation Bureau, L-A-B for Construction Materials Testing, The Construction Materials Engineering Council (CMEC's) ISO 17025 or AASHTO Accreditation Program (AAP) and shall supply evidence of participation in the AASHTO: resource proficiency sample program.

Mix designs for HMA accepted by Nonstatistical evaluation shall:

- Be designed for *** >4 *** million equivalent single axle loads (ESALs).
- Have the aggregate structure and asphalt binder content determined in accordance with WSDOT Standard Operating Procedure 732 and meet the requirements of Sections 9-03.8(2), except that Hamburg testing for ruts and stripping are at the discretion of the Engineer, and 9-03.8(6).
- Have anti-strip requirements, if any, for the proposed mix design determined in accordance with AASHTO T 283 or T 324 or based on historic anti-strip and aggregate source compatibility from previous WSDOT lab testing.

At the discretion of the Engineer, agencies may accept verified mix designs older than 12 months from the original verification date with a certification from the Contractor that the materials and sources are the same as those shown on the original mix design.

Commercial Evaluation Mix Design. Approval of a mix design for "Commercial Evaluation" will be based on a review of the Contractor's submittal of WSDOT Form 350-042 (for commercial mixes, AASHTO T 324 evaluation is not required) or a Mix Design from the current WSDOT QPL or from one of the processes allowed by this section. Testing of the HMA by the Contracting Agency for mix design approval is not required.

For the Bid Item Commercial HMA, the Contractor shall select a class of HMA and design level of ESALs appropriate for the required use.

5-04.2(2)B Using Warm Mix Asphalt Processes

The Contractor may elect to use additives that reduce the optimum mixing temperature or serve as a compaction aid for producing HMA. Additives include organic additives, chemical additives and foaming processes. The use of Additives is subject to the following:

- Do not use additives that reduce the mixing temperature more than allowed in Section 5-04.3(6) in the production of mixtures.
- Before using additives, obtain the Engineer's approval using WSDOT Form 350-076 to describe the proposed additive and process.

5-04.3 Construction Requirements

5-04.3(1) Weather Limitations

Do not place HMA for wearing course on any Traveled Way beginning October 1st through March 31st of the following year without written concurrence from the Engineer.

Do not place HMA on any wet surface, or when the average surface temperatures are less than those specified below, or when weather conditions otherwise prevent the proper handling or finishing of the HMA.

Minimum Surface Temperature for Paving

Compacted Thickness (Feet)	Wearing Course	Other Courses
Less than 0.10	55°F	45°F
0.10 to .20	45°F	35°F
More than 0.20	35°F	35°F

5-04.3(2) Paving Under Traffic

When the Roadway being paved is open to traffic, the requirements of this Section shall apply.

The Contractor shall keep intersections open to traffic at all times except when paving the intersection or paving across the intersection. During such time, and provided that there has been an advance warning to the public, the intersection may be closed for the minimum time required to place and compact the mixture. In hot weather, the Engineer may require the application of water to the pavement to accelerate the finish rolling of the pavement and to shorten the time required before reopening to traffic.

Before closing an intersection, advance warning signs shall be placed, and signs shall also be placed marking the detour or alternate route.

During paving operations, temporary pavement markings shall be maintained throughout the project. Temporary pavement markings shall be installed on the Roadway prior to opening to traffic. Temporary pavement markings shall be in accordance with Section 8-23.

All costs in connection with performing the Work in accordance with these requirements, except the cost of temporary pavement markings, shall be included in the unit Contract prices for the various Bid items involved in the Contract.

5-04.3(3) Equipment

5-04.3(3)A Mixing Plant

Plants used for the preparation of HMA shall conform to the following requirements:

1. **Equipment for Preparation of Asphalt Binder** – Tanks for the storage of asphalt binder shall be equipped to heat and hold the material at the required temperatures. The heating shall be accomplished by steam coils, electricity, or other approved means so that no flame shall be in contact with the storage tank. The circulating system for the asphalt binder shall be designed to ensure proper and continuous circulation during the operating period. A valve for the purpose of sampling the asphalt binder shall be placed in either the storage tank or in the supply line to the mixer.

2. **Thermometric Equipment** – An armored thermometer, capable of detecting temperature ranges expected in the HMA mix, shall be fixed in the asphalt binder feed line at a location near the charging valve at the mixer unit. The thermometer location shall be convenient and safe for access by Inspectors. The plant shall also be equipped with an approved dial-scale thermometer, a mercury actuated thermometer, an electric pyrometer, or another approved thermometric instrument placed at the discharge chute of the drier to automatically register or indicate the temperature of the heated aggregates. This device shall be in full view of the plant operator.

3. **Heating of Asphalt Binder** – The temperature of the asphalt binder shall not exceed the maximum recommended by the asphalt binder manufacturer nor shall it be below the minimum temperature required to maintain the asphalt binder in a homogeneous state. The asphalt binder shall be heated in a manner that will avoid local variations in heating. The heating method shall provide a continuous supply of asphalt binder to the mixer at a uniform average temperature with no individual variations exceeding 25°F. Also, when a WMA additive is included in the asphalt binder, the temperature of the asphalt binder shall not exceed the maximum recommended by the manufacturer of the WMA additive.

4. **Sampling and Testing of Mineral Materials** – The HMA plant shall be equipped with a mechanical sampler for the sampling of the mineral materials. The mechanical sampler shall meet the requirements of Section 1-05.6 for the crushing and screening operation. The Contractor shall provide for the setup and operation of the field-testing facilities of the Contracting Agency as provided for in Section 3-01.2(2).

5. **Sampling HMA** – The HMA plant shall provide for sampling HMA by one of the following methods:

    a. A mechanical sampling device attached to the HMA plant.

    b. Platforms or devices to enable sampling from the hauling vehicle without entering the hauling vehicle.

5-04.3(3)B Hauling Equipment

Trucks used for hauling HMA shall have tight, clean, smooth metal beds and shall have a cover of canvas or other suitable material of sufficient size to protect the mixture from adverse weather. Whenever the weather conditions during the work shift include, or are forecast to include precipitation or an air temperature less than 45°F or when time from loading to unloading exceeds 30 minutes, the cover shall be securely attached to protect the HMA.

The Contractor shall provide an environmentally benign means to prevent the HMA mixture from adhering to the hauling equipment. Excess release agent shall be drained prior to filling hauling equipment with HMA. Petroleum derivatives or other coating material that contaminate or alter the characteristics of the HMA shall not be used. For live bed trucks, the conveyer shall be in operation during the process of applying the release agent.

5-04.3(3)C Pavers

HMA pavers shall be self-contained, power-propelled units, provided with an internally heated vibratory screed and shall be capable of spreading and finishing courses of HMA plant mix material in lane widths required by the paving section shown in the Plans.

The HMA paver shall be in good condition and shall have the most current equipment available from the manufacturer for the prevention of segregation of the HMA mixture installed, in good condition, and in working order. The equipment certification shall list the make, model, and year of the paver and any equipment that has been retrofitted.

The screed shall be operated in accordance with the manufacturer's recommendations and shall effectively produce a finished surface of the required evenness and texture without tearing, shoving, segregating, or gouging the mixture. A copy of the manufacturer's recommendations shall be provided upon request by the Contracting Agency. Extensions will be allowed provided they produce the same results, including ride, density, and surface texture as obtained by the primary screed. Extensions without augers and an internally heated vibratory screed shall not be used in the Traveled Way.

When specified in the Contract, reference lines for vertical control will be required. Lines shall be placed on both outer edges of the Traveled Way of each Roadway. Horizontal control utilizing the reference line will be permitted. The grade and slope for intermediate lanes shall be controlled automatically from reference lines or by means of a mat referencing device and a slope control device. When the finish of the grade prepared for paving is superior to the established tolerances and when, in the opinion of the Engineer, further improvement to the line, grade, cross-section, and smoothness can best be achieved without the use of the reference line, a mat referencing device may be substituted for the reference line. Substitution of the device will be subject to the continued approval of the Engineer. A joint matcher may be used subject to the approval of the Engineer. The reference line may be removed after the completion of the first course of HMA when approved by the Engineer. Whenever the Engineer determines that any of these methods are failing to provide the necessary vertical control, the reference lines will be reinstalled by the Contractor.

The Contractor shall furnish and install all pins, brackets, tensioning devices, wire, and accessories necessary for satisfactory operation of the automatic control equipment.

If the paving machine in use is not providing the required finish, the Engineer may suspend Work as allowed by Section 1-08.6. Any cleaning or solvent type liquids spilled on the pavement shall be thoroughly removed before paving proceeds.

5-04.3(3)D Vacant

5-04.3(3)E Rollers

Rollers shall be of the steel wheel, vibratory, oscillatory, or pneumatic tire type, in good condition and capable of reversing without backlash. Operation of the roller shall be in accordance with the manufacturer's recommendations. When ordered by the Engineer for any roller planned for use on the project, the Contractor shall provide a copy of the manufacturer's recommendation for the use of that roller for compaction of HMA. The number and weight of rollers shall be sufficient to compact the mixture in compliance with the requirements of Section 5-04.3(10). The use of equipment that results in crushing of the aggregate will not be permitted. Rollers producing pickup, washboard, uneven compaction of the surface, displacement of the mixture or other undesirable results shall not be used.

5-04.3(4) Preparation of Existing Paved Surfaces

When the surface of the existing pavement or old base is irregular, the Contractor shall bring it to a uniform grade and cross-section as shown on the Plans or approved by the Engineer.

Preleveling of uneven or broken surfaces over which HMA is to be placed may be accomplished by using an asphalt paver, a motor patrol grader, or by hand raking, as approved by the Engineer.

Compaction of preleveling HMA shall be to the satisfaction of the Engineer and may require the use of small steel wheel rollers, plate compactors, or pneumatic rollers to avoid bridging across preleveled areas by the compaction equipment. Equipment used for the compaction of preleveling HMA shall be approved by the Engineer.

Before construction of HMA on an existing paved surface, the entire surface of the pavement shall be clean. All fatty asphalt patches, grease drippings, and other objectionable matter shall be entirely removed from the existing pavement. All pavements or bituminous surfaces shall be thoroughly cleaned of dust, soil, pavement grindings, and other foreign matter. All holes and small depressions shall be filled with an appropriate class of HMA. The surface of the patched area shall be leveled and compacted thoroughly. Prior to the application of tack coat, or paving, the condition of the surface shall be approved by the Engineer.

A tack coat of asphalt shall be applied to all paved surfaces on which any course of HMA is to be placed or abutted; except that tack coat may be omitted from clean, newly paved surfaces at the discretion of the Engineer. Tack coat shall be uniformly applied to cover the

existing pavement with a thin film of residual asphalt free of streaks and bare spots at a rate between 0.02 and 0.10 gallons per square yard of retained asphalt. The rate of application shall be approved by the Engineer. A heavy application of tack coat shall be applied to all joints. For Roadways open to traffic, the application of tack coat shall be limited to surfaces that will be paved during the same working shift. The spreading equipment shall be equipped with a thermometer to indicate the temperature of the tack coat material.

Equipment shall not operate on tacked surfaces until the tack has broken and cured. If the Contractor's operation damages the tack coat it shall be repaired prior to placement of the HMA.

The tack coat shall be CSS-1, or CSS-1h emulsified asphalt. The CSS-1 and CSS-1h emulsified asphalt may be diluted once with water at a rate not to exceed one-part water to one-part emulsified asphalt. The tack coat shall have sufficient temperature such that it may be applied uniformly at the specified rate of application and shall not exceed the maximum temperature recommended by the emulsified asphalt manufacturer.

5-04.3(4)A Crack Sealing

When the Proposal includes a pay item for crack sealing, seal cracks in accordance with Section 5-03.

5-04.3(4)B Vacant

5-04.3(4)C Pavement Repair

The Contractor shall excavate pavement repair areas and shall backfill these with HMA in accordance with the details shown in the Plans and as marked in the field. The Contractor shall conduct the excavation operations in a manner that will protect the pavement that is to remain. Pavement not designated to be removed that is damaged as a result of the Contractor's operations shall be repaired by the Contractor to the satisfaction of the Engineer at no cost to the Contracting Agency. The Contractor shall excavate only within one lane at a time unless approved otherwise by the Engineer. The Contractor shall not excavate more area than can be completely finished during the same shift, unless approved by the Engineer.

Unless otherwise shown in the Plans or determined by the Engineer, excavate to a depth of 1.0 feet. The Engineer will make the final determination of the excavation depth required. The minimum width of any pavement repair area shall be 40 inches unless shown otherwise in the Plans. Before any excavation, the existing pavement shall be sawcut or shall be removed by a pavement grinder. Excavated materials will become the property of the Contractor and shall be disposed of in a Contractor-provided site off the Right of Way or used in accordance with Sections 2-02.3(3) or 9-03.21.

Asphalt for tack coat shall be required as specified in Section 5-04.3(4). A heavy application of tack coat shall be applied to all surfaces of existing pavement in the pavement repair area.

Placement of the HMA backfill shall be accomplished in lifts not to exceed 0.35-foot compacted depth. Lifts that exceed 0.35-foot of compacted depth may be accomplished with the approval of the Engineer. Each lift shall be thoroughly compacted by a mechanical tamper or a roller.

5-04.3(5) Producing/Stockpiling Aggregates and RAP

Aggregates and RAP shall be stockpiled according to the requirements of Section 3-02. Sufficient storage space shall be provided for each size of aggregate and RAP. Materials shall be removed from stockpile(s) in a manner to ensure minimal segregation when being moved to the HMA plant for processing into the final mixture. Different aggregate sizes shall be kept separated until they have been delivered to the HMA plant.

5-04.3(5)A Vacant

5-04.3(6) Mixing

After the required amount of mineral materials, asphalt binder, recycling agent and anti-stripping additives have been introduced into the mixer the HMA shall be mixed until complete and uniform coating of the particles and thorough distribution of the asphalt binder throughout the mineral materials is ensured.

When discharged, the temperature of the HMA shall not exceed the optimum mixing temperature by more than 25°F as shown on the reference mix design report or as approved by the Engineer. Also, when a WMA additive is included in the manufacture of HMA, the discharge temperature of the HMA shall not exceed the maximum recommended by the manufacturer of the WMA additive. A maximum water content of 2 percent in the mix, at discharge, will be allowed providing the water causes no problems with handling, stripping, or flushing. If the water in the HMA causes any of these problems, the moisture content shall be reduced as directed by the Engineer.

Storing or holding of the HMA in approved storage facilities will be permitted with approval of the Engineer, but in no event shall the HMA be held for more than 24 hours. HMA held for more than 24 hours after mixing shall be rejected. Rejected HMA shall be disposed of by the Contractor at no expense to the Contracting Agency. The storage facility shall have an accessible device located at the top of the cone or about the third point. The device shall indicate the amount of material in storage. No HMA shall be accepted from the storage facility when the HMA in storage is below the top of the cone of the storage facility, except as the storage facility is being emptied at the end of the working shift.

Recycled asphalt pavement (RAP) utilized in the production of HMA shall be sized prior to entering the mixer so that a uniform and thoroughly mixed HMA is produced. If there is evidence of the recycled asphalt pavement not breaking down during the heating and mixing of the HMA, the Contractor shall immediately suspend the use of the RAP until changes have been approved by the Engineer. After the required amount of mineral materials, RAP, new asphalt binder and asphalt rejuvenator have been introduced into the mixer the HMA shall be

mixed until complete and uniform coating of the particles and thorough distribution of the asphalt binder throughout the mineral materials, and RAP is ensured.

5-04.3(7) Spreading and Finishing

The mixture shall be laid upon an approved surface, spread, and struck off to the grade and elevation established. HMA pavers complying with Section 5-04.3(3) shall be used to distribute the mixture. Unless otherwise directed by the Engineer, the nominal compacted depth of any layer of any course shall not exceed the following:

HMA Class 1”	0.35 feet
HMA Class ¾” and HMA Class ½”	
wearing course	0.30 feet
other courses	0.35 feet
HMA Class ⅜”	0.15 feet

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the paving may be done with other equipment or by hand.

When more than one JMF is being utilized to produce HMA, the material produced for each JMF shall be placed by separate spreading and compacting equipment. The intermingling of HMA produced from more than one JMF is prohibited. Each strip of HMA placed during a work shift shall conform to a single JMF established for the class of HMA specified unless there is a need to make an adjustment in the JMF.

5-04.3(8) Aggregate Acceptance Prior to Incorporation in HMA

For HMA accepted by nonstatistical evaluation, the aggregate properties of sand equivalent, uncompacted void content, and fracture will be evaluated in accordance with Section 3-04. Sampling and testing of aggregates for HMA accepted by commercial evaluation will be at the option of the Engineer.

5-04.3(9) HMA Mixture Acceptance

Acceptance of HMA shall be as provided under nonstatistical, or commercial evaluation.

Nonstatistical evaluation will be used for the acceptance of HMA unless Commercial Evaluation is specified.

Commercial evaluation will be used for Commercial HMA and for other classes of HMA in the following applications: sidewalks, road approaches, ditches, slopes, paths, trails, gores, prelevel, temporary pavement, and pavement repair. Other nonstructural applications of HMA accepted by commercial evaluation shall be as approved by the Engineer. Sampling and testing of HMA accepted by commercial evaluation will be at the option of the Engineer.

The mix design will be the initial JMF for the class of HMA. The Contractor may request a change in the JMF. Any adjustments to the JMF will require the approval of the Engineer and may be made in accordance with this section.

HMA Tolerances and Adjustments

1. **Job Mix Formula Tolerances** – The constituents of the mixture at the time of acceptance shall be within tolerance. The tolerance limits will be established as follows:

   For Asphalt Binder and Air Voids (Va), the acceptance limits are determined by adding the tolerances below to the approved JMF values. These values will also be the Upper Specification Limit (USL) and Lower Specification Limit (LSL) required in Section 1-06.2(2)D2

Property	Non-Statistical Evaluation	Commercial Evaluation
Asphalt Binder	+/- 0.5%	+/- 0.7%
Air Voids, Va	2.5% min. and 5.5% max	N/A

   For Aggregates in the mixture:

   a. First, determine preliminary upper and lower acceptance limits by applying the following tolerances to the approved JMF.

Aggregate Percent Passing	Non-Statistical Evaluation	Commercial Evaluation
1", ¾", ½", and 3/8" sieves	+/- 6%	+/- 8%
No. 4 sieve	+/-6%	+/- 8%
No. 8 Sieve	+/- 6%	+/-8%
No. 200 sieve	+/- 2.0%	+/- 3.0%

   b. Second, adjust the preliminary upper and lower acceptance limits determined from step (a) the minimum amount necessary so that none of the aggregate properties are outside the control points in Section 9-03.8(6). The resulting values will be the upper and lower acceptance limits for aggregates, as well as the USL and LSL required in Section 1-06.2(2)D2.

2. Job Mix Formula Adjustments – An adjustment to the aggregate gradation or asphalt binder content of the JMF requires approval of the Engineer. Adjustments to the JMF will only be considered if the change produces material of equal or better quality and may require the development of a new mix design if the adjustment exceeds the amounts listed below.

   a. **Aggregates** –2 percent for the aggregate passing the 1½″, 1″, ¾″, ½″, ⅜″, and the No. 4 sieves, 1 percent for aggregate passing the No. 8 sieve, and 0.5 percent for the aggregate passing the No. 200 sieve. The adjusted JMF shall be within the range of the control points in Section 9-03.8(6).

b. **Asphalt Binder Content** – The Engineer may order or approve changes to asphalt binder content. The maximum adjustment from the approved mix design for the asphalt binder content shall be 0.3 percent.

5-04.3(9)A Vacant

5-04.3(9)B Vacant

5-04.3(9)C Mixture Acceptance – Nonstatistical Evaluation

HMA mixture which is accepted by Nonstatistical Evaluation will be evaluated by the Contracting Agency by dividing the HMA tonnage into lots.

5-04.3(9)C1 Mixture Nonstatistical Evaluation – Lots and Sublots

A lot is represented by randomly selected samples of the same mix design that will be tested for acceptance. A lot is defined as the total quantity of material or work produced for each Job Mix Formula placed. Only one lot per JMF is expected. A sublot shall be equal to one day's production or 800 tons, whichever is less except that the final sublot will be a minimum of 400 tons and may be increased to 1200 tons.

All of the test results obtained from the acceptance samples from a given lot shall be evaluated collectively. If the Contractor requests a change to the JMF that is approved, the material produced after the change will be evaluated on the basis of the new JMF for the remaining sublots in the current lot and for acceptance of subsequent lots. For a lot in progress with a CPF less than 0.75, a new lot will begin at the Contractor's request after the Engineer is satisfied that material conforming to the Specifications can be produced.

Sampling and testing for evaluation shall be performed on the frequency of one sample per sublot.

5-04.3(9)C2 Mixture Nonstatistical Evaluation Sampling

Samples for acceptance testing shall be obtained by the Contractor when ordered by the Engineer. The Contractor shall sample the HMA mixture in the presence of the Engineer and in accordance with AASH-TO T 168. A minimum of three samples should be taken for each class of HMA placed on a project. If used in a structural application, at least one of the three samples shall be tested.

Sampling and testing HMA in a structural application where quantities are less than 400 tons is at the discretion of the Engineer.

For HMA used in a structural application and with a total project quantity less than 800 tons but more than 400 tons, a minimum of one acceptance test shall be performed. In all cases, a minimum of 3 samples will be obtained at the point of acceptance, a minimum of one of the three samples will be tested for conformance to the JMF:

- If the test results are found to be within specification requirements, additional testing will be at the Engineer's discretion.

- If test results are found not to be within specification requirements, additional testing of the remaining samples to determine a CPF shall be performed.

5-04.3(9)C3 Mixture Nonstatistical Evaluation – Acceptance Testing

Testing of HMA for compliance of V_a will at the option of the Contracting Agency. If tested, compliance of V_a will use WSDOT SOP 731.

Testing for compliance of asphalt binder content will be by WSDOT FOP for AASHTO T 308.

Testing for compliance of gradation will be by FOP for WAQTC T 27/T 11.

5-04.3(9)C4 Mixture Nonstatistical Evaluation – Pay Factors

For each lot of material falling outside the tolerance limits in 5-04.3(9), the Contracting Agency will determine a CPF using the following price adjustment factors:

Table of Price Adjustment Factors	
Constituent	**Factor "f"**
All aggregate passing: 1½″, 1″, ¾″, ½″, ⅜″ and No.4 sieves	2
All aggregate passing No. 8 sieve	15
All aggregate passing No. 200 sieve	20
Asphalt binder	40
Air Voids (Va) (where applicable)	20

Each lot of HMA produced under Nonstatistical Evaluation and having all constituents falling within the tolerance limits of the job mix formula shall be accepted at the unit Contract price with no further evaluation. When one or more constituents fall outside the nonstatistical tolerance limits in the Job Mix Formula shown in Table of Price Adjustment Factors, the lot shall be evaluated in accordance with Section 1-06.2 to determine the appropriate CPF. The nonstatistical tolerance limits will be used in the calculation of the CPF and the maximum CPF shall be 1.00. When less than three sublots exist, backup samples of the existing sublots or samples from the Roadway shall be tested to provide a minimum of three sets of results for evaluation.

5-04.3(9)C5 Vacant

5-04.3(9)C6 Mixture Nonstatistical Evaluation – Price Adjustments

For each lot of HMA mix produced under Nonstatistical Evaluation when the calculated CPF is less than 1.00, a Nonconforming Mix Factor (NCMF) will be determined. The NCMF equals the algebraic difference of CPF minus 1.00 multiplied by 60 percent. The total job mix compliance price adjustment will be calculated as the product of the NCMF, the quantity of HMA in the lot in tons, and the unit Contract price per ton of mix.

If a constituent is not measured in accordance with these Specifications, its individual pay factor will be considered 1.00 in calculating the CPF.

5-04.3(9)C7 Mixture Nonstatistical Evaluation - Retests

The Contractor may request a sublot be retested. To request a retest, the Contractor shall submit a written request within 7 calendar days after the specific test results have been received. A split of the original acceptance sample will be retested. The split of the sample will not be tested with the same tester that ran the original acceptance test. The sample will be tested for a complete gradation analysis, asphalt binder content, and, at the option of the agency, V_a. The results of the retest will be used for the acceptance of the HMA in place of the original sublot sample test results. The cost of testing will be deducted from any monies due or that may come due the Contractor under the Contract at the rate of $500 per sample.

5-04.3 (9)D Mixture Acceptance – Commercial Evaluation

If sampled and tested, HMA produced under Commercial Evaluation and having all constituents falling within the tolerance limits of the job mix formula shall be accepted at the unit Contract price with no further evaluation. When one or more constituents fall outside the commercial tolerance limits in the Job Mix Formula shown in 5-04.3(9), the lot shall be evaluated in accordance with Section 1-06.2 to determine the appropriate CPF. The commercial tolerance limits will be used in the calculation of the CPF and the maximum CPF shall be 1.00. When less than three sublots exist, backup samples of the existing sublots or samples from the street shall be tested to provide a minimum of three sets of results for evaluation.

For each lot of HMA mix produced and tested under Commercial Evaluation when the calculated CPF is less than 1.00, a Nonconforming Mix Factor (NCMF) will be determined. The NCMF equals the algebraic difference of CPF minus 1.00 multiplied by 60 percent. The Job Mix Compliance Price Adjustment will be calculated as the product of the NCMF, the quantity of HMA in the lot in tons, and the unit Contract price per ton of mix.

If a constituent is not measured in accordance with these Specifications, its individual pay factor will be considered 1.00 in calculating the CPF.

5-04.3(10) HMA Compaction Acceptance

HMA mixture accepted by nonstatistical evaluation that is used in traffic lanes, including lanes for intersections, ramps, truck climbing, weaving, and speed change, and having a specified compacted course thickness greater than 0.10-foot, shall be compacted to a specified level of relative density. The specified level of relative density shall be a CPF of not less than 0.75

when evaluated in accordance with Section 1-06.2, using a LSL of 92.0 (minimum of 92 percent of the maximum density). The maximum density shall be determined by WSDOT FOP for AASHTO T 729. The specified level of density attained will be determined by the evaluation of the density of the pavement. The density of the pavement shall be determined in accordance with WSDOT FOP for WAQTC TM 8, except that gauge correlation will be at the discretion of the Engineer, when using the nuclear density gauge and WSDOT SOP 736 when using cores to determine density.

Tests for the determination of the pavement density will be taken in accordance with the required procedures for measurement by a nuclear density gauge or Roadway cores after completion of the finish rolling.

If the Contracting Agency uses a nuclear density gauge to determine density the test procedures FOP for WAQTC TM 8 and WSDOT SOP T 729 will be used on the day the mix is placed and prior to opening to traffic.

Roadway cores for density may be obtained by either the Contracting Agency or the Contractor in accordance with WSDOT SOP 734. The core diameter shall be 4-inches minimum, unless otherwise approved by the Engineer. Roadway cores will be tested by the Contracting Agency in accordance with WSDOT FOP for AASHTO T 166.

If the Contract includes the Bid item “Roadway Core”, the cores shall be obtained by the Contractor in the presence of the Engineer on the same day the mix is placed and at locations designated by the Engineer. If the Contract does not include the Bid item “Roadway Core”, the Contracting Agency will obtain the cores.

For a lot in progress with a CPF less than 0.75, a new lot will begin at the Contractor’s request after the Engineer is satisfied that material conforming to the Specifications can be produced.

HMA mixture accepted by commercial evaluation and HMA constructed under conditions other than those listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the Engineer. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

HMA for preleveling shall be thoroughly compacted. HMA that is used for preleveling wheel rutting shall be compacted with a pneumatic tire roller unless otherwise approved by the Engineer.

Test Results

For a sublot that has been tested with a nuclear density gauge that did not meet the minimum of 92 percent of the reference maximum density in a compaction lot with a CPF below 1.00 and thus subject to a price reduction or rejection, the Contractor may request that a core be used for determination of the relative density of the sublot. The relative density of the core will

replace the relative density determined by the nuclear density gauge for the sublot and will be used for calculation of the CPF and acceptance of HMA compaction lot.

When cores are taken by the Contracting Agency at the request of the Contractor, they shall be requested by noon of the next workday after the test results for the sublot have been provided or made available to the Contractor. Core locations shall be outside of wheel paths and as determined by the Engineer. Traffic control shall be provided by the Contractor as requested by the Engineer. Failure by the Contractor to provide the requested traffic control will result in forfeiture of the request for cores. When the CPF for the lot based on the results of the HMA cores is less than 1.00, the cost for the coring will be deducted from any monies due or that may become due the Contractor under the Contract at the rate of $200 per core and the Contractor shall pay for the cost of the traffic control.

5-04.3(10)A HMA Compaction – General Compaction Requirements

Compaction shall take place when the mixture is in the proper condition so that no undue displacement, cracking, or shoving occurs. Areas inaccessible to large compaction equipment shall be compacted by other mechanical means. Any HMA that becomes loose, broken, contaminated, shows an excess or deficiency of asphalt, or is in any way defective, shall be removed and replaced with new hot mix that shall be immediately compacted to conform to the surrounding area.

The type of rollers to be used and their relative position in the compaction sequence shall generally be the Contractor's option, provided the specified densities are attained. Unless the Engineer has approved otherwise, rollers shall only be operated in the static mode when the internal temperature of the mix is less than 175°F. Regardless of mix temperature, a roller shall not be operated in a mode that results in checking or cracking of the mat. Rollers shall only be operated in static mode on bridge decks.

5-04.3(10)B HMA Compaction - Cyclic Density

Low cyclic density areas are defined as spots or streaks in the pavement that are less than 90 percent of the theoretical maximum density. At the Engineer's discretion, the Engineer may evaluate the HMA pavement for low cyclic density, and when doing so will follow WSDOT SOP 733. A $500 Cyclic Density Price Adjustment will be assessed for any 500-foot section with two or more density readings below 90 percent of the theoretical maximum density.

5-04.3(10)C Vacant

5-04.3(10)D HMA Nonstatistical Compaction

5-04.3(10)D1 HMA Nonstatistical Compaction - Lots and Sublots

HMA compaction which is accepted by nonstatistical evaluation will be based on acceptance testing performed by the Contracting Agency dividing the project into compaction lots.

A lot is represented by randomly selected samples of the same mix design that will be tested for acceptance. A lot is defined as the total quantity of material or work produced for each Job Mix Formula placed. Only one lot per JMF is expected. A sublot shall be equal to one day's production or 400 tons, whichever is less except that the final sublot will be a minimum of 200 tons and may be increased to 800 tons. Testing for compaction will be at the rate of 5 tests per sublot per WSDOT T 738.

The sublot locations within each density lot will be determined by the Engineer. For a lot in progress with a CPF less than 0.75, a new lot will begin at the Contractor's request after the Engineer is satisfied that material conforming to the Specifications can be produced.

HMA mixture accepted by commercial evaluation and HMA constructed under conditions other than those listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the Engineer. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

HMA for preleveling shall be thoroughly compacted. HMA that is used to prelevel wheel ruts shall be compacted with a pneumatic tire roller unless otherwise approved by the Engineer.

5-04.3(10)D2 HMA Compaction Nonstatistical Evaluation – Acceptance Testing

The location of the HMA compaction acceptance tests will be randomly selected by the Engineer from within each sublot, with one test per sublot.

5-04.3(10)D3 HMA Nonstatistical Compaction – Price Adjustments

For each compaction lot with one or two sublots, having all sublots attain a relative density that is 92 percent of the reference maximum density the HMA shall be accepted at the unit Contract price with no further evaluation. When a sublot does not attain a relative density that is 92 percent of the reference maximum density, the lot shall be evaluated in accordance with Section 1-06.2 to determine the appropriate CPF. The maximum CPF shall be 1.00, however, lots with a calculated CPF in excess of 1.00 will be used to offset lots with CPF values below 1.00 but greater than 0.90. Lots with CPF lower than 0.90 will be evaluated for compliance per 5-04.3(11). Additional testing by either a nuclear moisture-density gauge or cores will be completed as required to provide a minimum of three tests for evaluation.

For compaction below the required 92%, a Non-Conforming Compaction Factor (NCCF) will be determined. The NCCF equals the algebraic difference of CPF minus 1.00 multiplied by 40 percent. The Compaction Price Adjustment will be calculated as the product of CPF, the quantity of HMA in the compaction control lot in tons, and the unit Contract price per ton of mix.

5-04.3(11) Reject Work

5-04.3(11)A Reject Work General

Work that is defective or does not conform to Contract requirements shall be rejected. The Contractor may propose, in writing, alternatives to removal and replacement of rejected material. Acceptability of such alternative proposals will be determined at the sole discretion of the Engineer. HMA that has been rejected is subject to the requirements in Section 1-06.2(2) and this specification, and the Contractor shall submit a corrective action proposal to the Engineer for approval.

5-04.3(11)B Rejection by Contractor

The Contractor may, prior to sampling, elect to remove any defective material and replace it with new material. Any such new material will be sampled, tested, and evaluated for acceptance.

5-04.3(11)C Rejection Without Testing (Mixture or Compaction)

The Engineer may, without sampling, reject any batch, load, or section of Roadway that appears defective. Material rejected before placement shall not be incorporated into the pavement. Any rejected section of Roadway shall be removed.

No payment will be made for the rejected materials or the removal of the materials unless the Contractor requests that the rejected material be tested. If the Contractor elects to have the rejected material tested, a minimum of three representative samples will be obtained and tested. Acceptance of rejected material will be based on conformance with the nonstatistical acceptance Specification. If the CPF for the rejected material is less than 0.75, no payment will be made for the rejected material; in addition, the cost of sampling and testing shall be borne by the Contractor. If the CPF is greater than or equal to 0.75, the cost of sampling and testing will be borne by the Contracting Agency. If the material is rejected before placement and the CPF is greater than or equal to 0.75, compensation for the rejected material will be at a CPF of 0.75. If rejection occurs after placement and the CPF is greater than or equal to 0.75, compensation for the rejected material will be at the calculated CPF with an addition of 25 percent of the unit Contract price added for the cost of removal and disposal.

5-04.3(11)D Rejection - A Partial Sublot

In addition to the random acceptance sampling and testing, the Engineer may also isolate from a normal sublot any material that is suspected of being defective in relative density, gradation or asphalt binder content. Such isolated material will not include an original sample location. A minimum of three random samples of the suspect material will be obtained and tested. The material will then be statistically evaluated as an independent lot in accordance with Section 1-06.2(2).

5-04.3(11)E Rejection - An Entire Sublot

An entire sublot that is suspected of being defective may be rejected. When a sublot is rejected a minimum of two additional random samples from this sublot will be obtained. These additional samples and the original sublot will be evaluated as an independent lot in accordance with Section 1-06.2(2).

5-04.3(11)F Rejection - A Lot in Progress

The Contractor shall shut down operations and shall not resume HMA placement until such time as the Engineer is satisfied that material conforming to the Specifications can be produced:

1. When the CPF of a lot in progress drops below 1.00 and the Contractor is taking no corrective action, or
2. When the Pay Factor (PF) for any constituent of a lot in progress drops below 0.95 and the Contractor is taking no corrective action, or
3. When either the PF for any constituent or the CPF of a lot in progress is less than 0.75.

5-04.3(11)G Rejection - An Entire Lot (Mixture or Compaction)

An entire lot with a CPF of less than 0.75 will be rejected.

5-04.3(12) Joints

5-04.3(12)A HMA Joints

5-04.3(12)A1 Transverse Joints

The Contractor shall conduct operations such that the placing of the top or wearing course is a continuous operation or as close to continuous as possible. Unscheduled transverse joints will be allowed, and the roller may pass over the unprotected end of the freshly laid mixture only when the placement of the course must be discontinued for such a length of time that the mixture will cool below compaction temperature. When the Work is resumed, the previously compacted mixture shall be cut back to produce a slightly beveled edge for the full thickness of the course.

A temporary wedge of HMA constructed on a 20H:1V shall be constructed where a transverse joint as a result of paving or planing is open to traffic. The HMA in the temporary wedge shall be separated from the permanent HMA by strips of heavy wrapping paper or other methods approved by the Engineer. The wrapping paper shall be removed and the joint trimmed to a slightly beveled edge for the full thickness of the course prior to resumption of paving.

The material that is cut away shall be wasted and new mix shall be laid against the cut. Rollers or tamping irons shall be used to seal the joint.

5-04.3(12)A2 Longitudinal Joints

The longitudinal joint in any one course shall be offset from the course immediately below by not more than 6 inches nor less than 2 inches. All longitudinal joints constructed in the wearing course shall be located at a lane line or an edge line of the Traveled Way. A notched wedge joint shall be constructed along all longitudinal joints in the wearing surface of new HMA unless otherwise approved by the Engineer. The notched wedge joint shall have a vertical edge of not less than the maximum aggregate size or more than ½ of the compacted lift thickness and then taper down on a slope not steeper than 4H:1V. The sloped portion of the HMA notched wedge joint shall be uniformly compacted.

5-04.3(12)B Bridge Paving Joint Seals

Bridge Paving Joint Seals shall be in accordance with Section 5-03.

5-04.3(13) Surface Smoothness

The completed surface of all courses shall be of uniform texture, smooth, uniform as to crown and grade, and free from defects of all kinds. The completed surface of the wearing course shall not vary more than ⅛ inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline. The transverse slope of the completed surface of the wearing course shall vary not more than ¼ inch in 10 feet from the rate of transverse slope shown in the Plans.

When deviations in excess of the above tolerances are found that result from a high place in the HMA, the pavement surface shall be corrected by one of the following methods:

1. Removal of material from high places by grinding with an approved grinding machine, or

2. Removal and replacement of the wearing course of HMA, or

3. By other method approved by the Engineer.

Correction of defects shall be carried out until there are no deviations anywhere greater than the allowable tolerances.

Deviations in excess of the above tolerances that result from a low place in the HMA and deviations resulting from a high place where corrective action, in the opinion of the Engineer, will not produce satisfactory results will be accepted with a price adjustment. The Engineer shall deduct from monies due or that may become due to the Contractor the sum of $500.00 for each and every section of single traffic lane 100 feet in length in which any excessive deviations described above are found.

When utility appurtenances such as manhole covers and valve boxes are located in the traveled way, the utility appurtenances shall be adjusted to the finished grade prior to paving. This requirement may be waived when requested by the Contractor, at the discretion of the Engineer or when the adjustment details provided in the project plan or specifications call for utility appurtenance adjustments after the completion of paving.

Utility appurtenance adjustment discussions will be included in the Pre-Paving and Pre-Planing Briefing (5-04.3(14)B3). Submit a written request to waive this requirement to the Engineer prior to the start of paving.

5-04.3(14) Planing Bituminous Pavement

The planing plan must be approved by the Engineer and a pre-planing meeting must be held prior to the start of any planing. See Section 5-04.3(14)B2 for information on planing submittals.

Where planing an existing pavement is specified in the Contract, the Contractor must remove existing surfacing material and to reshape the surface to remove irregularities. The finished product must be a prepared surface acceptable for receiving an HMA overlay.

Use the cold milling method for planing unless otherwise specified in the Contract. Do not use the planer on the final wearing course of new HMA.

Conduct planing operations in a manner that does not tear, break, burn, or otherwise damage the surface which is to remain. The finished planed surface must be slightly grooved or roughened and must be free from gouges, deep grooves, ridges, or other imperfections. The Contractor must repair any damage to the surface by the Contractor's planing equipment, using an Engineer approved method.

Repair or replace any metal castings and other surface improvements damaged by planing, as determined by the Engineer.

A tapered wedge cut must be planed longitudinally along curb lines sufficient to provide a minimum of 4 inches of curb reveal after placement and compaction of the final wearing course. The dimensions of the wedge must be as shown on the Drawings or as specified by the Engineer.

A tapered wedge cut must also be made at transitions to adjoining pavement surfaces (meet lines) where butt joints are shown on the Drawings. Cut butt joints in a straight line with vertical faces 2 inches or more in height, producing a smooth transition to the existing adjoining pavement.

After planing is complete, planed surfaces must be swept, cleaned, and if required by the Contract, patched and preleveled.

The Engineer may direct additional depth planing. Before performing this additional depth planing, the Contractor must conduct a hidden metal in pavement detection survey as specified in Section 5-04.3(14)A.

5-04.3(14)A Pre-Planing Metal Detection Check

Before starting planing of pavements, and before any additional depth planing required by the Engineer, the Contractor must conduct a physical survey of existing pavement to be planed with equipment that can identify hidden metal objects.

Should such metal be identified, promptly notify the Engineer.

See Section 1-07.16(1) regarding the protection of survey monumentation that may be hidden in pavement.

The Contractor is solely responsible for any damage to equipment resulting from the Contractor's failure to conduct a pre-planing metal detection survey, or from the Contractor's failure to notify the Engineer of any hidden metal that is detected.

5-04.3(14)B Paving and Planing Under Traffic

5-04.3(14)B1 General

In addition, the requirements of Section 1-07.23 and the traffic controls required in Section 1-10, and unless the Contract specifies otherwise or the Engineer approves, the Contractor must comply with the following:

1. Intersections:

   a. Keep intersections open to traffic at all times, except when paving or planing operations through an intersection requires closure. Such closure must be kept to the minimum time required to place and compact the HMA mixture, or plane as appropriate. For paving, schedule such closure to individual lanes or portions thereof that allows the traffic volumes and schedule of traffic volumes required in the approved traffic control plan. Schedule work so that adjacent intersections are not impacted at the same time and comply with the traffic control restrictions required by the Traffic Engineer. Each individual intersection closure or partial closure must be addressed in the traffic control plan, which must be submitted to and accepted by the Engineer, see Section 1-10.2(2).

   b. When planing or paving and related construction must occur in an intersection, consider scheduling and sequencing such work into quarters of the intersection, or half or more of an intersection with side street detours. Be prepared to sequence the work to individual lanes or portions thereof.

   c. Should closure of the intersection in its entirety be necessary, and no trolley service is impacted, keep such closure to the minimum time required to place and compact the HMA mixture, plane, remove asphalt, tack coat, and as needed.

   d. Any work in an intersection requires advance warning in both signage and a number of Working Days advance notice as determined by the Engineer, to alert traffic and emergency services of the intersection closure or partial closure.

e. Allow new compacted HMA asphalt to cool to ambient temperature before any traffic is allowed on it. Traffic is not allowed on newly placed asphalt until approval has been obtained from the Engineer.

2. Temporary centerline marking, post-paving temporary marking, temporary stop bars, and maintaining temporary pavement marking must comply with Section 8-23.

3. Permanent pavement marking must comply with Section 8-22.

5-04.3(14)B2 Submittals - Planing Plan and HMA Paving Plan

The Contractor must submit a separate planing plan and a separate paving plan to the Engineer at least 5 Working Days in advance of each operation's activity start date. These plans must show how the moving operation and traffic control are coordinated, as they will be discussed at the pre-planing briefing and pre-paving briefing. When requested by the Engineer, the Contractor must provide each operation's traffic control plan on 24 x 36 inch or larger size Shop Drawings with a scale showing both the area of operation and sufficient detail of traffic beyond the area of operation where detour traffic may be required. The scale on the Shop Drawings is 1 inch = 20 feet, which may be changed if the Engineer agrees sufficient detail is shown.

The planing operation and the paving operation include, but are not limited to, metal detection, removal of asphalt and temporary asphalt of any kind, tack coat and drying, staging of supply trucks, paving trains, rolling, scheduling, and as may be discussed at the briefing.

When intersections will be partially or totally blocked, provide adequately sized and noticeable signage alerting traffic of closures to come, a minimum 2 Working Days in advance. The traffic control plan must show where police officers will be stationed when signalization is or may be, countermanded, and show areas where flaggers are proposed.

At a minimum, the planing and the paving plan must include:

1. A copy of the accepted traffic control plan, see Section 1-10.2(2), detailing each day's traffic control as it relates to the specific requirements of that day's planing and paving. Briefly describe the sequencing of traffic control consistent with the proposed planing and paving sequence, and scheduling of placement of temporary pavement markings and channelizing devices after each day's planing, and paving.

2. A copy of each intersection's traffic control plan.

3. Haul routes from supplier facilities, and locations of temporary parking and staging areas, including return routes. Describe the complete round trip as it relates to the sequencing of paving operations.

4. Names and locations of HMA supplier facilities to be used.

5. List of all equipment to be used for paving.

6. List of personnel and associated job classification assigned to each piece of paving equipment.

7. Description (geometric or narrative) of the scheduled sequence of planing and of paving and intended area of planing and of paving for each day's work, must include the directions of proposed planing and of proposed paving, sequence of adjacent lane paving, sequence of skipped lane paving, intersection planing and paving scheduling and sequencing, and proposed notifications and coordinations to be timely made. The plan must show HMA joints relative to the final pavement marking lane lines.

8. Names, job titles, and contact information for field, office, and plant supervisory personnel.

9. A copy of the approved Mix Designs.

10. Tonnage of HMA to be placed each day.

11. Approximate times and days for starting and ending daily operations.

5-04.3(14)B3 Pre-Paving and Pre-Planing Briefing

At least 2 Working Days before the first paving operation and the first planing operation, or as scheduled by the Engineer for future paving and planing operations to ensure the Contractor has adequately prepared for notifying and coordinating as required in the Contract, the Contractor must be prepared to discuss that day's operations as they relate to other entities and to public safety and convenience, including driveway and business access, garbage truck operations, transit operations and working around energized overhead wires, school and nursing home and hospital and other accesses, other Contractors who may be operating in the area, pedestrian and bicycle traffic, and emergency services. The Contractor, and Subcontractors that may be part of that day's operations, must meet with the Engineer and discuss the proposed operation as it relates to the submitted planing plan and paving plan, approved traffic control plan, and public convenience and safety. Such discussion includes, but is not limited to:

1. General for both the Paving and Planing:

   a. The actual times of starting and ending daily operations.

   b. In intersections, how to break up the intersection, and address traffic control and signalization for that operation, including use of peace officers.

c. The sequencing and scheduling of paving operations and of planing operations, as applicable, as it relates to traffic control, public convenience and safety, and other Contractors who may operate in the Project limits.

d. Notifications required of Contractor activities and coordinating with other entities and the public as necessary.

e. Description of the sequencing of installation and types of temporary pavement markings as it relates to planning and paving.

f. Description of the sequencing of installation of, and the removal of, temporary pavement patch material around exposed castings and as may be needed.

g. Description of procedures and equipment to identify hidden metal in the pavement, such as survey monumentation, monitoring wells, streetcar rail, and castings, before planing as per Section 5-04.3(14)B2.

h. Description of how flaggers will be coordinated with the planing, paving, and related operations.

i. Description of sequencing of traffic controls for the process of rigid pavement base repairs.

j. Other items the Engineer deems necessary to address.

2. Paving – additional topics:

a. When to start applying tack and coordinating with paving.

b. Types of equipment and numbers of each type of equipment to be used. If more pieces of equipment than personnel are proposed, describe the sequencing of the personnel operating the types of equipment. Discuss the continuance of operator personnel for each type of equipment as it relates to meeting Specification requirements.

c. Number of JMFs to be placed, and if more than one JMF is used, how the Contractor will ensure different JMFs are distinguished, how pavers and how MTVs are distinguished, and how pavers and MTVs are cleaned so that one JMF does not adversely influence the other JMF.

d. Description of contingency plans for that day's operations such as equipment breakdown, rain out, and supplier shutdown of operations.

e. Number of sublots to be placed, sequencing of density testing, and other sampling and testing.

5-04.3(15) Sealing Pavement Surfaces

Apply a fog seal where shown in the plans. Construct the fog seal in accordance with Section 5-02.3. Unless otherwise approved by the Engineer, apply the fog seal prior to opening to traffic.

5-04.3(16) HMA Road Approaches

Construct HMA approaches at the locations shown in the Plans or where staked by the Engineer, in accordance with Section 5-04.

5-04.4 Measurement

HMA Cl. ___ PG ___, HMA for ___ Cl. ___ PG ___, and Commercial HMA will be measured by the ton in accordance with Section 1-09.2, with no deduction being made for the weight of asphalt binder, mineral filler, or any other component of the mixture. If the Contractor elects to remove and replace mix as allowed by Section 5-04.3(11), the material removed will not be measured.

Roadway cores will be measured per each for the number of cores taken.

Pavement repair excavation will be measured by the square yard of surface marked prior to excavation.

Planing bituminous pavement will be measured by the square yard.

5-04.5 Payment

Payment will be made for each of the following Bid items that are included in the Proposal:

"HMA Cl. ___ PG ___", per ton.

"HMA for Approach Cl. ___ PG ___", per ton.

"HMA for Preleveling Cl. ___ PG ___", per ton.

"HMA for Pavement Repair Cl. ___ PG ___", per ton.

"Commercial HMA", per ton.

The unit Contract price per ton for "HMA Cl. ___ PG ___", "HMA for Approach Cl. ___ PG ___", "HMA for Preleveling Cl. ___ PG ___", "HMA for Pavement Repair Cl. ___ PG ___", and "Commercial HMA" shall be full compensation for all costs, including anti-stripping

additive, incurred to carry out the requirements of Section 5-04 except for those costs included in other items which are included in this Subsection and which are included in the Proposal.

"Pavement Repair Excavation Incl. Haul", per square yard.

The unit Contract price per square yard for "Pavement Repair Excavation Incl. Haul" shall be full payment for all costs incurred to perform the Work described in Section 5-04.3(4) with the exception, however, that all costs involved in the placement of HMA shall be included in the unit Contract price per ton for "HMA for Pavement Repair Cl. ___ PG ___", per ton.

"Asphalt for Prime Coat", per ton.

The unit Contract price per ton for "Asphalt for Prime Coat" shall be full payment for all costs incurred to obtain, provide and install the material in accordance with Section 5-04.3(4).

"Prime Coat Agg.", per cubic yard, or per ton.

The unit Contract price per cubic yard or per ton for "Prime Coat Agg." shall be full pay for furnishing, loading, and hauling aggregate to the place of deposit and spreading the aggregate in the quantities required by the Engineer.

"Planing Bituminous Pavement", per square yard.

The unit Contract price per square yard for "Planing Bituminous Pavement" shall be full payment for all costs incurred to perform the Work described in Section 5-04.3(14).

"Job Mix Compliance Price Adjustment", by calculation.

"Job Mix Compliance Price Adjustment" will be calculated and paid for as described in Section 5-04.3(9)C6.

"Compaction Price Adjustment", by calculation.

"Compaction Price Adjustment" will be calculated and paid for as described in Section 5-04.3(10)D3.

"Roadway Core", per each.

The Contractor's costs for all Work associated with the coring (e.g., traffic control) shall be incidental and included in the unit Bid price per each.

"Cyclic Density Price Adjustment", by calculation.

"Cyclic Density Price Adjustment" will be calculated and paid for as described in Section 5-04.3(10)B.

END OF DIVISION 5

DIVISION 6
STRUCTURES

6-02 CONCRETE STRUCTURES

6-02.5 Payment

(City of Duvall)

Section 6-02.5 is supplemented with the following:

"Conc. Class 4000 for Moment Slab Barrier", per cubic yard.

"St. Reinf. Bar for Moment Slab Barrier", per pound

6-07 PAINTING

6-07.1 Description

(City of Duvall)

Section 6-07.1 is supplemented with the following:

This work shall consist of painting systems and colors for metal elements as shown on the Plans.

6-07.2 Materials

(City of Duvall)

Section 6-07.2 is supplemented with the following:

Paint materials shall comply with the requirements in Section 9-08 unless described otherwise in this Section.

The Contractor shall submit three (3) samples of each custom color in satin, texture and gloss for approval. Appropriate metal coupon samples (steel and aluminum) shall be (3) inches by (5) inches. Paint colors and paint systems shall be as shown in the following table for the following items:

Paint colors and paint systems shall be as shown in the following table for the following items:

Paint Color/Paint System Table

Specification Section	Item	Paint Color	Paint System
8-29	Pedestrian Railing; Cutout Panel; Interpretive Sign Panel and Support	"Bronze" 10511-0097 AAMA 2604	Powder coat paint system per TCI TruDurance Powder Coatings or approved equal

8-29	Decorative panel	"Patina Green" 10420-61537 AAMA 2604	Powder coat paint system per TCI TruDurance Powder Coatings or approved equal
8-33	Metal Bench	"Forest Green"	Powder coat paint system per manufacturer
9-29.6(1)	Roadway and Pedestrian Decorative Light Standards – Poles and Sub-assemblies	RAL #6009TX Fir Green	Powder coat paint system per manufacturer
9-29.10(2)	Roadway and Pedestrian Decorative Luminaires	RAL #6009TX Fir Green	Powder coat paint system per manufacturer

Galvanizing

All fabricated steel components and materials to be galvanized per ASTM 123.
All steel components, hardware and materials to be galvanized per ASTM 153.

Anti-Graffiti

All powder coating for poles, base covers, metal benches, and pedestrian railing shall have anti-graffiti properties as a part of the powder coat system.

Pedestrian Railing - Powder Coating Systems

TCI 10000 Series Superior Exterior Performance Polyester System is formulated to meet the requirements of AAMA 2604 specifications. Products in the series have a 60-degree gloss rang of 30-90%+ and are available in a wide selection of colors. Proper chrome or non-chrome pretreatment is critical to product performance. A chrome conversion coating must be applied at 30 mg/square feet minimum. The non-chrome must be applies per supplier's specification. A TCI representative must audit each application system to ensure products will meet the 2604 specification.

6-07.2(1) Paint Materials and Application for Luminaire Poles and Luminaires
(City of Duvall)
Section 6-07.2(1) is added as follows:

The Contractor shall provide a swatch paint sample from the pole manufacturer for use as a color match for the Engineer's approval prior of factory finish coasting. Contractor shall also provide two gallons of touch-up paint to the City.

Painting plan submittals shall be per the Standard Specifications Section 6-07 Painting.

Steel Poles and Steel Sub-Assemblies Paint Specifications:

Steel poles and sub-assemblies shall be factory galvanized, primed and finished with powder coating per Section 6-07 and Section 9-08 of the Standard Specifications.

Additional anti-graffiti coating shall be applied to poles and sub-assemblies (minimum 14 feet in height). The Contractor shall demonstrate the cleaning procedure to the City Maintenance Department Representative.

Aluminum Poles, Sub-assemblies and Aluminum Luminaire Housings Paint Specifications:

Aluminum poles, sub-assemblies and luminaire housings shall be factory primed and painted with polyester powder coating to recommend industry standards and shall meet AAMA 2604 performance requirements and test procedures.

Additional anti-graffiti coating shall be applied to all poles and sub-assemblies (minimum 14 feet in height). The Contractor shall demonstrate the cleaning procedure to the City Maintenance Department Representative.

6-10 CONCRETE BARRIER

6-10.3(2) Cast-In-Place Concrete Barrier

(City of Duvall)
Section 6-10.3(2) is supplemented with the following:

Form liner treatment and cap for cast-in-place single sloped moment slab barrier shall be as shown and detailed per Plans.

Form liner treatment construction and fabrication requirements shall be per Section 6-13.3 listed herein.

All exposed surfaces of single sloped moment slab barrier shall receive pigmented sealer in Mt. St. Helens Gray color per WSDOT Section 6-02.3(14)C.

6-10.3(6) Placing Concrete Barrier

(City of Duvall)
Section 6-10.3(6) is supplemented with the following:

Single sloped moment slab barrier transitions shall rest on a paved foundation shaped to a uniform grade and section with Surface Treatment A per Section 8-14.2 herein.

6-10.4 Measurement

(City of Duvall)

Section 6-10.4 is supplemented with the following:

Single Sloped Moment Slab Barrier shall be measured by the linear foot along its completed line and slope installed.

6-10.5 Payment

(City of Duvall)

Section 6-10.5 is supplemented with the following:

The per linear foot contract price for “Single Sloped Moment Slab Barrier” shall be full pay for constructing the barriers with form liner treatment and faux concrete cap as well as pigmented sealer on top moment slab.

6-13 STRUCTURAL EARTH WALLS

6-13.1 Description

(City of Duvall)

Section 6-13.1 is supplemented with the following:

Construction and installation of Precast Concrete Facing Panel and Structural Earth Wall must conform to the manufacturer’s specific requirements.

6-13.2 Materials

(City of Duvall)

Section 6-13.2 is supplemented with the following:

The materials for precast concrete facing panel and structural earth wall shall be per WSDOT Standard Specification Section 6-13.2 with no supplemental required.

6-13.3 Construction Requirements

(City of Duvall)

Section 6-13.3 is supplemented with the following:

Form Liner Treatment for Precast Concrete Facing Panel of Structural Earth Wall and other Concrete Surfaces

The form liner treatment shall be accomplished using either a form liner selected from the list of approved form liners below, or a form liner accepted by the Engineer as an equal product.

Fitzgerald Formliners
Product Number 17002: Austin Ashlar Random Rough Stacked Rock
1500 East Chestnut Avenue
Santa Ana, CA 92701 USA
(714) 547-6710

Milestones Incorporated
Product Number MS-1006: Small Random Ashlar
235 Monroe St.
Hudson, WI 54016 USA
(715) 381-9660

Approved equal shall be based on form liner material type and quality and visual appearance of a completed test panel.

The height of the form liner shall be equal to or greater than the height of the formed surface. Only elastomeric form liners are allowed to have horizontal splices.

The number of form liners obtained from the manufacturer shall be determined by the Contractor.

Accessory Materials: Use form chemical release agents, adhesive, sealants, fasteners, back-up boards, and other accessories as recommended by the form liner manufacturer.

Contractor shall submit the following for the form liner treatment, for approval by Engineer:

1. Form liner manufacturer's cut sheet, instructions and recommendations for the application and use of form liners, including chemical release agent and procedures for stripping form liner from completed work.

2. Shop drawings of form liner layout and patterning, with proposed wall expansion and construction joints.

3. 2-foot square physical sample of form liner finish.

Fabrication Requirements for Form Liner Treatment for Precast Concrete Facing Panel for Structural Earth Walls and Other Concrete Surfaces

The Contractor shall demonstrate the method of trimming pattern units or extending pattern units to form areas where wall height transitions occur.

The Contractor shall give special attention to providing continuous and uninterrupted vibrating of the concrete in order to thoroughly consolidate concrete in the pattern details of the form liners.

Form Liner Installation and Removal Requirements:

1. Comply with form liner manufacturer's recommendations for methods of securing liners to formwork. Any bolt or screw holes must be discreetly located and discreetly patched, as to not blemish the pattern surface. The Contractor may not seam through the pattern face.

2. Treat form liners with chemical release agent only as recommended by liner manufacturer.

3. Do not remove forms until concrete has sufficient strength to retain detail of shapes and edges (24 hours minimum). Conform with the form liner manufacturer's recommendations.

4. Sequence removal of forms to provide uniform curing time of concrete.

5. Clean and repair surfaces of forms to be reused in the work. Split, frayed, delaminated or otherwise damaged form facing materials are not to be reused. Repair and replace elastomeric form liners as recommended by manufacturer.

Wall surfaces with chipping, cracking, or other damage shall be repaired to the satisfaction of the Engineer.

Precast Concrete Panel Facing for Structural Earth Wall System shall receive pigmented sealer in Mt. St. Helens Gray color per WSDOT Section 6-02.3(14)C.

6-13.3(2) Construction Requirements

(City of Duvall)

Section 6-13.3(2) is supplemented with the following:

The geotechnical design parameters for the design of the structural earth walls, including unit weight, backfill friction angle, backfill cohesion, and seismic design considerations shall be per the recommendations in the Geotechnical Report in Appendix E.

6-13.5 Payment

(City of Duvall)

Section 6-13.5 is supplemented with the following:

"Structural Earth Wall", per square foot.

The unit Contract price per square foot for "Structural Earth Wall" shall be full payment for all costs to install the complete structural earth wall system including form liners, furnishing and installing concrete facing panels; pigmented sealer; soil reinforcement; underdrain pipe

system with geotextile, gravel backfill for drains and weep holes; and concrete leveling pad and copings.

6-20 BURIED STRUCTURES

6-20.1 Description

(City of Duvall)

Section 6-20.1 is supplemented with the following:

This work consists of installing the prefabricated concrete box culvert and associated wing walls and headwalls in accordance with the Plans, Standard Specifications, and these Special Provisions. The box culvert segments, wing walls, and headwalls shall be furnished by the City of Duvall. See Appendix H for drawings of the prefabricated buried structure to be installed. The Contractor shall be responsible for hauling the prefabricated materials from 26301 NE Cherry St, Duvall, WA 98019 to the project site.

6-20.5 Payment

(City of Duvall)

Section 6-20.5 is supplemented with the following:

"Installation of Buried Structure", per lump sum.

The lump sum Contract price for "Installation of Buried Structure" shall be full payment to perform the Work as specified in Standard Specification Section 6-20.3.

END OF DIVISION 6

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

7-04 STORM SEWERS

7-04.2 Materials

(City of Duvall)

Section 7-04.2 is supplemented with the following:

Trench backfill and pipe bedding material shall be as specified in Section 7-08 of the Special Provisions and on the Plans.

7-04.4 Measurement

(City of Duvall)

Delete all paragraphs under Section 7-04.4 and replace with the following:

The length of storm sewer pipe will be the number of linear feet of completed installation measured along the horizontal length of pipe at grade and will include the length through elbows, tees, and fittings. The number of linear feet will be measured from the inside face of a storm structure.

7-04.5 Payment

(City of Duvall)

Section 7-04.5 is supplemented with the following:

"Ductile Iron Storm Sewer Pipe __ In. Diam.", per linear foot.

The unit contract price per linear foot for storm sewer pipe of the material and size specified shall include the following:

- Removal and disposal of manmade and natural objects in conflict.
- Furnishing and installing the specified pipe with all required fittings and appurtenances.
- Furnishing and installing suitable native materials within the trench.
- Removing, stockpiling, and backfilling of native material where native material is deemed acceptable by the Engineer.
- Cleaning and testing of new pipes.
- General pipe installation work including plugs and connections to new drainage structures.
- Trench dewatering or temporary bypass pumping.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.2 Materials

(City of Duvall)

Section 7-05.2 is supplemented with the following:

Material for backfill around structures within the roadway shall be “Crushed Surfacing Base Course” as specified in 9-03.9(3) of the Specifications.

Metal frames and grates shall be per 9-05.15(2) of these Special Provisions.

7-05.3 Construction Requirements

Add the following new subsections:

7-05.3(5) Connections to Existing Catch Basins and Storm Lines

(City of Duvall)

The locations, type, and size of the existing catch basins and storm lines have been determined from available records and are approximate.

It shall be the responsibility of the Contractor to determine the exact location and ascertain the type and size of the existing facilities prior to starting work on each connection, and to provide any alterations, as required at no additional cost to the Contracting Agency.

When connecting to a concrete structure, openings shall be core-drilled, unless an existing knockout is available.

Pipe connections shall be made with non-shrink Portland cement grout. PVC connections shall be made with sand collar.

7-05.4 Measurement

(City of Duvall)

Section 7-05.4 is supplemented with the following:

“Connection to Drainage Structure” will include connection of existing drainage pipes to new catch basins and manholes measured per each.

7-05.5 Payment

(City of Duvall)

Section 7-05.5 is supplemented with the following:

“Connection to Drainage Structure”, per each.

The unit contract price per each for “Connection to Drainage Structure” shall include all

Costs associated each existing pipe connection to proposed storm structure as noted in the Plans.

"Catch Basin Type __", per each.

The unit contract price per each for "Catch Basin Type __" includes all costs associated with furnishing and installing the complete structure, frame and vaned grate, standard grate, bi-directional grate, combination inlet, ADA grate with rectangular frame, or solid frame and cover, ADA slip-resistant coating, saw cutting as necessary, excavation including haul, structure backfill, foundation material, compaction, patching, and adjustment to final grade shall be included in the unit contract price for the item installed. Connecting new pipes to the structure shall be included in the per each unit price for each structure.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.3(1) Excavation and Preparation of Trench

7-08.3(1)A Trenches

(City of Duvall)

Section 7-08.3(1)A is supplemented with the following:

Where trench excavation equals or exceeds a depth of 4 feet, the Contractor shall provide, construct, maintain, and remove as required safety systems that meet the requirements of the Washington Industrial Safety and Health Act, RCW 49.17, including WAC 296-155. The trench safety systems shall be designed by a qualified person and meet accepted engineering requirements (see WAC 296 155-660).

The Contractor shall submit a detailed Trench Safety System Type 1 Working Plans prior to excavation of any utility exceeding 4 feet in depth. The Contractor shall furnish, install, and operate all necessary equipment to keep excavations above the foundation level free from water during construction and shall dewater and dispose of the water so as not to cause injury to public or private property, damage to the storm system, or nuisance to the public. Sufficient pumping equipment in good working condition shall be available at all times for all emergencies, including power outage, and the Contractor shall have available at all times competent workmen for the operation of the pumping equipment.

7-08.3(3) Backfilling

(City of Duvall)

Section 7-08.3(3) is supplemented with the following:

Pipe zone backfill shall consist of "Crushed Surfacing Top Course" meeting the requirements of Section 9-03.9(3) of the Standard Specifications. The cost for Crushed Surfacing Top Course is included in the linear foot cost for storm sewer pipe per Section 7-04.

Trench backfill shall be crushed surfacing base course.

Compaction
Trench backfill shall be compacted by a method approved by the Engineer and meeting the provisions of the Standard Specifications. Backfill below pavement or sidewalk subgrade shall be compacted to at least 95 percent of Modified Proctor per ASTM D1557. The City will provide a geotechnical engineer for soils and compaction testing. The City's Inspector will coordinate testing. The Contractor shall pay for any retesting required due to failed material or compaction tests.

Add the following New Section:

7-08.3(5) Vertical Clearance Between Utility Lines
(City of Duvall)

All utility crossings, except those between sanitary sewer and water, shall provide 8 inches of separation from the outside edge of the pipes. Crossings between sanitary sewer and water shall be 18 inches.

Where the vertical clearance cannot be achieved and the clearance between storm and water lines or storm and sewer line is 2 to 6 inches, an ethylene vinyl acetate pad, Rubatex Laboratories R-5010-A, or an approved equal, is required. The pad shall be 3 feet by 3 feet by 2.5 inches minimum and placed between the pipes. All costs necessary to furnish and install the pad shall be considered incidental to pipe laying.

7-08.4 Measurement
(City of Duvall)
Section 7-08.4 is replaced with the following:

"CSBC for Trench Backfill Incl. Haul" shall be measured per ton.

No measurement will be made for pipe zone bedding.

7-08.5 Payment
(City of Duvall)
Section 7-08.5 is supplemented with the following:

All costs associated with trenching including haul, furnishing and installing pipe zone bedding material, compaction, removal, stockpile; and general pipe installation work including trench dewatering and connections shall be included in the unit contract price for the type and size of pipe installed.

"CSBC for Trench Backfill Incl. Haul", per ton.

The per ton price for "CSBC for Trench Backfill Incl. Haul" shall be full compensation for all labor, tools, equipment and materials necessary to place and compact the trench backfill.

7-09 WATER MAINS

7-09.3 Construction Requirements

7-09.3(22) Blowoff Assemblies

(City of Duvall)
Section 7-09.3(22) is supplemented with the following:

Blowoff Assemblies shall be constructed at the locations shown on the Plans and in accordance with the City of Duvall Standard Detail 2-120-001.

7-09.4 Measurement

(City of Duvall)
Section 7-09.4 is supplemented with the following:

"Connection to Existing Water Main, 12 In." shall be measured per each water main connection.

7-09.5 Payment

(City of Duvall)
Section 7-09.5 is supplemented with the following:

"Connection to Existing Water Main, 12 In." shall be measured per each.

The Contract price for connecting to the water main shall be full compensation for all work necessary or incidental to complete connection at the specified location including, but not limited to, excavation; procuring, providing, laying, and jointing the pipe/fittings/appurtenances; thrust blocking; testing; disinfecting the pipe; flushing; bedding; import trench backfill; compaction; and general cleanup.

Installing import backfill material, tracer wire, and marking tape on all water mains, fittings, and appurtenances shall be included in the pertinent Bid prices and shall not be measured for separate payment.

Any temporary blow off assemblies or other appurtenances necessary during testing, cleaning, flushing, etc. shall be included in the per each unit price for connect to existing water main and will not be measured for separate payment.

7-15 SERVICE CONNECTIONS

7-15.1 Description

(City of Duvall)
Section 7-15.1 is supplemented with the following:

This work shall consist of installing irrigation service connection per City of Duvall standard drawing number 2-090-003. Meter to be furnished and installed by the City.

7-15.4 Measurement

(City of Duvall)

Section 7-15.4 is supplemented with the following:

Irrigation water service connection shall be measured per each for each size of irrigation service connection installed.

7-15.5 Payment

(City of Duvall)

Section 7-15.5 is supplemented with the following:

‘“Irrigation Service Connection 1 In. Diam.”, per each.

The unit Contract price per each for “Irrigation Service Connection 1 In. Diam.” shall be full pay for all Work to install the service connection, including but not limited to, excavating, tapping the main, laying and jointing the pipe and fittings and appurtenances, backfilling, testing, flushing, and disinfection of the service connection.

END OF DIVISION 7

DIVISION 8
MISCELLANEOUS CONSTRUCTION

8-01 EROSION CONTROL AND WATER POLLUTION CONTROL

Replace Section 8-01.3 with the following:

8-01.3 Construction Requirements

(City of Duvall)

The CONTRACTOR shall ensure that materials, equipment, and experienced labor are available and on-hand to implement additional erosion control BMPs to address unanticipated situations.

Minimum Water Pollution/Erosion Control Requirements

These specifications are the minimum water pollution/erosion control requirements for CITY projects. Additional requirements or modifications of these specifications may be set forth in the related permits. Additional measures, beyond what are set forth herein, may be necessary in order to accommodate the Contract schedule, or materials and construction methods employed by the CONTRACTOR.

It is the CONTRACTOR's responsibility to assess water pollution/erosion control needs to maintain water quality in accordance with the requirements, conditions, and regulations of applicable codes, orders, ordinances, laws, specifications and permits. This assessment shall be reflected in the CONTRACTOR's bid.

The CONTRACTOR shall install and maintain all temporary and permanent erosion control Best Management Practices (BMPs) in accordance with the Contract Plans, Standard Specifications, these specifications, the Construction Stormwater Pollution Prevention Plan (CSWPPP), permit conditions or as directed by the Engineer prior to clearing, grubbing, or grading or as necessary, as work progresses. Erosion control BMPs as described in these specifications are based on the Washington State Stormwater Management Manual for the Puget Sound Basin (Ecology manual), 2014.

To the degree possible, the CONTRACTOR shall coordinate this temporary work with permanent drainage and erosion control work the Contract requires.

The CONTRACTOR shall coordinate with the Engineer on required erosion control BMPs prior to beginning construction activities. As construction progresses and seasonal conditions dictate, more erosion control BMPs may be required to ensure complete erosion control. Therefore, during the course of construction, it shall be the obligation and responsibility of the CONTRACTOR to address any new conditions that may be created by his or her activities. Additional erosion control BMPs may be required by the Engineer in the event of an emergency, and as weather and field conditions dictate.

Construction Sequence for Erosion Control

The CONTRACTOR shall consider and include the following construction sequence steps when preparing the project schedule, order of work and the Construction Stormwater Pollution Prevention Plan (CSWPPP), for each phase of the work. Any changes or modifications to this sequence can be proposed by the CONTRACTOR by describing an alternate construction sequence in the project CSWPPP (including modification to the Temporary Erosion/Sedimentation Control (TESC) Plan/Notes where appropriate) and then submitting the CSWPPP for review and approval to the Engineer.

1. The CONTRACTOR shall install silt fences, straw wattles, interceptor swales, catch basin inserts and other perimeter erosion control BMPs as shown on the Contract/TESC Plans and as construction activities may dictate.
2. The CONTRACTOR shall install sediment ponds, check dams, stormwater bypass systems, diversion swales, and other interior erosion control BMPs as shown on the Contract/TESC Plans and as construction activities may dictate.
3. The CONTRACTOR shall then perform clearing, grubbing, and grading required for construction of the various phases of work as required.
4. The CONTRACTOR shall inspect daily and maintain all erosion control BMPs to provide the required protection of downstream water quality and the storm drain system.
5. The CONTRACTOR shall install permanent site stabilization measures as shown on the Contract/TESC Plans or as directed by the Engineer.
6. Adjacent properties shall be protected from sediment deposition by appropriate use of erosion control BMPs.

The Engineer may impose additional restrictive measures at no additional cost to the CITY in order to protect water quality if the BMPs employed by CONTRACTOR are not effective in preventing the degradation of surface water quality.

8-01.3(1)A Submittals

The CONTRACTOR shall provide a phone list of the project manager, the site superintendent, erosion control lead, the foreman and other key personnel who can be reached at any time in the event of on-site problems.

8-01.3(1)B Certified Erosion and Sediment Control Lead (CESCL)

The CONTRACTOR shall identify the Certified Erosion and Control Lead and include contact information including 24 hour a day contact phone and cell phone numbers.

For projects with one acre (43,560 sq. ft.) or more of disturbance, a Certified Erosion and Sediment Control Lead (CESCL) must routinely inspect the site. The CESCL must conduct weekly visual inspections of the site to ensure the best management practices (BMPs) are functioning properly.

The CESCL shall implement the Temporary Erosion and Sediment Control (TESC) Plan. Implementation shall include, but is not limited to:

Installing and maintaining all temporary erosion and sediment control Best Management Practices (BMPs) included in the TESC Plan to assure continued performance of their intended function. Damaged or inadequate TESC BMPs shall be corrected immediately.

Updating the TESC Plan to reflect current field conditions.

Noting the inspection results in the site's monitoring Logbook and making the Monitoring Log Book available to the Engineer and any regulatory agency for review.

Noting modifications or changes made to the onsite erosion control measures to respond to weather or site conditions in the monitoring Logbook.

8-01.3(1)B.1 Erosion Control and Water Quality Monitoring Log Book

Water quality monitoring is not required for this project.

8-01.3(1)C Water Management

The CONTRACTOR shall be responsible for preventing water pollution due to construction materials, methods, or equipment. Repair, replacement, or corrective action shall be implemented immediately where needed or as directed by the Engineer.

Equipment shall be free of excessive fluid leaks and in good working order. The CONTRACTOR shall designate fueling area(s) and receive approval of the Engineer prior to using the fueling area(s). All equipment must be fueled and serviced in the designated area(s). The CONTRACTOR shall clean up, dispose, and restore any area contaminated with fuel, grease, oil, solvents, etc., at no additional cost to the CITY. Disposal of the contaminants shall be in accordance with WDOE requirements.

At no time shall concrete, concrete by-products, vehicle fluids, paint, chemicals, or other polluting matter be permitted to be discharged to the temporary or permanent drainage system or to be discharged from the project site to surface waters. Violators are subject to fines and are responsible for all costs associated with clean up and restoration.

Wastewater from Portland cement concrete, masonry, and asphalt concrete cutting operations shall be collected by vacuum or pumped into containers for disposal. Such wastewater shall not be discharged to the storm drain system or surface waters. Catch basin inserts are not effective in removing the fine particles and other pollutants found in wastewater from cutting operations. Impervious surfaces contaminated with grit and cuttings shall be cleaned to prevent the contaminants from entering the storm drain system or surface waters when it rains. Wastewater from cutting operations must be disposed at the concrete wash facility, if one is required for concrete truck washing activities. Otherwise, cuttings can be discharged to on-site soil or other porous surfaces as long as no wastewater is allowed to enter storm drains and surface waters.

If the Engineer, under WSDOT Standard Specifications Section 1-08.6, orders the Work suspended, the CONTRACTOR shall continue to control erosion, pollution, and runoff during the suspension.

Payment for excavation or trench dewatering and the control of the discharge thereof shall be deemed incidental to and included in the various bid items of work requiring dewatering (e.g., structure excavation) unless a specific bid item is set forth in the Proposal/Construction Contract.

8-01.3(1)F Permits

For Work within the Right of Way A completed Clearing and Grading Permit, including a Temporary Erosion and Sedimentation Control (TESC) Plan and a Construction Stormwater Pollution Prevention Plan (CSWPPP) including monitoring requirements is included in the Contract Documents. CONTRACTOR is responsible to retain the TESCP and CSWPPP on the construction site with the Contract Documents and to amend the plan sheet(s) as changes are made to erosion control in the field. All required monitoring including monitoring of erosion control Best Management Practices (BMPs) and water quality shall be noted in the project logbook and made available to the CITY and regulatory agencies upon request.

8-01.3(1)G Reporting

Site Discharges of Stormwater

Site discharges of stormwater with a turbidity testing result greater than or equal to 250 NTUs, must be reported by phone immediately by the CONTRACTOR to:

1. The Department of Ecology – 425-649-7000; and
2. The Utilities Construction Inspector; and
3. The City of Duvall Public Works Department

CONTRACTOR shall record testing results in monitoring Log Book along with any remedial actions taken to resolve the high turbidity discharge.

Spill

If any hazardous materials, including diesel fuel, gasoline, or hydraulic fluid, etc is discharged to surface waters or the storm drain system, the CONTRACTOR shall immediately report by phone to:

1. Department of Ecology 24-Hour Spill Response Team at 1-800-258-5990; and
2. Call City of Duvall Public Works Department

The CONTRACTOR shall also submit a detailed written report to the Washington State Department of Ecology (Ecology Northwest Regional Office, 3190 160th Ave SE, Bellevue, WA 98008-5452) within five (5) days that describes the nature of the event, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, and any other pertinent information. A copy of the report shall also be provided to the CITY.

Fish Kill or Distress

The CONTRACTOR shall immediately report by phone to:

1. Washington State Department of Fish and Wildlife Area Habitat Biologist Larry Fisher, Office 425-313-5683; and
2. Call City of Duvall Inspector

If artifacts or bones are observed, the CONTRACTOR shall call

1. City of Duvall Inspector; and
2. Army Corps of Engineers, Seattle office, Lyz Ellis, 206-764-3634.

If there is no response and there is a need for immediate help, call Dr. Whitlam at the Washington State Office of Historic and Archaeological Program (OHAP), 360-407-0771.

8-01.3(1)I Sediment Trapping

The CONTRACTOR shall install erosion control BMPs to trap sediment on-site. Permanent detention ponds, pipes or vaults may only be used for sediment containment when specifically indicated on the Contract Plans. Such permanent facilities shall be cleaned of all sediment and debris prior to final project acceptance.

Where shown on the Contract Plans, and at other sensitive areas (wetlands, streams, lakes, etc.) or as directed by the Engineer, the CONTRACTOR shall install double silt fencing at the proposed toe of the embankment to be constructed and/or area to be cleared, grubbed or graded.

Installation of additional sediment trapping BMPs shall be as directed by the Engineer should the need arise, at no additional cost to the CITY.

8-01.3(1)J Temporary Stabilization

All soils disturbed by construction activities must be stabilized and/or protected from erosion when measurable precipitation is forecasted or as directed by the Engineer.

During May 1 through September 30, unworked soils and stockpiles shall not be exposed for longer than seven (7) days before being covered or stabilized. When there is the likelihood of measurable precipitation (0.1 inch or more in a 24 hr period), the CONTRACTOR shall temporarily cover disturbed soils and stockpiles with plastic sheeting to protect them from erosion. Plastic sheeting is not to be used for long-term stabilization.

Straw mulch (two inches deep) may be used for providing immediate protection to disturbed soils, and can be applied to slopes up to 2:1 for up to four months. The use of straw mulch alone is considered temporary. If conditions warrant, straw mulch shall be anchored by crimping, covering with netting, or spraying with a tackifier.

Constructed slopes steeper than 10% shall be roughened by stair-step grading, grooving, furrowing, or tracking to produce indentations parallel to ground contours prior to seeding and mulching.

Erosion control blankets (ECBs) shall be used on graded slopes greater than 2:1 or where directed by the Engineer.

The CONTRACTOR may propose other suitable alternatives to stabilize disturbed areas. The CONTRACTOR shall submit the proposal along with all necessary supporting information to the Engineer for review. Only those suitable alternatives that have been approved by the Engineer may be implemented. Review and approval of alternative stabilization methods and/or materials by the Engineer does not alleviate the CONTRACTOR’s responsibility for ensuring effective erosion control. If the alternative erosion control BMPs fail, the CONTRACTOR shall be responsible for stabilizing the disturbed area to prevent erosion at no additional cost to the CITY. It is the CONTRACTOR’s responsibility to carefully select and implement appropriate erosion control alternatives given the site conditions.

8-01.3(1)K Permanent Stabilization

When final grades have been established, areas disturbed by construction activities shall be permanently stabilized within 7 calendar days by hydroseeding, seeding and mulching, sodding and/or landscaping as shown on the Contract Plans if the TESC plan, or as directed by the Engineer.

Additional hydraulic mulch shall supplement the typical hydroseed mix due to site, seasonal or weather constraints as directed by the Engineer.

Disturbed interior slopes and bottom for bio-swales and permanent drainage ditches shall be sodded. CONTRACTOR shall water the sod as needed to maintain a healthy, viable condition until final project acceptance.

Ditches and swales which are not suitable for sod placement due to continuous soil saturation, steep channel slope, seasonal conditions, etc., shall be protected with an appropriate non-eroding lining.

8-01.3(1)L Erosion Control Best Management Practices

An erosion control system using the following BMPs shall be installed prior to any clearing or grading. Additional erosion controls may be required by the Engineer as weather and field conditions dictate.

If the CONTRACTOR removes BMPs in order to facilitate the completion of the work, the CONTRACTOR shall immediately reinstall the BMPs in order to control erosion at no additional cost to the CITY.

8-01.3(2) Street Cleaning

Dirt, mud, and debris shall be removed from the roadway by shoveling or sweeping and transported to an appropriate disposal area. The CONTRACTOR will not be allowed to use water to wash impervious surfaces or areas during construction. Vacuum sweepers with dust suppression shall be used as frequently as deemed necessary by the Engineer.

If the CITY is forced to clean up after the CONTRACTOR’s operations, the cost of time and materials will be deducted from the CONTRACTOR’s payment.

8-01.3(3) Sediment Control Barriers

Sediment control barriers shall be installed in accordance with TESC Plan or manufacturer’s recommendations in the areas of clearing, grubbing, earthwork, or drainage prior to starting those activities. The sediment control barriers shall be maintained until the soils are permanently stabilized.

8-01.3(15) Maintenance

The CONTRACTOR shall inspect and maintain the temporary and permanent erosion control BMPs in a satisfactory working condition until such time that construction is complete, and the potential for erosion has passed. BMP maintenance activities shall be noted in the monitoring logbook.

The CONTRACTOR shall inspect daily and immediately following a storm event, all areas containing permanent and temporary erosion control BMPs. The CONTRACTOR shall implement necessary repairs to or replacement of erosion control BMPs promptly. Repairs or replacement shall be performed immediately following a storm event and during prolonged rainfall.

Sediment deposits shall be removed after each storm event or when the level of deposits reach approximately one-half the maximum potential depth or as directed by the Engineer. Disposal of any excavated material from the construction site and deposited on property within the city limits must be done in compliance with a valid permit.

Temporary Suspension of Work

It is the CONTRACTOR's responsibility to control water pollution and erosion resulting from their activities. All minimum required BMPs shall be installed and fully operational. If the CONTRACTOR is unable to satisfactorily abate water pollution or erosion problems due to adverse weather or construction methods, the Engineer shall suspend all or parts of the work until such problems are resolved to the satisfaction of the Engineer. The CONTRACTOR shall work diligently to implement additional BMPs or alternate construction methods to control water pollution and erosion and/or complete those parts of the project not affected by the suspension until the Engineer authorizes the suspended work to begin again.

Monitoring

The CONTRACTOR shall implement any monitoring requirements set forth in the Contract Documents.

To document the effectiveness of the CONTRACTOR's efforts to control erosion, the Engineer may take samples to monitor the runoff flow for Total Suspended Solids (TSS) concentrations to analyze discharge quality from the project site.

The State Surface Water Quality Standards (WAC 173.201A) for turbidity are:

1. No more than five (5) Nephelometric Turbidity Units (NTU) increase over background levels when background turbidity is 50 NTU or less; or
2. No more than a 10% increase over background levels when background turbidity is greater than 50 NTU.

A copy of the monitoring report will be provided to the CONTRACTOR. Based on the effectiveness of the CONTRACTOR's erosion control measures, work may be suspended during periods of rainfall or when rain is forecasted, if water quality protection cannot be maintained.

The following enforcement procedure will be employed to ensure compliance with this specification and applicable codes, regulations, laws and permits:

Minor Violations: These include maintenance of existing BMPs and addressing minor deficiencies (more straw mulch, repairing silt fence, covering stockpiles, etc.). Minor Violations are those which have not yet resulted in water pollution, sediment, or turbid water leaving the site. Initial notice of minor violations may be verbal or written. Failure to correct these violations within the time set forth by the Engineer shall result in written Correction Notice.

Correction Notice: Failure to comply with Initial Notice of Minor Violation(s) and/or a release of pollutants, turbid water, or sediment from the site shall result in a Correction Notice. The Correction Notice shall: 1) identify the work which needs to be performed to control water

pollution or erosion; and 2) establish a specific timeframe for completion of such work. Other work on the site may be suspended as directed by the Engineer until the corrections are completed.

Stop Work Order: Failure to address a Correction Notice within the timeframe specified shall result in the issuance of a Stop Work Order. Upon issuance of the Stop Work Order, all work on the site not directly related to correcting the water pollution or erosion problems shall be suspended as directed by the Engineer. Work on other aspects of site shall not resume until such problems are resolved to the satisfaction of the Engineer and the Stop Work Order is removed.

8-01.3(16) Removal

The CONTRACTOR shall remove all temporary erosion control BMPs within twenty (20) days after final stabilization of disturbed areas is achieved and the permanent drainage facilities are operational (e.g., vegetated swales are vegetated) and accepted by the CITY. Trapped sediment shall be removed unless otherwise approved by the Engineer. Disturbed soil resulting from removal of temporary erosion control BMPs shall also be permanently stabilized.

If the installation and use of the erosion control BMPs have compacted or otherwise rendered the soil inhospitable to plant growth, such as construction entrances, the CONTRACTOR shall take measures to rehabilitate the soil to facilitate plant growth. This may include, but is not limited to, ripping the soil, incorporating soil amendments, or other horticultural practices.

8-01.6 Penalties

Failure of the CONTRACTOR to implement water pollution and erosion control BMPs that then results in a discharge of pollutants, sediment, or turbid water to surface waters (lakes, streams, wetlands, ponds, etc.) shall result in monetary penalty and the issuance of a Stop Work Order and may be subject to an enforcement action under Chapter 1.18 BCC including monetary penalties in excess of that listed in the paragraph below.

The issuance of three Stop Work Orders as a result of the CONTRACTOR failing to implement BMPs shall be grounds for termination of the Contract by the CITY.

8-01.7 Clean-up

If pollutants or sediments are released from the project site, the CONTRACTOR shall be responsible for the immediate clean-up of impacted storm drainage facilities (e.g., pipes, catch basins, ditches, swales, detention ponds) and the clean-up and/or restoration of surface waters as deemed appropriate by the Engineer.

If the CITY is forced to clean up after the release of pollutants or sediments, the cost of such clean-up shall be deducted from any funds due or might become due to the CONTRACTOR. Such costs may include:

1. Staff time (including travel time and supervision) at the actual salary cost plus 100 percent (100%) for overhead; plus
2. Actual expenses for materials; plus

3. Actual expenses or rental rates for tools and equipment; plus
4. Actual expenses for contracted services.

8-02 ROADSIDE RESTORATION

8-02.2 Materials

(City of Duvall)

Section 8-02.2 shall be supplemented with the following:

Topsoil Type A	9-14.2(1)
Seed	9-14.3
Fertilizer	9-14.4
Bark or Wood Chip Mulch	9-14.5(3)
Arborist Wood Chip Mulch	9-14.5(3)A
Fine Compost	9-14.5(8) of the Standard Specifications
Biodegradable Erosion Control Blanket	9-14.6(2) of the Standard Specifications
Sod	9-14.7(4)
Root Barrier	9-14.9

8-02.3 Construction Requirements

(City of Duvall)

Section 8-02.3 is supplemented with the following:

Landscape restoration will begin after curbs, sidewalks, and associated work have been completed or as directed by the Engineer.

The Contractor shall hold a landscape preconstruction meet with the City of Duvall Planning Department prior to the start of landscape construction work; the meeting shall not occur until the site is ready for landscape work to begin. Planning Department shall provide final approval as to whether landscape construction work can begin; if corrections are required, a second meeting will be required after those corrections have been made. No landscape construction work shall be allowed to begin without approval from the Planning Department.

Contractor shall report to the Engineer deviation and conflicts between the Contract Documents and site conditions prior to proceeding with work. Extra work arising from failure to do so shall be done at the Contractor’s expense.

Contractor is responsible for ensuring positive drainage in landscape areas.

Landscape materials shall not be installed until weather permits and installation has been authorized by the City.

8-02.3(1) Responsibility During Construction

(City of Duvall)

Section 8-02.3(1) is supplemented with the following:

Dumping or stockpiling of topsoil or bark mulch shall not be allowed on roadway surfaces.

The Contractor shall locate all underground utilities (both new and existing) prior to starting work and shall not disturb or damage them. Promptly notify the Engineer of any conflict between the proposed work and any obstructions. The Contractor shall be responsible for making any and all repairs for damage caused by his or her activities.

8-02.3(2)A Roadside Work Plan

(City of Duvall)

Section 8-02.3(2)A is supplemented with the following:

The Contractor shall submit to the Contracting Agency a Roadside Work Plan meeting the requirements of the Standard Specifications a minimum of 30 calendar days prior to commencing the installation of topsoil, bark mulch, irrigation systems, and / or landscape materials.

8-02.3(3) Weed and Pest Control

8-02.3(3)A Chemical Pesticides

(City of Duvall)

Section 8-02.3(3)A is supplemented with the following:

No chemical herbicides will be allowed in planting areas.

8-02.3(4) Topsoil

(City of Duvall)

Section 8-02.3(4) is supplemented with the following:

Thoroughly scarify subgrade in all planted and lawn areas to a minimum depth of twelve inches (12”). Scarified subgrade shall be inspected and approved by the Engineer prior to placement of topsoil.

Areas around existing trees to remain shall not be cultivated within the dripline of the tree or any other areas which appear to have a significant number of existing tree roots. Topsoil Type A shall be used in any areas requiring additional soil to bring subgrade up to grade, prior to the placement of Topsoil Type A or Fine Compost amendments, as noted on the Plans. Remove all construction debris prior to placing topsoil or compost.

In all areas to be planted or seeded, the costs of removing all excess material and debris shall be considered incidental to and included in the unit contract prices of other items in this contract.

Upon approval of the subgrade by the Engineer, topsoil and compost shall be installed as follows:

Roadway Planter areas

Topsoil Type A shall be installed in two lifts. The first six-inch (6") lift of Topsoil Type A shall be rototilled into the top six inches (6") of prepared subgrade, then the remaining six-inch (6") lift of Topsoil Type A shall be installed to achieve the minimum depth of Topsoil Type A as shown on the Plans. Remove rocks, roots, and debris over one (1) inch in diameter. Lightly compact soil and establish a smooth and uniform finished grade that protects against obstruction to surface drainage and ponding. Finish grade after installation of topsoil shall be 1" plus the specified depth of mulch, where applicable, below the top of adjacent curbs or paved surfaces.

Contractor shall coordinate installation of Root Barrier with topsoil installation, as detailed and where shown on the Plans. "Root Barrier" shall be as specified in Section 9-14.4(9) Root Barrier, of these special provisions.

Back-of-Walk Planter areas and Stream Restoration Planting areas

Native soil shall be amended with three inches (3") Fine Compost rototilled into the top eight inches (8") of prepared subgrade. Lightly compact soil and establish a smooth and uniform finished grade that protects against obstruction to surface drainage and ponding.

Install Biodegradable Erosion Control Blanket in Stream Restoration Planting areas where indicated on the Plans. "Biodegradable Erosion Control Blanket" shall be as specified in Section 9-14.6(2) of the Standard Specification and shall be measured and paid for under the bid item for "Erosion Control Blanket".

Above culvert ends

In areas above culvert ends, Topsoil Type A shall be installed in two equal lifts to a minimum depth of twelve inches (12") at the back of the headwall and sloped upward at six percent (6%) to face of wall. Finish grade shall be feathered to create a smooth transition to surrounding soil grades in a manner that promotes positives drainage away from all structures. Topsoil Type A shall be used to raise finish grade of surrounding soil, if required, to ensure a smooth transition.

8-02.3(4)A Topsoil Type A

(City of Duvall)

Section 8-02.3(4)A is supplemented with the following:

Topsoil Type A shall conform to Section 9-14.2(1) of these Special Provisions and shall be supplied by a Contractor's supplied source, and as approved by the Engineer.

8-02.3(6) Mulch and Amendments

8-02.3(6)B Fertilizers

(City of Duvall)

Section 8-02.3(6)B is replaced in entirety with the following:

Trees and shrubs shall be fertilized at a rate according to manufacturer's recommendations.

Fertilizer shall be considered incidental to and included in the unit contract price for trees, plant material and seeded lawn.

Fertilizers shall be as specified in Section 9-14.4 Fertilizer of these Special Provisions.

8-02.3(8) Planting

8-02.3(8)A Dates and Conditions for Planting

(City of Duvall)

Section 8-02.3(8)A is supplemented with the following:

All plant material except ground cover shall be legibly tagged. Tagging may be by species or variety with minimum of one tag per ten trees, shrubs, or vines. Remove all tagging prior to final acceptance.

The Contracting Agency shall review the plants on site prior to installation; review does not confirm acceptance of the plants.

The Contracting Agency shall reserve the option of selecting and inspecting plant material at the nursery. The Contractor shall provide the Contracting Agency with at least one week notice prior to preparing plants for shipping and delivery. The Contractor shall neither deliver to site nor install plant materials until authorized by the Contracting Agency.

If planting is delayed more than 24 hours after delivery, set balled and burlapped plants on the ground, well protected with soil or wet peat. Adequately cover all roots of bare root material with soil or wet peat. Protect rootballs from freezing, sun, drying winds or mechanical damage.

The Contractor shall provide supplemental water to all plants as necessary to keep moisture levels appropriate to the species' horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Soak all containerized plants thoroughly prior to installation. Plants whose roots have dried out from exposure will not be accepted at installation inspection. All rejected plants shall be immediately removed from the site.

Plants shall not be stored for more than one week. Longer storage period at project site will result in rejection of plant materials by the Contracting Agency.

Plant substitutions, including or larger or smaller sized plants, are not permitted without the permission of the Contracting Agency.

8-02.3(8)B Plant Installation

(City of Duvall)

Section 8-02.3(8)B is supplemented with the following:

All trees and shrubs shall be planted as detailed on the Plans.

Thoroughly scarify sides and bottom of planting pits prior to planting.

Plant trees upright and face to give best appearance or relationship to adjacent structures and hold rigidly in position until planting soil has been backfilled and tamped firmly around the root ball or roots.

Plant trees in planting pits as detailed on plans.

Balled and burlapped plants shall be placed in the planting pits with the burlap intact; the binding shall be removed and all of the burlap or cloth wrapping materials shall be removed from the root ball. Remove all plastic, twine and ropes. The plant shall be rejected if the root ball is cracked or broken during removal of wrapping or during the planting process.

When the pit is backfilled halfway, place the specified quantity of fertilizer, unless otherwise specified on the plans. Evenly spread fertilizer adjacent to, the root system at a depth that is between the middle and the bottom of the root system. Do not injure root system. Carefully place and compact topsoil to avoid injury to roots; fill all voids. Tree root crowns to be 1 inch (1") higher than finished grade to allow for settlement.

When pit is three-quarters (3/4) backfilled, completely fill with water and allow water to soak away. If water does not drain within ½ hour notify Engineer; tree planting pits which do not drain properly may require drainrock sump to facilitate drainage. Fill pits with additional topsoil to finish grade and continue backfilling as detailed on plans.

Install mulch rings where shown on the Plans.

8-02.3(10)B Lawn Seeding and sodding

(City of Duvall)

Section 8-02.3(10)B is supplemented with the following:

Seeding in lieu of sodding may be allowed based on growing season only if approved by the City.

8-02.3(11)B Bark or Wood Chip Mulch

(City of Duvall)

Section 8-02.3(11)B is supplemented with the following:

Bark or Wood Chip Mulch and Arborist Wood Chip Mulch shall be placed where noted on the Plans to a depth no less than three inches (3"). Thoroughly water and hose down plants with a fine spray to wash the leaves of the plants immediately after application.

Bark or Wood Chip Mulch shall meet the requirements of Section 9-14.5(3) Bark or Wood Chips of these special provisions. Arborist Wood Chip Mulch shall meet the requirements of Section 9-14.5(3)A of these special provisions.

8-02.3(13) Plant Establishment

(City of Duvall)

Section 8-02.3(13) is supplemented with the following:

Plant establishment shall consist of caring for all plants planted on the project and caring for the planting areas within the project limits. The provisions of Sections 1-07.13(2) and 1-07.13(3) do not apply to this Section. During the first-year plant establishment and

maintenance period, the Contractor shall perform all Work necessary to ensure the resumption and continued healthy and vigorous growth of all plant material, as directed by the City.

The Contractor shall submit a plant establishment and maintenance plan for approval by the City. Maintenance plan and activities shall include, but not limited to:

1. Removing and replacing dead plants; plant replacements shall be per Section 8-02.3(14) of the Standard Specifications.
2. Pruning, cultivating fertilizing and performing other necessary operations for healthy and continued growth of plant material.
3. Maintaining and adjusting staking materials, supports, guys, intact and in good serviceable condition.
4. Weeding all planting areas minimum three (3) times per month from April 1st to September 31st. Frequency of weeding shall be sufficient to keep landscaped areas weed free and prevent weeds from going to seed.
5. Mowing all seeded and sod lawn areas within the right-of-way.
6. Watering all plant material not covered by automatic irrigation system. Watering frequency shall be sufficient to establish the plant material in a healthy and thriving condition, and not less than once per week from May 1st through September 31st. Quick couplers connected to the automatic irrigation system and located adjacent to the Stream Restoration plantings areas are available for the Contractor's use for watering; if Contractor elects to utilize water truck or other means for watering plant material not covered by automatic irrigation system, this shall be at the Contractor's cost.
7. Adjusting all tree stakes, wrappings, guards and fastenings to maintain firm support. Where fastenings have become too tight or too short, new and larger fastenings shall be furnished and installed by the Contractor to prevent strangulation or irregular growth of the tree.
8. Performing other work as required to maintain all planting areas in a healthy, vigorous and weed-free condition throughout the first-year plant establishment and Maintenance period.

Chemical herbicides shall not be used.

Cleanup shall be made immediately after and as part of the work done in the area. The cleanup shall include the entire area under this contract. The contract area shall be cleaned of litter and debris at least once each month. Such cleanup shall include the pickup and removal from the contract area of all clippings, trimmings, leaves, litter, and debris originating from any source whatsoever. Planting areas shall be neatly dressed and finished; walks and paved area shall be hosed off with water as necessary and otherwise kept clean and free from dirt, bark, and litter.

Contractor is responsible for routine inspection during the plant establishment and maintenance period. In addition, the Contractor shall meet with the City monthly for the purpose of jointly inspecting the plant material. All conditions unsatisfactory to the City shall be corrected by the Contractor within a seven (7) day period immediately following the inspection. Corrective work shall include the removal and disposal of all unsatisfactory plant material.

If plant replacement is required, the Contractor shall, within the 7-day period, submit a plan and schedule for the plant replacement to occur immediately at the beginning of the planting period between October 1st and March 1st. Failure to comply with corrective steps outlined by the City shall constitute justification for the City to take corrective steps. All costs incurred by the City in correcting unsatisfactory conditions shall be paid by the Contractor.

All plants which, at any point during the plant establishment period, do not show healthy and vigorous growth shall be removed and replaced. Plant material for replacement shall be inspected and approved as equal plant material prior to replacement being made.

If plants are stolen or damaged by the acts of others prior to final acceptance by the City, the Contracting Agency will pay invoice cost only for the replacement plants with no mark-up and the Contractor will be responsible for the labor to install the replacement plants.

Contractor shall submit two maintenance reports per year to the City of Duvall Planning Department for review of conformance with the plant establishment and maintenance plan.

At the end of the first-year plant establishment and maintenance period, the City of Duvall Planning Department will conduct a one-year landscape establishment and maintenance inspection.

First-year plant establishment and maintenance shall be paid for under the contract price for "PSIPE_____" per each.

Add the following new section:

8-02.3(13)A Additional 2-Year Landscape Establishment and Maintenance
(City of Duvall)

The Additional 2-Year Landscape Establishment and Maintenance period shall begin immediately upon written notification from the Planning Department of the completion of the first-year plant establishment and shall be a minimum of 2 additional calendar years.

The Contractor shall submit a separate two-year landscape establishment and maintenance plan for approval by the City. All of the requirements of Section 8-02.3(13) of these Special Provisions shall continue to apply to the additional 2-year landscape establishment and maintenance period.

At the end of the first year of the additional 2-year landscape establishment and maintenance period (year two since completion of initial planting), planting areas shall have a minimum

90% survival rate, based on original plan quantities, as determined by the City. At the end of the second year (year three since completion of initial planting), planting areas shall meet or exceed 80% survival rate based on original plan quantities, as determined by the City. In all planting areas not meeting these thresholds, the Contractor shall replace plants as outlined in Section 8-02.3(13) of these Special Provisions. See table below:

	First-Year Plant Establishment period (PSIPE)	Additional 2-Year Landscape Maintenance and Establishment period	
Year	Year 1	Year 2	Year 3
Plant survival Rate (based on original plan quantities)	100%	90%	80%

Stakes, wrappings, guards, and fastenings shall be removed during the last month of the 2-year plant establishment and maintenance period, or earlier if directed by the City.

Contractor is responsible for routine inspection during the additional 2-year landscape establishment and maintenance period. In addition, the Contractor shall meet with the Engineer for the purpose of joint inspection of the plant materials, on a mutually agreed upon schedule.

Contractor shall submit two maintenance reports per year (4 total) to the City of Duvall Planning Department for review of conformance with the 2-year landscape establishment and maintenance plan.

Add the following New Section:

8-02.3(17) Property Restoration
(City of Duvall)

Property restoration shall consist of placement of additional plant materials, sod, seed, bark mulch, slope restoration behind sidewalks, timber edgings, relocating private fencing, and other work not currently identified on the plans, as directed by the Engineer.

All materials shall conform to Sections 9-14 Erosion Control and Roadside Planting and 9-15 Irrigation System of the Standard Specifications.

The Contractor is specifically reminded that any unnecessary damage caused by construction activities will be repaired at the Contractor's expense.

Restore all disturbed areas to original condition or better. Grass areas shall be restored with sod unless otherwise directed.

Removal of tree roots outside the limits of construction, as directed by the Engineer and performed under the supervision of a certified arborist, shall be paid for under “Property Restoration”.

Topsoil shall be Type A and Bark Mulch shall be medium grade fir or hemlock.

The force account item provided for property restoration also includes any adjustments and/or replacements of existing irrigation systems not covered under Section 8-03 Irrigation Systems of the Special Provisions. This work shall also consist of modifying existing landscape lighting systems as may become necessary by these improvements.

The Contractor is advised that protecting existing private irrigation and lighting systems from damage does not constitute a basis for claim or extra work. “Property Restoration” has been provided as a basis for modifications or improvements to private lighting systems and irrigation systems that may become necessary but could not be foreseen prior to construction.

Add the following New Section:

8-02.3(18) Landscape As-Builts
(City of Duvall)

Within 60 days of completion of initial planting, the Contractor shall submit as-built Plans consisting of corrected plant layout, plant schedule showing all approved changes to plant species and quantities, and all other details necessary to show the Work as constructed.

These drawings shall be on sheets conforming in size to the provisions of Section 1-05.3. All drawings must be complete and legible. All corrections ordered by the City shll be made by the Contractor prior to acceptance.

Preparation and submittal of as-built Plans shall be considered incidental to and included in the unit cost for trees and plants.

8-02.4 Measurement
(City of Duvall)
Section 8-02.4 is supplemented with the following:

Topsoil, compost and mulch will be measured by the cubic yard to the nearest 0.5 cubic yard in the haul conveyance or container at the point of delivery. The Resident Inspector shall be given a copy of the trip ticket or other such evidence, which lists the quantity delivered and placed on site. The Contractor shall coordinate same.

Sod lawn will be measured along the ground slope line to the nearest square yard of seeded lawn installed and accepted.

Root barrier shall be measured by the linear foot along the top edge of the root barrier to the nearest 0.5 feet of root barrier installed and accepted.

The pay quantities for plant materials will be determined by count of the number of satisfactory plants installed and accepted by the Engineer.

No specific unit of measurement shall apply to the force account for “Property Restoration” or the lump sum for “Additional 2-Year Landscape Establishment and Maintenance”.

8-02.5 Payment

(City of Duvall)

Section 8-02.5 is supplemented with the following:

“Topsoil Type A”, per cubic yard.

The unit contract price per cubic yard for “Topsoil Type A” shall be full pay for all costs necessary to furnish and install the topsoil as required in these Specifications and as shown on the Plans.

“Bark or Wood Chip Mulch”, per cubic yard.

The unit contract price per cubic yard for “Bark or Wood Chip Mulch” shall be full pay for all costs necessary to furnish and install the bark mulch as required in these Specifications and as shown on the Plans.

“Arborist Wood Chip Mulch”, per cubic yard.

The unit contract price per cubic yard for “Arborist Wood Chip Mulch” shall be full pay for all costs necessary to furnish and install the mulch as required in these Specifications and as shown on the Plans.

“Fine Compost”, per cubic yard.

The unit contract price per cubic yard for “Fine Compost” shall be full pay for all costs necessary to furnish and install the compost as required in these Specifications and as shown on the Plans.

“Sod Installation”, per square yard.

The unit contract price per square yard for “Sod Installation” shall be full pay for all costs necessary to furnish and install the sod lawn as required in these Specifications and as shown on the Plans.

“PSIPE _____”, per each.

The unit contract price per each for “PSIPE _____” shall be full pay for all labor, material, tools, equipment, and supplies necessary to fine grade, produce, plant, fertilize, cultivate, furnish and install soil amendments, cleanup and provide as-builts.

As the plants that include plant establishment are obtained, propagated, and grown, the Engineer will make partial payments as follows after inspection:

Payment of 75 percent of the unit contract price, per each, at the completion of the initial planting.

Payment will be increased to 100 percent upon final acceptance of the planting area by the City including a one-year plant establishment.

"Additional 2-Year Landscape Establishment and Maintenance", per lump sum.

The lump sum contract price for "Additional 2-Year Landscape Establishment and Maintenance" shall be full compensation for Plant Establishment and Maintenance after the end of the PSIPE first-year plant establish period, as specified herein.

"Root Barrier", per linear foot.

The unit contract price per linear foot for "Root Barrier" shall be full pay for furnishing and installing root barrier as shown on the Plans.

"Property Restoration", by force account, as provided by Section 1-09.6.

"Property Restoration" will be any work, equipment or materials required to restore property to original condition not covered by other bid items, measured per force account.

8-03 IRRIGATION SYSTEMS

8-03.1 Description

(City of Duvall)

Section 8-03.1 is supplemented with the following:

This work shall consist of installing a new and functioning irrigation system(s) per the Bid Documents.

The Contractor shall also furnish and install one (1) double check valve assembly (DCVA), with connection to irrigation water meter and an automatic irrigation controller, as shown on Plans.

Electrical and / or Telephone service connections to the irrigation controller, if required, shall be paid for by the Contractor.

8-03.3 Construction Requirements

(City of Duvall)

Section 8-03.3 is supplemented with the following:

Backfilling of irrigation piping shall be in accordance with Section 7-08.3(3) Backfilling of these Special Provisions.

In paved asphalt areas, restoration shall be as shown on the Plans.

Some private irrigation systems exist within the project limits which may be impacted by the project improvements. The Contractor shall minimize the impacts to these facilities to the maximum extent possible. In the event that irrigation systems are found to encroach within the limits of the project improvements, they shall be modified as necessary per Engineer directed force accounts to ensure satisfactory operation upon completion of the improvements. Modifications to existing irrigation systems shall be measured and paid under the "Property Restoration" bid item per 1-09.6. Existing systems shall be tested after

modification or revisions to ensure adequate coverage and function of the systems. Any electrical valve wiring disconnected or disturbed during construction shall be reconnected and tested to ensure a fully operating and functional system.

8-03.3(5) Irrigation Electrical Service

(City of Duvall)

Section 8-03.3(5) is supplemented with the following:

Connections for Irrigation Electrical Service shall be as shown on Illumination Plans. The Contractor shall fully coordinate, arrange, and install all items necessary to obtain electrical service to the irrigation controller, as shown on Plans, including all trenching, conduit, and restoration that may be necessary.

8-03.3(7) Piping

(City of Duvall)

Section 8-03.3 (7) is supplemented with the following:

The Contractor is alerted that irrigation sleeves are not shown on the roadway Plan & Profile Sheets and thus will require coordination with the Irrigation Plans. The Contractor shall ensure coordination with all underground utility and pavement installation is done with adequate time to allow for sleeving placement around utility vaults and structures as indicated on the Plans.

PVC Pipe and Fittings

All irrigation piping install beneath driveways, sidewalk and other hard surfacing shall be sleeved in PVC at least ½-in. diameter larger than the external irrigation pipe diameter to be installed. All roadway crossing shall be sleeved in ductile iron pipe a minimum 4-in. in diameter or 1” larger than the external pipe diameter of the irrigation pipe being installed.

Due to the nature of PVC pipe and fittings, the Contractor shall exercise care in handling, loading, unloading and storing pipe to avoid damage. The pipe and fittings shall be stored under cover and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lie flat so as not to be subject to undue ending or concentrated external load at any point.

Any pipe that has been dented or damaged shall be set aside until such damage has been cut out and pipe is rejoined with a coupling.

Solvent welded joints shall be performed as a two-step process using P70 primer and 711 glue. In each case, both fittings and pipes must be given the following applications. Both must first be primed, then be glued, then pressed together while giving a quarter turn and held together for 30 seconds. Give at least 15 minutes set-up time before moving or handling. Pipe shall be partially center loaded to prevent arching and slipping. No water shall be permitted in the pipe until at least 10 hours have elapsed for the weld to set and cure.

Backfilling shall be done when pipe is not in an expanded condition due to heat or pressure. Cooling of the pipe can be accomplished by operation the system for a short time before backfill, or by backfilling in the early part of the morning before the heat of day.

Before pressure testing, soluble weld joints shall be given at least 24 hours curing time.

No PVC pipe may be threaded or connected to a threaded fitting without an adapter.

Great care must be taken to ensure that the inside of the pipe is absolutely clean. Any pipe ends not being worked on must be protected and not left open.

8-03.3(14) System Operation

(City of Duvall)

Section 8-03.3(14) is supplemented with the following:

The irrigation system operation shall be guaranteed, maintained and operated by the Contractor for the full duration of the plant establishment required by the Bid Documents.

8-03.4 Measurement

(City of Duvall)

Section 8-03.4 is supplemented with the following:

No unit of measurement will apply to the lump sum price for the Automatic Irrigation System, Complete, but payment will be for the sum total of all items for a complete system to be furnished and installed.

8-03.5 Payment

(City of Duvall)

Section 8-03.5 is supplemented with the following:

"Automatic Irrigation System, Complete", per Lump Sum.

The lump sum price for "Automatic Irrigation System, Complete" shall be full compensation for furnishing all labor, materials, tools, and equipment necessary or incidental to the construction of the complete and operable sprinkler irrigation systems as shown in the Plans or as directed by the Engineer. No separate payments shall be made for excavation, backfilling, compaction, or restoration of materials associated with the installation of the Irrigation System.

8-04 CURBS, GUTTERS, AND SPILLWAYS

8-04.3 Construction Requirements

(City of Duvall)

Section 8-04.3 is supplemented with the following:

New curb and gutter will not be placed until forms have been checked and approved for line, grade, and compaction by the Contracting Agency. Approval of the forms does not constitute approval of installed curb and gutter. The Contracting Agency shall give final acceptance after inspection of installed curb and gutter. Any damaged or unacceptable curb and gutter shall be replaced at no additional cost to the Contracting Agency.

Curb and gutter shall be constructed with Class 4000 air entrained concrete conforming to the requirement of Section 6-02 of the Standard Specifications.

New curb and gutter shall be protected against damage or defacement of any kind, including unauthorized traffic, until it has been accepted by the Contracting Agency. The lip of gutter at all curb ramps shall be flush, and no exceptions shall be given. Work that is not acceptable to the Contracting Agency because of damage or defacement shall be removed and replaced by the Contractor at their own expense.

8-04.5 Payment

(City of Duvall)

Section 8-04.5 is supplemented with the following:

Payment will also be made under the following:

"Cement Conc. Traffic Curb and Gutter", per linear foot.

The unit bid price per linear foot in the proposal for "Cement Conc. Traffic Curb and Gutter" shall include all tools, labor, and materials to furnish and install curb and gutter, including work sequencing, forming, placing, block-outs, lowering curbs for sidewalk ramps and driveways, reinforcing steel, joint filler, curing, temporary barricades, end-sections, painting where noted on the Plans, and any other items as shown on the plans and as required in the field for a complete installation. This also includes installation of curb and curb and gutter by hand, if deemed necessary. It shall also include protecting all curb and gutters from vandalism and other damage until accepted by the Contracting Agency.

8-14 CEMENT CONCRETE SIDEWALKS

8-14.1 Description

(City of Duvall)

Section 8-14.1 is supplemented with the following:

This work shall also consist of constructing and installing Cement Concrete Sidewalk with different joints and finishes, Thickened Slab Sidewalk, Accent Band Treatment, Surface Treatment A, Surface Treatment B, and cement concrete curb ramps including detectable warning surfaces

Cement concrete sidewalk at overlook area shall be constructed with reinforcing steel as shown and detailed per Plans.

All finished grade sidewalk slopes shall meet the slope and grade requirements as indicated in the Plans and Standard Plans.

8-14.2 Materials

(City of Duvall)

Section 8-14.2 is supplemented with the following:

Materials shall meet the requirements of the following sections as applicable unless noted:

Concrete	6-02
Steel Structures	6-03
Portland Cement	9-01
Aggregates	9-03
Premolded Joint Filler	9-04.1
Poured Rubber Joint Sealer	9-04.2(2)
Structural Steel and related materials	9-06
Reinforcing Steel	9-07
Dowel Bars	9-07.5(1) or 9-07.5(2)
Concrete Curing Materials and Admixture	9-23
Fly Ash	9-23.9

Cement Concrete Sidewalk, Accent Band Treatment, and Thickened Slab Sidewalk shall be constructed in accordance with Section 8-14 of the Standard Specifications and as shown on the Standard Details, including light broom finish and scoring detailed as shown on the Plans.

The concrete mix for all work shall be air-entrained concrete Class 3000 according to section 6-02 Concrete Structures, with a maximum slump of 3-1/2 inches.

Surface Treatment A

Surface treatment A shall consist of stamping texture or skin tooling on cement concrete with color hardener, accent staining, color release agent and sealer as detailed on plans and as specified, in these Special Provisions.

Surface treatment A shall be achieved using the stamping textured mats and touch-up skins by LITHOTEX® Pavecrafters® Concrete Patterns and Textures in ‘Pebblestone’ pattern provided by Sika Corporation or approved equal, in the. The surface texture is that of round, smooth river pebbles, with rounded and worn stone edges using the following tools:

18" x 18" – S8318-TS (touch-up texture skin)
36" x 36" – S8336-TS (texture mat with handles)
48" x 48" – S8348-TS (texture mat with handles)

SIKA Corporation
4155 Scofield Road
Douglasville, GA 30134
Phone: 800-800-9900 | www.scofield.com

Color hardener shall be Scofield® Emerchrome® SC in A-59 “Beige Cream” color, provided by SIKA Corporation. Color hardener shall be a high opacity, UV resistant, dry shake power cementitious-based coloring material that shall be freeze-thaw stable for exterior hardscapes. It shall result in a streak free and uniform looking color (conforms to ASTM Standard C979) that provides dense cement concrete surface resistant to color fading, foot/vehicular traffic, and extreme weather.

Accent staining of accent pebblestone, staining on top of the color hardener, shall be achieved using LITHOCHROME® Chemstain® Classic, provided by SIKA Corporation. It is a chemically reactive stain that etches and permanently colors cementitious surfaces with color effects that are variegated, mottled, and natural looking. Application requires a complex multistep process and should only be attempted by experienced contractors and artisans. LITHOCHROME® Chemstain® Classic can be left uncoated to simulate natural stone, or sealed with a polymeric topcoat to develop dramatic increases in color depth and intensity. Approximately one-quarter of the raised stones in a pattern stamp area receiving accent staining using hand application methods, in general proportions of the three colors below, as detailed in the Plans and as approved by the Engineer.

The accent stone staining shall be in three (3) colors:

Color 1 (shall cover 10% of stones): CS-2 “Padre Brown”
Color 2 (shall cover 5% of stones): CS-13 “Copper Patina”
Color 3 (shall cover 15% of stones): CS-15 “Antique Amber”
No Color (shall be 70% of stones): Left without any accent stone staining

Color release agent shall act as a bond breaker between the stamp mats and color hardener. Color release agent shall be SikaColor®-300 Antiquing Release in R12 “Storm Gray” color, provided by SIKA Corporation. It shall be a finely ground, streak-free color powder with UV-resistant pigments and water repelling additives used with stamping mats, texturing skins, and texture rollers. Surface Treatment A shall receive release agent in ‘dark gray’ color which will provide contrasting accent with the underlying concrete surface and colors.

Surface treatment A shall receive SCOFIELD® Cureseal-W™, provided by SIKA Corporation. It’s a curing compound and sealer that reduces moisture loss and seals surfaces with an abrasion and stain resistant coating. Used during concrete placement, it reduces surface cracks and color variations caused by uneven drying and efflorescence that commonly occurs in warm, windy, or dry environments. Use on existing concrete to add an abrasion and stain resistant barrier that effectively seals, dustproofs, and prevents staining from common foods and chemicals.

Surface Treatment B

Surface Treatment B shall consist of the following:

Joint sealant shall be black in color.

Curing compound shall be clear.

Dowel bars shall be 3/4-inch diameter for 6-inch thick concrete panels.

Steel Plate dowels shall be 1/4 inch thick, and can be rectangular, diamond, tapered, or double tapered. Bearing surface area shall be equal to or greater than equivalent 3/4" diameter round dowel system

Wash Concrete Sand shall be clean, hard, and durable washed concrete sand, conforming to ASTM C33. Contractor shall use same sand from single source throughout entire project.

Course Aggregate shall be clean, hard, and durable coarse aggregate, conforming to ASTM C33. Contractor shall use aggregate from single source throughout entire project.

Surface-Seeded Aggregate: Refer to Plans for specified surface-seeded decorative aggregate type, size, color, and distribution percentage.

Surface-seeded decorative aggregate shall be of Glacier Green #4-7 including ¼" to 1½" size light green/blue stones and small flecks of rust and white color small stones used for Surface Treatment B in locations specified throughout entire project per Plans.

Surface-seeded decorative aggregate shall have permanent bonds "reactive" as well as non-reactive aggregates with lithium quartz.

Water shall be free from deleterious materials such as oils, acids, and organic matter.

Admixtures:

Integral Concrete Coloring Admixture: Refer to Plans for color type and manufacturer.

Acceptable Manufacturers:

- L.M. Scofield; (800) 800-9900.
  Colorful by Admixtures, Inc.; (626) 357-3263.
  QC; (800) 453-8213.

Air Entrainment Admixtures: Conforming to ASTM C260.

Acceptable Manufacturers:

- Grace Construction Products; Daravair®, (800) 433-0020 or www.graceconstruction.com/concrete/air_entraining.html#daravair.
- Master Builders, Inc.; Micro-Air®, (800) 628-9990 or www.masterbuilders.com/MB/pub/Product.asp?TypeCat=2&ParentID=78&ProductID=22.

Water Reducing Admixtures: Conforming to ASTM C494, Type A.

Acceptable Manufacturers:

- Grace Construction Products; WRDA® (800) 433-0020 www.graceconstruction.com/concrete/water_reducers.html#wrda.
- Master Builders, Inc.; Micro-Air (800) 628-9990 or www.masterbuilders.com.

Shrinkage Reducing Admixtures: Conforming to ASTM C157.

Acceptable Manufacturers:

- Grace Construction Products; Eclipse® (800) 433-0020 or www.graceconstruction.com/concrete/shrinkage_reducers.html#eclipse.
- Eclipse® Shrinkage Reducing Admixture is a liquid admixture which dramatically reduces concrete shrinkage and curling due to drying.

Ready Mixed Concrete

Batched, mixed and transported in accordance with ASTM C94 - "Specifications for Ready Mixed Concrete."

Reinforcing Steel: Conforming to ASTM A615, clean and free of rust, dirt, grease or oils.

Tie Wire: 16-gauge plain cold-drawn steel conforming to ASTM A82, clean, and free of rust, dirt, grease or oils.

Contractor shall provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars in place.

Polypropylene Fiber Reinforcement: 100% virgin multifilament polypropylene fibers, complying with ASTM C 1116 - Type III.

Acceptable Manufacturers:

- Fibermesh; Fibermix Stealth – 1/4” long (423)892-8080 or www.fibermesh.com/family/stealth.htm.
- Grace Construction Products; MicroFiberTM (800)433-0020 or www.graceconstruction.com/concrete/fibers.html

Application Rate: 1/2 lb./cy of mix.

Isolation Joint Materials

Refer to Section 07900 – Joint Sealers for isolation joint construction.

Fly Ash shall be per ASTM C618 - Type F

Accent Band Treatment

Accent Band Treatment shall be a sandblast finish achieved using water-based, polymerized high performance top surface retardant installed in locations as shown on the Plans.

Optimus surface retarder shall be provided by Architectural Concrete Chemicals, or approved equal.

Architectural Concrete Chemicals
223 West Hampton Ave
Capitol Heights. MD 20743
Tel: (301) 336-9300

Concrete surface areas receiving accent band treatment shall have the following properties:

- Minimum of 3,500 PSI (pound per square inch) compression stress
- 60 (fine) to 40 (course) ratio
- ¾" aggregates

8-14.3 Construction Requirements

(City of Duvall)

Section 8-14.3 is supplemented with the following:

Any sidewalk damaged, defaced, cracked, chipped, or determined to be of poor workmanship, in the opinion of the Contracting Agency, shall be removed, waste hauled, and replaced by the Contractor at the Contractor's expense. Damaged sidewalk shall be removed at a construction or expansion joint. Sacking, grinding, or spot repaired shall not be considered an acceptable means for repairing unacceptable sections. The Contractor shall further provide verbal and written notice (door hanger) to property owners abutting the Project identifying restricted use of these facilities, etc. This notice must be provided 1 week prior and again 1 day prior to the work being performed.

Cement concrete sidewalk with thickened slab sidewalk shall receive light broom finish and be constructed per the detail and areas shown in the plans, as one continuous pour with the sidewalk.

Sawcut joints shall cut in straight clean lines where cuts shall have minimal ravel spots, chips or rock flip-ups. Sawcut joints shall have no more than one (1) raveled chip greater than ¼" length/width in 1 linear ft of score.

Contractor shall take into account age of concrete, saw cutting equipment and blades in order to ensure score and control joints meet the required level of craftmanship referenced herein. Sawcutting for score and control joints shall be accomplished while concrete is still green.

There shall be no materials left behind after full completion of expansion joint installation with void as detailed in the Plans.

Qualified and competent workman shall have a minimum five (5) years of work experience for same paving type installation, and placement of surface finishes for concrete.

Accent band treatment shall receive surface retardant and installed per manufacturer's recommendation as shown detailed on the Plans and as specified in these Special Provisions.

Surface treatment A and B shall be installed per manufacturer's recommendation as shown detailed on the Plans and as specified in these Special Provisions.

Submittals

Contractor shall submit the following for Engineer's approval:

Product Data: Submit no later than 10 days after contract award a typed list of products specified herein for Accent Band Treatment, Surface Treatment A, and Surface Treatment B.

Shop Drawings:

- Submit shop drawings for reinforcing steel and accessories in accordance with ACI standards.
- Paving Jointing and Pour Sequence Plan - submit shop drawings indicating the following:
    - Proposed layout of score, control, construction and expansion joints. Clearly delineate the different joint types.
    - Layout of light broom finish and surface treatments as indicated on Plans. Give overall dimensions of each surface treatment. Engineer shall field verify and approve Surface Treatment A and B layout prior to installation.
    - Concrete pour sequence. Indicated sequence of paving pour installation.

Statement of Mix Design: Submit (1) copy of Statement of Mix Design prepared by batch plant servicing Project for each load delivered to Project. Statement of Mix Design to contain following information:

- Name, address, and telephone number of batch plant preparing statement of mix design.
- Date of mix design.
- Project location
- Contractor requesting load delivery.
- Mix design number.
- Integral color used.

- Gradations for sand and aggregate.
- Material weights, specific gravity, and absolute volumes.
- Basis of testing, i.e. UBC 2605 D4 and Title 24 2604 D4.
- Water/cement ratio.
- PSI rating.
- Signature of testing laboratory manager.
- Signed stamp from registered Project structural engineer or architect.

Sample:

Lithocrete® Surface-Seeded Aggregate (extra stock):

- One 1-pound sample of each Lithocrete® aggregate specified.
- One 1-pound sealed bag of each Lithocrete® aggregate specified for use by Owner in future repairs of damaged Lithocrete® concrete paving.

Washed Concrete Sand (extra stock):

- One 50-pound sealed bag of washed concrete sand similar to type used during installation of Lithocrete®.

Installer's Qualifications

Qualified Surface Treatment A and B installer shall provide the following:

- Five or more projects installed where glass and reactive aggregates that are 3/8" or smaller have been hand-seeded into the concrete (for Surface Treatment B only).
- List of five projects with the address of the installation, the date of the installation, the point of contact for the project and their phone number.
- Two photos of each project listed above representing the project/installation.
    - Each installation listed above representing the installation. Photo #1 shall show the approximate size of the installation. Photo #2 shall be taken approximately 2 to 3 feet from the paving surface. Minimum size of each individual installation shall be 800 square feet.
- Concrete company to have been in business 10 years or more. Provide three (3) references with phone numbers.

Work Quality Assurance

Quality control to be maintained by product approved, licensed installers of Surface Treatment A and B work throughout duration of project.

Engage experienced personnel who have completed in the last five (5) years at least three (3) completed installations using this application, material, design, and extent to that indicated for this Project, of which one will serve as Lead Installer.

Pre-Approved qualified installer shall be the following:

- Washington: Contact John F. Belarde at Belarde Company, Inc. @ 425-376-2500
- Utah: Contact Frank Klmaske at T.B. PENICK & SONS, INC.@ 800-239-3046
- Orange County and Los Angeles: Contact Ron Shaw, Paul Taylor, Damon Toth, or Ryan Rood at Shaw & Sons @ 949-642-0660.
- San Diego, CA: Contact Frank Klemaske at T.B. Penick & Sons @ 858-558-1800

Submit resumes of Lead Installer and two installers/finishers that will be performing the installation.

Single Source Responsibility:Obtain each color, type, and variety of materials from a single source with resources to provide products and materials of consistent quality in appearance and physical properties without delaying work.

Contractor shall verify conditions at site that affect work of this Section.

Contractor shall take field measurements as required.

Contractor shall report major discrepancies between Plans and field dimensions to Engineer prior to commencing work.

Surface Retardant Operations and Requirements:

Apply surface retardant wherever medium-light sandblast finish is indicated on Plans to exposed concrete surfaces.

Apply surface retardant after placement of properly prepared concrete, during dry weather at a duration per manufacturer's recommendation. Coordinate with formwork construction, concrete placement schedule, and formwork removal to ensure that surfaces to receive surface retardant provides uniform results throughout the concrete surfaces.

When using the surface retardant it is generally better to remove the retarder the same day for best results or generally within 8-12 hours of finishing in warm weather. Surface retarders shall be installed per manufacturer's recommendations.

Applicator Qualifications: Accent Band Treatment shall be applied by qualified surface retardant applicator(s) as appropriate for the system scheduled and acceptable to the Resident Engineer. Applicators shall have experience in the concrete surface preparation, application and removal for and application of surface retardant for sandblast finish on cement concrete sidewalk projects similar in extent to this Contract.

Mock-Ups

Surface Treatment A: Prior to start of installation of Surface Treatment A work, the Contractor shall provide a minimum sixteen (16) square foot sample, 4-foot x 4-foot x 6-inch thick sample of cement concrete sidewalk with Surface Treatment A, comprised of stamped finish with color hardener, accent staining, color release agent and clear sealer as detailed in the Plans, to be reviewed and approved by the Engineer. Contractor shall ensure that mock-up contains joint types specified on project, i.e. construction, control, and expansion joints. The approved sample shall be the standard for the balance of the rest of the work installed, for Surface Treatment A on the sidewalks and shall be protected from damage until final acceptance and approval.

Surface Treatment B: Prior to construction Contractor shall provide (1) 4-foot x 4-foot x 6-inch thick sample of Lithocrete® paving type specified on Plans. Contractor shall ensure that mock-up contains joint types specified on project, i.e. construction, control, and expansion joints. Contractor shall locate mock-ups in a conveniently accessible and protected place. Approved mock-ups shall be standard for future Lithocrete® installation review.

Accent Band Treatment: Prior to start of installation of accent band treatment, the Contractor shall provide a one (1) 12”x48” panel sample of Medium (25) Medium sandblast ¼” – 3/8”, one (1) 12”x48” panel sample of deep (50) 3/8” aggregate, and one (1) 12”x48” panel sample of small aggregate (75) 3/8” graded aggregate to be reviewed, selected and approved by the Engineer. Contractor shall ensure that mock-up contains joint types specified on project, i.e. score and expansion joints. The selected approved sample shall be the standard for the balance of the rest of the work installed, for the accent band treatment and shall be protected from damage until final acceptance and approval.

Contractor shall remove mock-ups from site upon completion of Work and approval by Engineer.

Contractor shall keep Work area clean, and in a safe and workmanlike condition so that rubbish, waste and debris do not interfere with work of other trades.

Provide materials free from surface blemishes where exposed to view in the finish installation.

(October 3, 2022 WSDOT GSP, Option 1)
Section 8-14.3 is supplemented with the following:

The Contractor shall request a pre-construction meeting with the Engineer to be held two to five working days before any work can start on cement concrete sidewalks, curb ramps or other pedestrian access routes to discuss construction requirements. Those attending shall include:

1. The Contractor and subcontractor in charge of constructing forms, and placing, and finishing the cement concrete.

2. Engineer (or representative) and Project Inspectors for the cement concrete sidewalk, curb ramp or pedestrian access route Work.

Items to be discussed in this meeting shall include, at a minimum, the following:

1. Slopes shown on the Plans.
2. Inspection
3. Traffic control
4. Pedestrian control, access routes and delineation
5. Accommodating utilities
6. Form work
7. Installation of detectable warning surfaces
8. Contractor ADA survey and ADA Feature as-built requirements
9. Cold Weather Protection

(January 7, 2019 WSDOT GSP, Option 3)
Section 8-14.3 is supplemented with the following:

Layout and Conformance to Grades
Using the information provided in the Contract documents, the Contractor shall lay out, grade, and form each new curb ramp, sidewalk, and curb and gutter.

8-14.4 Measurement
(City of Duvall)

Section 8-14.4 is supplemented with the following:

"Cement Conc. Sidewalk" shall be measured per square yard of scored cement concrete sidewalk installed, regardless of the thickness noted in the Plans.

"Thickened Slab Sidewalk" shall be measured per linear foot, along the top of fill retaining walls at the back of sidewalk, and at all other locations noted in the Plans.

"Cement Conc. Curb Ramp Type __" shall be measured per each type of ramp installed, including detectable warning surface and any associated cement concrete pedestrian curb, if any.

"Surface Treatment A" shall be measured per square yard of installed surface treatment A areas, including joints, mock-ups and samples.

"Surface Treatment B" shall be measured per square yard of installed surface treatment B areas and finished surface including decorative aggregate, joints,
Sealing, samples, and mock-up(s).

"Accent Band Treatment" will be measured by the square yard of finished surface, including areas receiving surface retardant application, and mock-up sample(s).

8-14.5 Payment

(City of Duvall)

Section 8-14.5 is supplemented with the following:

Cement concrete sidewalks will be measured by the square yard of finished surface and will not include the surface area of the curb ramps.

The unit Contract price per square yard for "Cement Conc. Sidewalk" shall be full pay for all Work necessary, including sawcutting to construct score and control joints, expansion joints as well as light broom finish, per Plans and as specified.

"Thickened Slab Sidewalk", per linear foot.

"Surface Treatment A", per square yard.

"Surface Treatment B", per square yard.

"Accent Band Treatment", per square yard.

Add New Section 8-19:

8-19 AGGREGATES FOR STREAMS, RIVERS AND WATERBODIES (NEW SECTION)

(City of Duvall)

8-19.1 Description

This Work consists of furnishing, mixing, and placing aggregates for streams, rivers and waterbodies of the type specified at the locations and in conformity with the lines and dimensions shown in the Plans or established by the Engineer. Aggregates for streams, rivers, and waterbodies will be classified as follows:

8-19.2 Materials

Materials shall meet the requirements of the following sections per the 2024 WSDOT Standard Specifications:

Streambed Sediment	9-03.11(1)
Streambed Sand	9-03.11(3)
Streambed Cobbles	9-03.11(4)
Streambed Boulders	9-03.11(5)

Streambed Sediment

Streambed Sediment	
Sieve Size	**Percent Passing**
2-1/2”	99-100
2”	85-100
1”	50-82
1/2”	28-68
No. 40	10-20
No. 200	5-10

All percentages are by weight.

Streambed Sand

Streambed Sand	
Sieve Size	**Percent Passing**
1/2”	99-100
3/8”	85-100
No. 4	50-82
No. 8	28-68
No. 200	10-20

Streambed sand shall meet the following requirements for grading. If the Contractor proposes an alternate gradation, the Contractor shall submit a Type 2 Working Drawing consisting of 0.45 power maximum density curve of the proposed gradation. The exact point of acceptance will be determined by the Engineer. The alternate gradation shall closely follow the maximum density line and have Nominal Aggregate Size of no less than the 3/8 inch or no greater than 5/8 inch. The Contractor shall apply streambed sand and water to each lift to facilitate filling the interstitial voids of the blended streambed aggregate per Section 8-30.3(3)B.

Streambed sand shall consist of natural unwashed material, having hard, strong, durable particles free from adherent coating or deleterious matter.

Streambed Cobbles – 10” Cobbles.

Streambed Cobbles	
Sieve Size	**Percent Passing**
10”	99-100
8”	70-90
4”	30-60
3/4”	10 max.

All percentages are by weight.

Approximate Size can be determined by taking the average dimension of the three axes of the rock, Length, Width, and Thickness, by use of the following calculation:

$$\frac{Length\ +\ Width\ +\ Thickness}{3} = Approximate\ Size$$

Length is the longest axis, width is the second longest axis, and thickness is the shortest axis.

Streambed Boulders – Type Two

Streambed Boulders	
Sieve Size	**Percent Passing**
28”	99-100
23”	50
18”	10 max.

All percentages are by weight.

Engineered Streambed Mix

Engineered Streambed Material shall be a mix of the following aggregates with the associated ratios:

***Streambed Sediment:	30%, by volume***
***Streambed Cobbles 10 In.:	60%, by volume***
***Streambed Boulders Type Two.:	10%, by volume***

Evaluate each load of streambed material received on site, and placed, to verify the material received in the field conforms to submittal requirements, including that it meets the specified gradation (well-graded mix of stones of specified sizes to resist erosion) and has sufficient fines (to avoid subsurface flow of water upon re-watering of channel). Reject non-conforming material including poor quality stones, fractured riprap type material, undersized material, poorly graded material, and material lacking sufficient fines.

8-19.2(1) Mixing of Streambed Aggregates

After acceptance by the Engineer, Streambed Aggregates shall be thoroughly blended before placement. Acceptance of the final mixture will be based upon visual inspection by the Engineer.

Streambed Aggregates may be available from the existing streambed excavation limits as shown in the Contract Plans. Components of the excavated streambed which meet the criteria for the specific material may be used to supplement imported Streambed Aggregates and will be based upon visual acceptance by the Engineer.

Streambed Aggregates matching the design streambed gradation may be available from local unprocessed pit run sources. Pit run sources to be reviewed for use, shall require a submittal of a sieve analysis completed within the same calendar year of placement. If the material is confirmed as a potential source, the material will be sampled and tested by the Engineer for final acceptance. Submittal of these materials for use shall be submitted before the first working day.

8-19.3 Construction Requirements

8-19.3(1) Streambed Information

A Final Basis of Design Report for Coe-Clemons Creek which contains photos of the creek and the intent and goals that were used for the development of the Plans is available for review. The Plans and any applicable permits shall be the streambed information used to determine the Engineered Streambed Material and the meander bars for the project.

8-19.3(2) Streambed Preconstruction Conference

A streambed preconstruction conference shall be held at least 5 working days prior to the Contractor beginning any streambed construction to discuss the goals, objectives, intent, streambed construction procedures, critical functions during stream work, quality control steps to control mixing ratios, personnel, equipment to be used, and other elements of construction.

Those attending shall include:

1. Contractor: The superintendent, on site supervisor, foreman, the Environmental Compliance Lead and any other personnel that will have on-site responsibility for in-channel streambed Work.
2. Representatives from interested permitting agencies and affected Tribes shall be invited by the contracting officer.

Notice of the meeting date shall be given to the Engineer 14 calendar days prior to this meeting taking place.

8-19.3(3) Excavation for Aggregates for Streams, Rivers, and Waterbodies

The foundation for streambed aggregate shall be excavated to the elevations and grades shown in the Plans. Excavation for streambed shall be classified, measured, and paid for as “Channel Excavation Incl. Haul” in accordance with these Special Provisions.

As directed by the Engineer, the Contractor shall excavate preformed scour pools and low flow channels in the approximate locations shown in the Plans.

8-19.3(4) Placement of Aggregates for Streams, Rivers and Waterbodies

8-19.3(4)A Stockpiling Aggregate

Streambed Material consists of Streambed Sediment, Streambed Cobbles and Streambed Boulders as described above and shall be blended into single well graded stockpiles separate from other aggregates.

8-19.3(4)B Placing Aggregate in Streambed

Blended streambed aggregate shall be placed in the prepared channel excavation to the lines and grades shown on the Plans and in such a way as to prevent material segregation. Blended streambed aggregate shall be placed in lifts no thicker than 12 inches. Blended streambed aggregate in its final location shall be a well graded mix.

Placement of blended streambed aggregate shall be constructed to ensure that stream low flow rate of 30 gallons per minute is conveyed above each channel layer. The Contractor shall apply water and 1 inch Streambed Sand to each layer to facilitate filling the interstitial voids of the blended streambed aggregate. The voids are satisfactorily filled when water equivalent to the low flow rate of the stream does not go subsurface and there is no perceivable difference in the low flow rate from upstream of the project limits to the downstream of project limits. Contractor shall apply water at the low flow rate to the stream channel for visual acceptance by the Engineer. Water shall be free from contaminates, chlorination and any additive that has a risk on fish and other ecological life.

8-19.4 Measurement

Engineered Streambed Mix (which consists of Streambed Sediment, Streambed Cobbles - 10 In., and Streambed Boulders - Type Two) will be measured per ton of blended material as specified in Section 8-19.2.

Streambed Sand will be measured per ton.

Streambed Boulder will be measured per each.

8-19.5 Payment

Payment will be made in for each of the following Bid items that are included in the Proposal:

“Engineered Streambed Mix”, per ton

“Streambed Sand”, per ton

“Streambed Boulder”, per each

The unit Contract price per ton for “Engineered Streambed Mix,” “Streambed Sand,” and “Streambed Boulder” shall be full payment for all costs to perform the Work as specified including furnishing, blending, and placing the materials.

8-20 ILLUMINATION, TRAFFIC SIGNAL SYSTEMS, INTELLIGENT TRANSPORTATION SYSTEMS, AND ELECTRICAL

8-20.1 Description

(City of Duvall)

Section 8-20.1 is deleted in its entirety and replaced with the following:

This work shall consist of furnishing, installing and field testing all materials and equipment necessary to complete in place, fully functional systems of the following types, including modifications to existing systems, all in accordance with approved methods, the Plans, the latest edition of the Washington State Department of Transportation (WSDOT) Standard Specifications, the latest edition of the National Electrical Code (NEC), the current Manual on Uniform Traffic Control Devices (MUTCD) as adopted by the State of Washington, the City of Duvall Standards, Puget Sound Energy (PSE) Guidelines and these Special Provisions. The work shall consist of:

1. Decorative Illumination System, Complete
2. City Spare Conduit System, Complete

The delivery and completion of the systems shall include furnishing and installation of the electrical service cabinet, poles, foundations, bases, arms, luminaires, junction boxes, conduit, wiring, all incidental work necessary to install and complete work in this Contract.

Unless otherwise noted, the location of junction boxes and conduits, and appurtenances shown in the Plans are approximate; and the exact location will be identified in the field by the Contractor for approval by the Engineer.

The existing luminaires shall remain fully operational until the new illumination system is completed and is energized.

8-20.1(1) Regulations and Code

(City of Duvall)

This section is supplemented with the following:

All materials and methods required under this section, unless otherwise superseded herein, shall conform to the 2024 edition of the Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction and Amendments (herein referred to as Standard Specifications), to all current amendments to the Standard Specifications, to the latest edition of the State of Washington Standard Plans for Road, Bridge, and Municipal Construction (herein referred to as the Standard Plans), to the State of

Washington Sign Fabrication Manual, to the City of Duvall guidelines, PSE codes and guidelines, to the latest edition of the National Electric Code (NEC), and to the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) as adopted by the State of Washington.

All electrical equipment shall conform to the standards of the National Electrical Manufacturers Association (NEMA), Electric Utility Service Equipment Requirements Committee (EUSERC), California Department of Transportation document entitled. Traffic signal control equipment shall conform to the contract and these Standard Specifications. EIA Electronic Industries Association, IEEE Institute of Electrical, and Electronic Engineers the Radio Manufacturers Association, the American Society for Testing and Materials (ASTM), the American Association of State Highway and Transportation Officials (AASHTO), the American National Standards Institute (ANSI), whichever is applicable, and to other codes listed herein. In addition to the requirements of these Specifications, the Plans, and the Special Provisions, all material and work shall conform to the requirements of the National Electrical Code, hereinafter referred to as the Code, and any WACs and local ordinances, which may apply.

Persons performing electrical work shall be certified in accordance with RCW 19.28.161. Proof of certification shall be supplied to the Engineer prior to the performance of the work.

8-20.1(2) Industry Codes and Standards

(City of Duvall)

This section is supplemented with the following:

National Electrical Safety Code (NESC), Secretary NESC, NESC Committee, IEEE Post Office Box 1331, 445 Hoes Lane, Piscataway, NJ 08855-1331.

8-20.1(3) Permitting and Inspection

(City of Duvall)

This section is supplemented with the following:

The Contractor shall be responsible for the cost of coordinating, obtaining, and paying for all permits, including electrical service applications, inspection, testing and to complete the work in a timely fashion. All costs to obtain and comply with the electrical permits shall be included in the applicable bid items for the work involved. All required electrical permits shall be obtained before beginning of trench excavation.

The L&I Electrical Inspector shall inspect and approve the electrical portions of the project. The Contractor shall notify the Electrical Inspector at least 24 hours in advance of required field inspection. Before work begins, the Contractor shall contact the Electrical Inspector to coordinate a schedule of electrical inspections. This project shall be accomplished in compliance with WAC 296-46B-010 Traffic Management Systems and shall conform to the current adopted version of the NEC.

Add New Section as follows:

8-20.1(4) Errors and Omissions

(City of Duvall)

The Contractor shall immediately notify the Engineer upon discovery of any errors or omissions in Contact Documents, in the layout as given by survey points and instructions, or of any discrepancy between the Contract Documents and the physical conditions of the locality. If deemed necessary, the Engineer shall rectify the matter and advise the Contractor accordingly. Any work done after such discovery without authorization by the Engineer will be done at the Contractor's risk.

8-20.2 Materials

(City of Duvall)
This section is supplemented with the following:

The Engineer reserves the right to inspect the manufacturing process of all materials. Final inspection and acceptance of the installed materials will not be given until final installation and testing has been completed on the systems. Approval to install materials and equipment shall be obtained from the Engineer at the job site before installation.

The Contractor shall be responsible for all costs of replacement or repair of defective materials. Replacement or repair shall be made within 5 working days following discovery of defective material.

Material requirements for illumination systems are contained in Section 9-29 of the Standard Specifications and Section 9-29 of these Special Provisions.

Controlled density fill shall meet the requirements of Section 2-09.3(1)E of the Standard Specifications.

Crushed surfacing top course and crushed surfacing base course shall meet the requirements of Section 9-03.9(3) of the Standard Specifications.

Bedding material shall consist of 5/8-inch minus crushed rock free of any deleterious substances per Section 9-03.1(5)A of the Standard Specifications.

8-20.2(1) Equipment List and Drawings

(City of Duvall)
This section is supplemented with the following:

The Contractor shall submit supplemental data and sample articles of the material proposed for use. Supplemental data (six copies required) would include such items as catalog cuts, product Specifications, shop drawings, wiring diagrams, etc. Any material purchased or labor performed prior to such approval shall be at the Contractor's risk. The Contractor must receive all approvals by the Engineer before materials will be allowed on the job site.

(City of Duvall)
Delete the fourth paragraph of Section 8-20.2(1) and replace it with the following:

Shop drawings for lighting standards shall be provided in an electronic format (AUTOCAD Release 2018 or later), as well as complying with Section 6-03.3(7) of the Standard Specifications.

Manufacturer's technical information shall be submitted for all poles luminaires, wire, conduit, junction boxes, cabinets, and all other items to be used on the Project. The Contractor also shall submit either on the luminaire standard shop drawings or attached to the luminaire standard shop drawings all dimensions to clearly show the specific mast arm mounting height and arm length for each luminaire pole to be installed. All approvals by the Engineer must be received by the Contractor before material will be allowed on the job site. Materials not approved will not be permitted on the job site.

Manufacturer's data for materials proposed for all illumination and related materials proposed for use in the Contract which require approval shall be submitted in one complete package.

The Engineer shall have fourteen (14) calendar days to review information for each submittal that is made. Approval of shop drawings does not constitute final acceptance or guarantee of the material but is solely to assist the Contractor in providing the specified materials.

All shop drawings for luminaire poles that are not listed on the WSDOT Pre-Approved Plans shall be stamped by a State of Washington registered Structural Engineer.

For each proposed material that is required to be submitted for approval using either the QPL or RAM process the Contractor will be allowed to submit for approval two materials per material type at no cost. Additional materials may be submitted for approval and will be processed at a cost of $100.00 per material submitted by QPL submittal and $300.00 per material submitted by RAM. All costs for processing additional materials will be deducted from monies due or that may come due to the Contractor. Subject to a request by the Contractor and a determination by the Engineer the costs for processing may be waived.

8-20.3 Construction Requirements

8-20.3(1) General

(City of Duvall)
This section is supplemented with the following:

All workmanship shall be complete and in accordance with the latest accepted standards of the industry as determined by the Engineer.

Existing or higher illumination levels shall be maintained by using existing or temporary illumination until the new system is operational. The Contractor is responsible for maintaining ten (10) feet clearance zone around existing aerial primary power lines during the construction. Coordinate work with the power company representative. All costs incurred by

the Contractor for providing effective operation of existing electrical systems shall be included in the associated electrical bid items.

Coordination with PSE for New Service

The Contractor shall coordinate all of the installation details for the electrical service cabinet with Puget Sound Energy. Within two (2) weeks after Notice to Proceed, the Contractor shall meet with PSE Representative in the field to verify the location of power source as shown on the Plans and shall notify the Engineer immediately if any conflicts exist. Except for the service connection, the PSE portion of the installation shall be completed prior to installation of the service cabinet by the Contractor.

8-20.3(2) Excavation and Backfilling

(City of Duvall)

This section is supplemented with the following:

Underground utilities of record will be shown on the Plans insofar as information is available. These, however, are shown for convenience only and the City assumes no responsibility for improper locations or failure to show utility locations on the construction plans.

The location of existing underground utilities, when shown on the Plans, is approximate only, and the Contractor shall be responsible for determining their exact location. The Contractor shall check with the utility companies concerning any possible conflict prior to commencing excavation in any area, as not all utilities may be shown on the Plans.

The Contractor shall be responsible for potholing for conflicts with underground utility locations. Prior to construction, if any conflicts are expected, it shall be brought to the attention of the Engineer for resolution.

The Contractor shall be entirely responsible for coordination with the utility companies and arranging for the movement or adjustment, either temporary or permanent, of their facilities within the project limits.

If a conflict is identified, the Contractor shall contact the Engineer. The Contractor and City shall locate alternative locations for poles, cabinet, or junction boxes. The Contractor shall get approval from the Engineer prior to installation. The Contractor may consider changing depth or alignment of conduit to avoid utility conflicts.

Before beginning any excavation work for foundations, vaults, junction boxes or conduit runs, the Contractor shall confirm that the location proposed on the Contract Plans does not conflict with utility location markings placed on the surface by the various utility companies. If a conflict is identified, the following process shall be used to resolve the conflict:

- Contact the Engineer and determine if there is an alternative location for the foundation, junction box, vault or conduit trench.
- If an adequate alternate location is not obvious for the underground work, select a location that may be acceptable and pothole to determine the exact location of other utilities. Potholing must be approved by the Engineer.

- If an adequate alternate alignment still cannot be identified following potholing operations, the pothole area should be restored and work in the area should stop until a new design can be developed.
- The Contractor shall get approval from the Engineer prior to installation.
- The Contractor may consider changing depth or alignment of conduit to avoid utility conflicts.

The Contractor shall not attempt to adjust the location of an existing utility unless specifically agreed to by the utility owner.

Add New Section 8-20.3(2)A as follows:

8-20.3(2)A Trench and Backfill
(City of Duvall)

The Contractor shall provide trenching as specified herein and on the Plan details, regardless of the material encountered, as necessary for complete and proper installation of the illumination and spare conduit. Trenching shall conform to the following:

Uniform Construction
Trenching for conduit runs shall be done in a neat manner, and the trench bottom shall be graded to provide a uniform grade, with a width and depth as specified herein. All trenches for placement of conduit shall be straight and as narrow in width as practical to provide a minimum of pavement disturbance.

Trench Inspection
No work shall be covered until it has been examined by the Engineer or Inspector. Sand shall be placed all around the conduit up to 3 inches above the highest conduit in the stack. The Sand shall be considered a necessary part of, and shall be incidental to the cost of trenching. When trenching is being accomplished within the sidewalk area, the backfill above the sand can be made with acceptable materials from the excavation and shall be considered a necessary part of, and incidental to the excavation in accordance with the Standard Specifications. Hauling and disposal of un-used excavation material shall be incidental to the cost of trenching or excavating. The compaction requirements for the roadway backfill shall apply.

Saw Cut for Trench
Trenches in all paved areas shall be saw cut. The saw cuts shall be a minimum of 2-inches deep and shall be parallel. Thoroughly clean saw cuts where necessary by the use of high-pressure water (1,400 psi or greater). All wastewater shall be collected and disposed of in accordance with Section 1-07.15 of the Standard Specifications. Impervious surfaces contaminated from cutting operations shall be cleaned in accordance with Section 1-07.15 of the Standard Specifications.

Pavement Removal
Pavement shall be removed in a manner approved by the Engineer. The Contractor shall take care in removing existing paving not to damage the pavement outside of the saw cut lines.

Trench Depth
Trench depth shall provide 24 inches minimum of cover over all conduits unless agreed to otherwise by the Engineer. Trench depth shall provide a minimum cover of 36 inches for all conduits designated for fiber optic cabling.

Trench Width
The trench width shall be 12 inches or the conduit diameter plus 2 inches, whichever is larger.

Trenching in Landscaped Areas
Trenches shall be placed to have minimum impact on existing landscaping and irrigation systems. Any damage due to the Contractor's operation shall be repaired or replaced by the Contractor at his own expense and to the satisfaction of the Engineer.

8-20.3(4) Foundations

(City of Duvall)
This section is supplemented with the following:

Foundations for luminaire poles shall be per WSDOT Standard Plan J-28.30 (Type A) and the Plans.

Foundations for electrical service cabinets shall be per WSDOT Standard Plan J-10.10.

All excess materials shall be removed from the construction site and disposed of at the Contractor's expense.

Concrete shall be placed against undisturbed earth where possible. CDF shall be used to backfill around foundations that are not placed against undisturbed earth. Prior to placing the concrete, the Contractor shall block out around any other underground utilities that may lie in the excavated base to prevent foundation adherence to the utility line. The Contractor shall secure the anchor bolts required for the item to be mounted on the foundation. The Contractor shall also securely locate all conduit required to be used to connect electrical equipment ground wire to the ground rod in the nearest junction box. Concrete foundations shall be troweled, brushed, edged, and finished in a workmanship-like manner. Concrete shall be promptly cleaned from the exposed portion of the anchor bolts and conduit after placement.

After a curing period of 2 weeks, the Contractor may install the cabinets on the new foundations.
After a curing period of 2 weeks or 60% of the design strength has been obtained, the Contractor may install the illumination poles on the foundations.

Following concrete placement, exposed portions of the anchor bolts and conduit shall be properly cleaned.

Results of potholing including utility conflicts shall be reported to the Engineer within 3 days of potholing. The Contractor shall allow the Engineer 14 days to revise pole locations. The Contractor shall not be entitled to additional compensation for minor relocations of proposed poles.

8-20.3(5) Conduit

(City of Duvall)

This section is supplemented with the following:

The conduit runs shown on the Plans are schematic, however, they shall be followed as closely as site conditions will allow and may be revised, as directed by the Engineer, to allow for unforeseen obstructions. All conduit shall be installed in City Right-of-Way.

Pull strings shall be provided and installed by the Contractor.

Conduits entering through the cabinet foundation shall be arranged toward the front of the cabinet for maximum accessibility or as directed by the Engineer.

Conduits shall be capped during construction using manufactured seals to prevent entrance of water and debris. Spare conduits shall be capped and labeled as City of Duvall conduits and shall include polyester detectable pull tape that meets or exceeds a breaking strength of 900 lbs. Detectable pull tape shall also be added to conduits occupied with non-electrical cables.

Where sidewalk panels need to be removed for the installation of conduit or junction boxes, the Contractor is responsible for restoring the area near the back of sidewalk as needed to repair damage from sidewalk panel formwork.

Where intercepting and splicing to an existing conduit is called out on the Plans, the Contractor shall verify the conduit size and schedule before ordering the new conduit sections. The size provided on the Plans is an estimation.

The size of conduit used shall be as shown in the Plans. Conduits smaller than 1-inch electrical trade size shall not be used unless otherwise specified, except that grounding conductors at service points may be enclosed in 1/2 -inch diameter conduit.

Conduit between light standards and the nearest junction box shall be the diameter specified in the Plans. Larger size conduit is not allowed at these locations. At other locations, it shall be the option of the Contractor, at no expense to the Contracting Agency, to use larger size conduit if desired, and where larger size conduit is used, it shall be for the entire length of the run from outlet to outlet. Reducing couplings will not be permitted.

The tracer pull tape shall be attached to duct plugs or caps at both ends of the conduit. All conduit scheduled for future use shall originate in a foundation or junction box as detailed in the Plans and terminate in a junction box. All equipment grounding conductors, and the bonding conductor for metallic conduits shall be bonded in all junction boxes in accordance with Section 8-20.3(9).

Conduit ends shall be capped (do not glue non-metallic caps) during construction using manufactured seals to prevent entrance of water and debris. Spare conduits shall be capped and labelled “City of Duvall” conduits. Metallic conduit ends shall be threaded and capped with standard threaded conduit caps until wiring is started. When conduit caps are removed, the threaded ends shall be provided with approved conduit bushings or end bells (do not glue in place) for nonmetallic conduit.

Conduit stubs from controller cabinet foundations shall extend to the nearest junction box in that system.

Add New Section 8-20.3(5)A3 as follows:

8-20.3(5)A3 Damaged or Blocked Conduits
(City of Duvall)

Damaged or blocked conduits shall be repaired by the Contractor. The Contractor shall attempt to remove debris in the conduit by blowing in air. The Contractor shall be careful not to blow air towards the service or controller cabinet. If the blockage doesn’t break free, the Contractor shall identify the potential blocked/damaged locations using a fish tape. Once the blockage location is identified, the Contractor shall attempt to remove the existing cabling (if any) from the conduit. If the cabling is removed, the Contractor shall attempt to pass a fish tape through the conduit again. If the fish tape passes through the conduit past the identified blockage point easily, the Contractor shall attempt to reinstall all existing cabling along with the new cabling called out in the Contract Plans.

If the existing cabling cannot be removed, or reinstalled after removal, the Contractor shall excavate down to the conduit blockage point and repair the conduit break. The Contractor shall obtain approval from the Engineer prior to removing existing cabling or beginning excavation. All cabling shall be removed from the conduit prior to repairing the broken conduit. Once the conduit is repaired, the Contractor shall restore the disturbed area. The removal of cable, excavation, conduit repair, and surface restoration will be paid for by change order or Minor Change as determined by the Engineer. The cost for other work needed to identify and remedy blocked conduits as described in this Section shall be incidental.

Add New Section 8-20.3(5)G as follows:

8-20.3(5)G Detectable Pull Tape
(City of Duvall)

All spare conduit may utilize non-detectable pull string. The tape (detectable or non-detectable) will be marked with sequential footage markings and be continuous. The tape shall meet or exceed a breaking strength of 900 lb., with a width of 1/2-inch.

8-20.3(6) Junction Boxes, Cable Vaults, and Pull Boxes
(City of Duvall)

This section is supplemented with the following:

Unless otherwise noted on the Plans or approved by the Engineer, junction boxes shall not be placed within the traveled way or paved shoulders.

Standard junction boxes, pull boxes and cable vaults shall be installed at the locations shown in the Plans.

All junction box lids and frames shall be grounded by means of a minimum No. 8 AWG braided tinned copper bonding jumper bolted to the lid with countersunk stainless steel bolts that will allow the removal of the junction box lid without breaking the ground.

Wiring shall not be pulled into any conduit until all associated junction boxes have been adjusted to, or installed in, their final grade and location, unless installation is necessary to maintain system operation. If wire is installed for this reason, sufficient slack shall be left to allow future adjustment of junction boxes that are installed or adjusted prior to construction of finished grade, and pre-molded joint filler for expansion joints may be placed around the junction boxes. The joint filler shall be removed prior to adjustment to finished grade.

Damage to the junction boxes and the associated conduit system, or wiring resulting from the Contractor's operations, shall be repaired to the Engineer's satisfaction at no additional cost to the Contracting Agency.

Both existing and new junction boxes shall be adjusted to be flush with the finished grade as well as with the grade during the various construction stages proposed in the Contract.

When junction boxes, cable vaults and pull boxes are installed or adjusted prior to construction of finished grade, pre-molded joint filler for expansion joints may be placed around the junction boxes, cable vaults and pull boxes. The joint filler shall be removed prior to adjustment to finished grade.

When junction boxes, cable vaults or pull boxes are adjusted to finished grade, the six-inch gravel pad requirements shall be maintained. When existing junction boxes pull boxes or cable vaults do not have this gravel pad, or the gravel pad does not meet these specifications, a gravel pad, meeting these specifications shall be installed as part of the adjustment to finished grade.

Prior to installing new cables or reinstalling existing cables into new or existing cable vaults, pull boxes or junction boxes, the cable vault, pull box or junction box shall be cleaned of all dirt and debris.

Standard Duty concrete junction boxes installed in sidewalks, walkways, and shared-use paths shall have slip-resistant surfaces and be flush with the surface grade of the sidewalk, walkway, or shared-use path. The boxes, vaults, and junction boxes shall not be placed in curb ramps, curb ramp landings, or the gutter areas associated with the curb ramps. Standard Duty nonconcrete junction boxes shall not be installed in sidewalks, walkways, or shared-use paths.

8-20.3(8) Wiring

(City of Duvall)

This section is supplemented with the following:

At each junction box, all illumination wires, and power supply wires shall be labeled with a PVC marking sleeve. For illumination and power supply circuits the sleeve shall bear the circuit number.

All wire splices shall be made in the presence of the Engineer.

Temporary splices shall be heat shrink type.

8-20.3(9) Bonding, Grounding

(City of Duvall)

This section is supplemented with the following:

All street light standards, signal poles and other standards on which electrical equipment is mounted shall be grounded to a copper clad metallic ground rod 5/8" in diameter x 8'0" in length complete with a #8 AWG bare copper bonding strap located in the nearest junction box. All lighting service cabinets shall be grounded to a 5/8" in diameter x 8'0" in length copper clad metallic ground rod located in the nearest junction box with a bare copper bonding strap sized in accordance with the Plans, specifications and applicable codes.

Ground rods are considered miscellaneous items and all costs are to be included within the Bid Items in the proposal.

Polyester detectable pull tape shall not be connected to the equipment-grounding system.

The Contractor shall provide and install bonding and grounding wires as described in Standard Specifications and the National Electric Code for any new metallic junction box and any modified existing junction boxes. For the purposes of this section, a box shall be considered “modified” if new current-carrying conductors are installed, including low-voltage conductors, or if the box is adjusted to grade, or if the box lid is modified.

8-20.3(10) Service, Transformer and ITS Cabinets

(City of Duvall)

This section is supplemented with the following:

A 3-wire electrical service shall be used (120/240 volts, single phase, 60-hertz AC) between the power source and the service cabinet. The unfused power shall enter the service cabinet through a separate conduit (minimum 3”).

The Contractor shall install furnish and install Type D electrical service cabinet per WSDOT Standard Plan J-10.21, except breakers shall be per panel schedule as shown on the Plans. The service cabinet shall be mounted on a concrete base with anchor bolts fastening to the inside of the base of the cabinet. The illumination and receptacle components shall be connected to the 240-volt, 60-hertz power. All other components shall be connected to one of the 120-volt, 60-hertz elements unless otherwise directed by the Engineer. No modifications to the cabinet will be allowed.

The Contractor shall have the service inspected by the State Department of Labor and Industries (L&I) Electrical Inspector and shall be solely responsible for coordination with the power company to have the service energized. The request by the Contractor to L&I shall be sent by certified mail with a copy forwarded to the City. The Contractor shall notify the Engineer when the service is approved by L&I and ready for connection.

The service point shall be as noted on the Plans and shall be verified by the PSE Representative (the Contractor to coordinate a power service point availability, with PSE Representative).

The Contractor shall install new conduit, as shown on the Plans, from the new electrical service cabinet to PSE power source (coordinate work with Puget Sound Energy Representative prior to cabinet base installation).

All service cabinets shall be shipped and delivered to the job site in a protective covering with suitable dunnage to prevent damage to the exterior surface.

Electrical service cabinet and all associated equipment shall be furnished in the vicinity of 3rd Avenue NE and NE Kennedy Drive, as shown on the Plans.

8-20.3(11) Testing

(City of Duvall)

This section is supplemented with the following:

All work shall be completed in a manner that provides the Inspector and Engineer with full knowledge of the construction. The work shall proceed in accordance with the approved construction schedule previously supplied to and approved by the City of Duvall. The Inspector and Engineer may, at their option, cause work completed without their knowledge or inspection to be dismantled so that it can be inspected to their satisfaction.

8-20.3(13) Illumination Systems

(City of Duvall)

This section is supplemented with the following:

The illumination systems shall be energized from a single photoelectric cell mounted on the service cabinet in accordance with the Plans. All luminaires in the system shall incorporate a block out (7 pin shorting cap) for the photocell.

8-20.3(13)A Light Standards

(City of Duvall)

This section is supplemented with the following:

Existing or higher illumination levels shall be maintained by the Contractor during construction by using existing or temporary illumination until the new system is operational.

Light standards shall be fabricated in conformance with the methods and materials specified on the pre-approved Plans and outlined in the Standard Specifications and these Special Provisions, Section 9-29.6(1)A Decorative Luminaire Poles.

Light Standards shall be erected in accordance with Standard Specifications Section 8-20.3(4).

Anchor bolts shall extend through the top heavy-hex nut two full threads to the extent possible while conforming to the specified base clearance requirements. Anchor bolts shall be tightened by the Turn-Of-Nut Tightening Method in accordance with Standard Specifications Sections 6-03.3(33) and 8-20.3(4).

A grounding lug or nut shall be provided in the handhole frame or inside the handhole frame or inside the pole shaft to attach a ground bonding strap.

All poles and luminaire arms shall be designed to support the weight of the associates luminaire(s) and shall meet all requirements as started in the latest version of the AASHTO.

The void between the foundation and the pole flange shall be no larger than 3 inches and shall be completely filled around the conduit(s) with dry pack mortar and neatly troweled. A plastic drain, 1/2 inch diameter, shall be placed in the mortar to provide drainage from the interior of the pole to the exterior. The plastic drainpipe shall be neatly trimmed flush with the surfaces.

The dry pack mortar consists of 1:3 cement to fine sand mixture with enough water to allow the mixture to stick together when molded into a ball by hand but will not exclude water when pressed.

All hardware (bolts, nuts, screws, washers, etc.) needed to complete the installation shall be stainless steel.

The pole shall be adjusted for plumb after all needed equipment has been installed thereon. After pole is installed and plumbed, nuts shall be tightened on anchor bolts using proper sized sockets, open end, or box wrenches. Use of pliers, pipe wrenches, or other tools that can

damage galvanizing will not be permitted. Tools shall be of sufficient size to achieve adequate torquing of the nuts. The space between the concrete foundation and the bottom of the pole base plate shall be filled with a dry pack mortar grout and troweled to a smooth finish conforming to the contour of the pole base plate.

Dry pack mortar grout shall consist of a 1:3 mixture of Portland cement and fine sand with just enough water so that the mixture will stick together on being molded into a ball by hand and will not exude moisture when so pressed. A one-half-inch drain hole shall be left in the bottom of the grout pad as shown on WSDOT Standard Plan J-28.40.

8-20.3(17) "As-Built" Plans

(City of Duvall)

This section is supplemented with the following:

Upon Physical Completion of the Work, the Contractor shall furnish "as-built" plans showing pole locations, junction boxes, miscellaneous equipment, conduits, conductors, and with a special symbol identifying those items that have been changed from the original Contract Drawings. All items shall be located within 1-foot horizontal distance and 6 inches vertical distance above, below, or at the surface.

8-20.4 Measurement

(City of Duvall)

This section is replaced with the following:

When shown as lump sum in the Plans or in the proposal as "Decorative Illumination System, Complete", or "City Spare Conduit System, Complete", no specific unit of measurement will apply, but the measurement will be for the sum total of all items for a complete system to be furnished and installed.

8-20.5 Payment

(City of Duvall)

This section is replaced with the following:

Payment will be made in accordance with the Special Provisions, Section 1-04.1, for each of the following bid items that are included in the proposal:

"Decorative Illumination System, Complete", per lump sum.

"City Spare Conduit System, Complete, per lump sum

The lump sum contract price for the above listed systems shall include all incidental work and shall be full compensation for all labor, materials, tools and equipment necessary to satisfactorily complete the work and provide a fully functional systems as defined in the Plans, Standard Specifications and these Special Provisions. All costs for furnishing and installation

of electrical service cabinet, foundations, poles, luminaires, junction boxes, conduit, wiring, trenching, backfilling, testing, coordination with the local power company, all required electrical permits, inspection, as-builts plans, and other associated work shall be included in the Contract price for the above-mentioned systems.

The cost of conduit trenching, bedding, backfilling, compaction and restoration not included in other Bid Items shall be included in the above listed lump sums and no separate measurement will be made. Where surface restoration is specified in the Plans, the applicable bid items shall apply.

Restoration of the pavement section up to the overlay depth shall be included in the above listed lump sums and no separate measurement will be made. Where the Plans indicate full depth pavement section installation, the applicable bid items shall apply.

Temporary surface restoration items required for resuming pedestrian and vehicular traffic prior to final surfacing, including steel sheeting, crushed rock, and cold mix asphalt, shall be incidental to in the above listed lump sums and no separate measurement will be made.

8-21 PERMANENT SIGNING

8-21.1 Description

(City of Duvall)

Section 8-21.2 is supplemented with the following:

The Work consists of furnishing and installing permanent signing per City of Duvall Standard Drawings 3-050-016 and 3-050-017.

8-21.3(2) Placement of Signs

(City of Duvall)

Section 8-21.3(2) is supplemented with the following:

Permanent signs shall be installed with vertical and lateral clearances in accordance with Sections 2A.15 and 2A.16 of the latest version of the *Manual on Uniform Traffic Control Devices (MUTCD)*. Any signs damaged or destroyed due to the Contractor's operations before the end of the Project shall be replaced by the Contractor at no additional cost to the City.

8-21.3(5) Sign Relocation

(City of Duvall)

Section 8-21.3(5) is supplemented with the following:

Relocated and reset signs shall be installed on new posts.

8-21.4 Measurement

(City of Duvall)
Section 8-21.4 is supplemented with the following:

No separate measurement will be made for maintaining, relocating, removing, and resetting signs; this work is considered incidental to the lump sum price for “Permanent Signing.”

8-21.5 Payment

(City of Duvall)
Section 8-21.5 is supplemented with the following:

“Permanent Signing”, per lump sum.

“Permanent Signing” per lump sum includes labor, sign covering, mounting, hardware, posts, excavation, foundations and material for complete sign installation, relocation, or removal as shown on the Plans.

8-22 PAVEMENT MARKING

8-22.1 Description

(City of Duvall)
Section 8-22.1 is supplemented with the following:

Pavement markings, including Shared Use Path Marker, shall conform to Section 8-22 of the Standard Specifications and the latest edition of the *Manual on Uniform Traffic Control Devices (MUTCD)*, and shall be constructed as shown in the Plans except as modified herein.

8-22.2 Materials

(City of Duvall)
Section 8-22.2 is supplemented with the following:

Pavement marking materials shall be Type A – liquid hot applied thermoplastic unless indicated otherwise in the Contract Documents.

8-22.3 Construction Requirements

(City of Duvall)
Section 8-22.3 is supplemented with the following:

Submittal
The Contractor shall submit product information (technical specifications) and proposed procedure and methods of preparations and product installation for Shared Use Path Marker for Engineer’s approval prior to mock-up sample installation. Contractor to provide documentation of approval and training by manufacturer.

Mock-Up Samples
Prior to start of pavement markings work, the Contractor shall provide a full size mock-up sample of a Shared Use Path Marker on cement concrete per these special provisions and design plans.

The final approved sample shall be the standard for the balance of the rest of the work installed and shall be protected from damage until final acceptance and approval. Mock-up sample(s) provided for approval by Engineer shall be incidental to and included in the unit bid price for "Shared Use Path Marker" per these Special Provisions.

No additional pavement marking shall be placed prior to the test panel being approved by the Engineer.

Contractor is to lay out striping for approval by the Engineer before final striping.

All striping must be completed within 30 calendar days after paving is complete.

Shared Use Path Marker shall avoid installation on top of expansion joints and asphalt mastic joint fillers, unless otherwise approved. Coordinate location layouts prior to installation. If markings cross expansion joint, a clean edge shall be made to prevent cracking and unraveling at joint.

The Contractor shall provide adequate labor resources, equipment and materials to ensure that the pavement markings are properly installed in the surface at the same pace as the paving operations.

8-22.3(1) Preliminary Spotting
(City of Duvall)

The first sentence of Section 8-22.3(1) is deleted.

8-22.4 Measurement
(City of Duvall)
Section 8-22.4 is supplemented with the following:

"Shared Use Path Marker" shall be measured per each item installed as shown in the Plans.

8-22.5 Payment
(City of Duvall)

Section 8-22.5 is supplemented with the following:

"Shared Use Path Marker", per each.

The unit contract price for “Shared Use Path Marker” shall be full pay for all tools, materials, stencil, mock-ups and equipment necessary to install the marker as shown in the Plans and per manufacturer’s specifications and cut sheets.

Add New Section 8-26 as follows:

8-26 LARGE WOODY MATERIAL STRUCTURES (NEW SECTION)

(City of Duvall)

8-26.1 Description

This Work consists of furnishing and installing Large Woody Material (LWM) Structures where designated in the Plans.

8-26.2 Materials

8-26.2(A) Log with/without Rootwad

Logs shall be imported for use in the structures. Log with rootwad shall be natural material, will vary in size, and shall meet the following requirements:

- Acceptable conifer species include Douglas Fir (Pseudotsuga menziesii). Additional conifer species shall be reviewed and may be accepted by the Contracting Officer.
- LWM may be sourced on site during the initial clearing and grubbing if the matertials meet the LWM specifications in the Plans and are accepted by the Contracting Officer and Engineer.
- Log dimensions shall match those specified in the Plans. Log length is measured from the cut end of the log to the beginning of the rootwad mass. Each log with rootwad shall have a minimum trunk diameter at breast height (DBH) as specified in the plans, measured 4.5 feet above the ground when the tree is standing. The rootwad diameter shall be a minimum of 3.0 feet with roots intact.
- Logs shall, to the extent possible, include branches and limbs, and as specified, contain rootwads.
- Logs and rootwads shall be free of soil and rocks, free of rot and disease, and shall be structurally sound as accepted by the Engineer. Cleaning shall not strip logs of bark, small branches, and small roots.

8-26.2(B) Small Woody Material and Slash

Treetops, limbs and other woody material created from the harvest and loading of the trees are also to be delivered to the project. Small woody material and slash must be fresh (green) and flexible, not dry and brittle. Small woody material and slash diameter shall be a maximum of 4 inches and individual lengths shall be a maximum of 10 feet.

8-26.3 Construction Requirements

The Contractor shall exercise care when installing the LWM Structures to ensure that the method of installation minimizes disturbance of waterways and prevents sediment or pollutant discharge into water.

Construction of the LWM Structures shall be in accordance with the following:

Large Woody Material (LWM) Structures
The Contractor shall install each LWM Structure at the locations shown in the Plans or as approved by the Engineer. Each log shall be installed with the length of embedment and orientation shown in the Plans. The Contractor shall exercise care when installing and transporting the log to avoid damage to the log or breakage of roots. Rootwads shall remain intact during stockpile installation.

Large Woody Material (LWM) Type 1
Each LWM Type 1 structure shall include two logs with rootwads. The contractor shall place each log with rootwad as shown in the Plans and as staked by the Engineer.

The streambed and bank shall be temporarily excavated to allow placement of the LWM Structure components. LWM Type 1 structure logs will be oriented so that the stem tips of the logs are installed to the scour depth. Logs shall be installed below with the stem tips below the toe of bank and the rootwads within the floodplain bench on the opposite bank. The two logs shall be installed spanning the channel in opposite directions as shown in the Plans. The portion of the logs installed within the channel banks shall not exceed the elevation of the streambed material. The Contractor shall fill the spaces between the logs with streambed boulders as shown in the Plans.

Large Woody Material (LWM) Type 2
Each LWM Type 2 structure shall include two logs without rootwads and with branches attached. The contractor shall place each log as shown in the Plans and as staked by the Engineer. The logs shall be placed parallel to one another and anchored as shown in the Plans.

The streambed and bank shall be temporarily excavated to allow placement of the LWM Structure components. LWM Type 2 structure logs will be oriented so that the base of the logs are embedded in the channel bank a minimum of 3 feet plus the log DBH below the bank. A minimum of 50 to 75 percent of the log bole shall be embedded. The logs shall be oriented so that the stem tips are above the channel bottom.

Large Woody Material (LWM) Type 3
Each LWM Type 3 structure shall include one log without rootwads and with branches attached. The contractor shall place each log as shown in the Plans and as staked by the Engineer. The logs shall be anchored and placed in the orientation as shown in the Plans.

The streambed and bank shall be temporarily excavated to allow placement of the LWM Structure components. LWM Type 3 structure log will be oriented so that the base of the logs are embedded in the channel bank to the minimum depth as shown in the Plans. A minimum

of 50 to 75 percent of the log bole shall be embedded. The logs shall be installed a minimum of 5 feet from any structure.

Large Woody Material (LWM) Type 4

Each LWM Type 4 structure shall include 5 logs with rootwads. The lower layer of logs shall consist of three logs and the upper layer of logs shall consist of two logs. The contractor shall place each log as shown in the Plans and as staked by the Engineer. The logs shall be anchored and placed in the orientation as shown in the Plans.

The stream bank shall be temporarily excavated to allow the placement of the lower layer LWM Structure components. The logs shall be placed one on top of each other and anchored as designated in the Plans. The Contractor shall install small woody material and slash between the rootwads of each log before the placement of the proceeding log.

Large Woody Material (LWM) Type 5

Each LWM Type 5 structure shall include one log with rootwad. The contractor shall place each log as shown in the Plans and as staked by the Engineer.

The streambed and bank shall be temporarily excavated to allow placement of the LWM Structure components. LWM Type 5 structure logs shall be installed with the stem tip embedded a minimum of 2 feet vertically and laterally below the toe of the bank, and the rootwad placed on the floodplain opposite the stem tip.

Acceptance of LWM structures will be based upon inspection by the Engineer or their representative.

8-26.4 Measurement

Large Woody Material – Rootwad Log will be measured per each log, furnished and placed.

Small Woody Material and Slash will be measured per cubic yard, furnished and placed.

8-26.5 Payment

Payment will be made for each of the following Bid items that are included in the Proposal:

"Large Woody Material – Rootwad Log"" per each.

"Small Woody Material and Slash", per cubic yard.

Add New Section 8-27 as follows:

8-27 METAL INLAY (NEW SECTION)

(City of Duvall)

8-27.1 Description

This work shall consist of providing and installing Metal Inlay (10 total), adjacent to Surface Treatment B areas on cement concrete sidewalk as indicated on the Plans.

8-27.2 Materials

Metal Inlay shall be of ten (10) unique cast bronze pieces provided by Caldwell Sculpture Studio as “Unique Cast Bronze Pacific Salmon” or approved equal.

Caldwell Sculpture Studio
10780 Myers Way S
Seattle WA 98168
(206) 243-5660

Metal Inlay sizes shall be as shown per Plans, cast bronze plaque including flat relief graphic, recessed flat and sand textured face. Cast bronze shall be Silicon Bronze – Herculoy Regular per UNS# C87610 (92% copper, 4% zinc, 4% silicon).

A thick bed Latex Portland Cement Mortar and shall conform to ASTM C 150 and ANSI 118.4, for exterior application. Mortar shall be combined with a latex admix, specifically for use with thin-set mortars, cement grouts, and cement mortar beds.
Performance properties of the Latex Portland Cement Mortar and latex admix shall comply with the following:

- Water Absorption: ANSI A118.6–4.4< 5%
- Compressive Strength: ANSI A118.4–6.14000–5000 psi (33.8–34.5 MPa)
- TCA Service Rating: ASTM C–627 Extra Heavy

Grout shall be a tri-poly fortified sanded grout, combined with a latex or acrylic admixture. Grout shall conform to ANSI A118.7-1999. Color shall be tan, gray color.

8-27.3 Construction Requirements

Contractor shall submit technical information including manufacturer’s name, color, bronze patina finish, dimensions and electronic linework of all ten (10) metal inlay designs (indicating stud locations) for Engineer’s approval prior to installation. Contractor shall submit one (1) full size sample of metal inlay for Engineer's approval and ownership.

Contractor shall submittal product cut sheets including manufacturer’s name, color, and technical data of mortar and grout for Engineer’s approval prior to installation.

Engineer to field verify the placement of the ten (10) metal inlays prior to installation.
Metal Inlay shall be installed with edges flush to finish grade in locations as detailed and shown on the Plans.

Contractor shall ensure all Metal Inlay and surrounding work surface area to be wiped clean of any grout work.

8-27.4 Measurement

No specific unit of measurement shall apply to the lump sum price for “Metal Inlay”.

8-27.5 Payment

Payment shall be made for the following bid items:

“Metal Inlay”, lump sum.

The lump sum price for furnishing and installing “Metal Inlay” shall be full compensation for all labor, material, cast bronze pieces, full size sample metal inlay with studs, mortar, grout, tools, and equipment necessary to satisfactorily complete the work as defined in the Standard Specifications and these Special Provisions.

Add New Section 8-28 as follows:

8-28 PEDESTRIAN RAILING (NEW SECTION)

(City of Duvall)

8-28.1 Description

This work shall consist of fabricating and installing Pedestrian Railing including interpretive sign panel/support and decorative panels, at the locations, and per the details shown on the Plans.

8-28.2 Materials

Materials shall meet the requirements of the following applicable standards and WSDOT Standard Specifications unless noted:

Painting 6-07

Pedestrian railing shall include decorative panels, vertical plate on the corner rail connection, interpretive sign panel/support/pins and consist of aluminum alloy 6061-T6 square tubes, angles, flat bars, attachment tabs, and plates detailed per Plans. Aluminum materials shall conform to 6061-T6; ASTM B308; AMS-QQ-A-200/8 in mill finish.

Decorative panel shall be of Aluminum Alloy: 5052-H32 Series as detailed per Plans.

The welding of aluminum shall be in accordance the Standard Specifications, Section 9-28.14(3). Pedestrian railing includes all connections necessary for fabrication and embed installation including but not limited to those shown on the Plans and described herein.

Fittings and fasteners shall be same basic material and alloy as parts being joined. Do not use materials that will be corrosive or incompatible with materials being fastened; the use of pop-rivets, sheet metal screws, adhesives or cast fittings shall not be allowed.

8-28.3 Construction Requirements

Pedestrian railing shall be installed in the locations shown and detailed on the Plans. The pedestrian railing installation, when completed, shall be in true alignment, on proper grade, with all posts plumb. Interior sections of pedestrian railing shall not possess any openings large enough to pass a 4” diameter sphere through. All sharp edges of pedestrian railing components shall be eased.

Pedestrian railing components shall be provided by Burly Products or approved equal. Decorative panels and attachment tabs shall be provided by ReVamp or approved equal. Assembly shall be in a neat, craftsmanship manner, using MIG Welding Processes as required, in accordance with the highest industry standards.

Burly Products
3999 St. Joe Ave.
Post Falls, ID 83854
(206) 262-9531

ReVamp
1610 W Riverside Ave.
Spokane WA 99201
(509) 919-0406

Pedestrian railing components shall be structurally welded including, top rail, bottom rail, intermediate rail, post, vertical rails, studs and angles, to assure fixed fastening for the life of the railing. Corners shall be fitted by miter and further welded as required to obtain maximum assurance of strength through the railing's useful life. Bent plate of top rail shall be filled and dull to ease the sharp edge. Fabricate components with joints tightly fitted and secured.

Provide slotted holes and sleeves to accommodate site assembly, thermal expansion/contraction and installation. Allow for thermal action resulting from the maximum range (change) in ambient temperature in the design, fabrication, and installation of rail systems, to prevent opening of joints, buckling, and other detrimental effects, including over stressing of connections and components.

Provide weep holes or other means to exit entrapped water from hollow sections of post pedestrian railing members exposed to exterior condensation, or moisture from other sources.

Prevent galvanic action and other forms of corrosion by isolating dissimilar materials from each other.

Submittal

Contractor shall submit shop drawings of pedestrian railing for Engineer's approval, showing complete field verified dimensions and details of fabrication, including an assembly diagram consisting of all railing components including interpretive sign panel/support, decorative panels, angles, studs, vertical plate at the corner rail connections, attachments, fasteners, fittings and connections. Materials being used shall be specified in shop drawings.

Contractor shall provide 18 inches section of pedestrian railing including post, side-mount plate with bolts, top/intermediate/bottom/vertical rail, angle, and stud with finish per Section 6-07 for Engineer's approval prior to fabrication.

Finishes

Comply with AAMA 2604 for aluminum finishes required.

One coat of bituminous paint, or other approved method, shall be used to conceal aluminum surfaces of pedestrian railing in contact with cementitious or dissimilar materials. Touch up for scratches as recommended by coating manufacturer for field application.

Contractor shall verify in field the slope required for racked sections of pedestrian railing. Verify all dimensions on site prior to shop fabrication. Coordinate fabrication schedule with construction progress to avoid delay of work.

Install pedestrian railing in unspliced lengths between posts except where locating expansion joints and sleeves. Install posts in continuous sections from bottom of post to the top rail.

Install side-mounted plate with tamperproof bolt epoxied anchored into concrete whenever indicated on the Plans.

When installation is completed, clean aluminum railing with plain water containing a mild detergent.

Pedestrian railing will require inspection upon delivery to the Project site. Any pieces damaged during shipping or having inconsistent color shall be removed from the Project site and rejected for construction.

8-28.4 Measurement

Pedestrian Railing shall be measured per linear foot of acceptable pedestrian railing, including interpretive panel/support and decorative panels, installed in its final location.

8-28.5 Payment

Payment shall be made for the following bid item:

"Pedestrian Railing", per linear foot.

The unit bid price shall be full compensation for all labor, material, connections, interpretive panel/support, decorative panels, fasteners, tools and equipment, supplies, incidental work, to satisfactorily complete the work defined in the Standard Specifications, Special Provisions and the particular items called for in the Plans.

8-31 TEMPORARY STREAM DIVERSION

8-31.3 Construction Requirements

8-31.3(1) General

8-31.3(1)A General TSD Requirements

Section 8-31.3(1)A is supplemented with the following:
(October 3, 2022 WSDOT OPT 1)

Minimum Stream Flows
At all times of operation, the Contractor's temporary stream diversion shall be designed to convey the following minimum flow rate of water in cubic feet per second:

*** 7.1 ***

(October 3, 2022 WSDOT OPT 2)

Minimum Stream Flows (Contingency System)
A Contingency System is required for this Project. The Contractor's contingency system shall be designed to convey the following minimum flow rate of water in cubic feet per second:

*** 41.0 ***

Add New Section 8-33 as follows:

8-33 METAL BENCH & BOULDER BENCH AREA (NEW SECTION)

(City of Duvall)

8-33.1 Description

This work shall consist of providing and installing Metal Bench and Boulder Bench Area including boulder bench, edging with sleeves/anchors in locations as shown on the Plans and as specified herein.

8-33.2 Materials

Materials shall meet the requirements of the following applicable standards and WSDOT Standard Specifications unless noted:

Painting	6-07
Aggregates	9-03
Structural Steel and Related Materials	9-06

Metal bench and boulder bench shall be as shown detailed on the Plans.

Metal bench shall be 4’ Carnival bench (CRF-4-HS-P) manufactured by Thomas Steele Site Furnishings or approved equal.

Thomas Steele Site Furnishings
1080 Uniek Dr
Waunakee, WI 53597
Phone: (608) 849-1080

Metal bench shall consist of backless bench, surface mounted, arm rests, heavy-duty cast and extruded aluminum with cast iron mounting supports, as detailed on the Plans. Bench end caps, slats and armrests shall be made of 319 cast aluminum.

Color for metal bench shall be per Section 6-07.2, Painting.

All metal bench hardware (bolts, nuts, screws, washers, etc.) needed to complete the installation shall be corrosion resistant, stainless steel.

Material rock base under boulder bench shall be “Crushed Surfacing Base Course” as specified in 9-03.9(3) of the Specifications.

Boulder bench shall be High Cascade Granite, natural occurring irregular shape with at least one flat “bench” surface area, approximate shape and size as detailed in the Plans.

Crushed surfacing top course around boulder bench area shall meet the requirements of Section 9-03.9(3) of the Standard Specifications.

Edging with sleeves shall be hot rolled steel is soft enough to bend flat on itself in any direction without cracking, ductile enough for shallow drawing. Surfaces of edging shall have normal mill oxide. Hot rolled steel conforms to a minimum ASTM A366-with carbon content held to .10 maximum.

Edging material shall conform to the following:

- Meet or exceed ASTM and ASME specifications: A-36, ASTM-A-283, ASTM-A-569.
- Material is hardness tested to maximum Rockwell of 70
- Webster rating = 15 maximum
- Brinell hardness = approximate 137
- Tensile strength ksi = 58 to 80
- Yield strength ksi = 36 minimum

Anchor shall be 10ga x 16" steel tapered stakes per edging manufacturer's specifications for use and site conditions. Anti-graffiti coating shall be applied on exposed surfaces of boulder bench. Anti-graffiti coating shall be a single component, polyurethane-based, non-sacrificial, clear coating, easy to clean, highly resistant to weather and corrosion, excellent flow and suitable for exterior applications on metal and stone.

Anti-graffiti coating applied on metal bench and exposed surfaces of boulder bench shall be Vandlguard® Non-Sacrificial Anti-Graffiti Coating provided by RainguardPro or approved equal. Anti-graffiti coating shall be is a single-part or (when a surface is unpainted or unsealed) two-part system* that provides a tough and durable graffiti resistant finish for exterior stone surfaces from permanent graffiti staining and damage. This is a cross linking co-polymer material coating that dries clear (non-yellowing) with a low luster sheen or zero gloss finish.

RainguardPro
2736 West McDowell Road
Phoenix, AZ 85009
Phone: 888.765.7070
Email: support@rainguardpro.com

8-33.3 Construction Requirements

Contractor shall coordinate restoration work and installation with Boulder Bench Area installation.

Boulder Bench Area shall be installed in locations as shown and as detailed per the Plans.

Boulder bench shall typically require 6 to 8 weeks lead time prior to delivery and installation on site.

Metal Bench shall typically require 6 to 8 weeks lead time prior to delivery and installation on site. Expansion bolts shall be stainless steel sized to fit metal bench. Length shall be 4" minimum.

Submittal

The Contractor shall provide the name of the Boulder Bench supplier and the source quarry, as well as photos, showing scale, color and texture of Boulder Bench for approval by the Engineer. Engineer shall field select boulder bench at rock supplier for delivery to site and field locate for best position and exposed surface.

Contractor shall submit edging catalog cut sheets with technical specifications for Engineer's approval prior to installation.

Install boulder bench, as detailed in locations per Plans. Final layout and orientation of boulder bench shall be as shown in the Plans and approved in the field by the Engineer.

Rock base shall be spread and compacted to a depth as shown on the plans and in conformance Standard Specifications Section 9-03.

When work is complete, the surface shall be smooth and uniform; maintaining original flow lines, slope gradient and contours of the project site.

Edging shall be installed to delineate the limits of the gravel plaza and as shown on the plans and as specified in these special provisions.

Edging shall be installed with 8" overlap between each edging strip and anchor shall be staked at 30" on-spacing or per manufacturer's recommendations.

Contractor shall submit metal bench manufacturer's product data, storage and handling requirements and recommendations, installation methods, available colors, styles, and textures.

Contractor shall submit metal bench manufacturer's shop drawings, including plans and elevations, indicating overall dimensions. Submit manufacturer's samples of materials, finishes, and colors. Manufacturer's standard warranty shall be submitted by Contractor for Engineer's approval.

Assemble metal bench components per instructions by manufacturer. Surface mount on cement concrete sidewalk using mounting hardware supplied by manufacturer and additional stainless-steel washers as necessary to set bench level and plumb, per manufacturer's instructions.

Contractor shall field measure and verify metal bench and boulder bench locations with Engineer's approval prior to installation.

Contractor shall repair any minor damages to finish in accordance with metal bench manufacturer's instructions and as approved by Engineer. Contractor shall remove and replace damaged components that cannot be successfully repaired as determined by Engineer.
Contractor shall not use harsh cleaning materials or methods that could damage finish. Protect installed metal bench and boulder bench to ensure that, except for normal weathering, benches will be without damage or deterioration at time of Substantial Completion. Metal bench and boulder bench shall be clean promptly after installation in accordance with manufacturer's instructions.

8-33.4 Measurement

No specific unit of measurement shall apply to the lump sum price for "Boulder Bench Area".

Metal Bench shall be measured per each.

8-33.5 Payment

Payment will be made for the following Bid items when included in the Proposal:

"Boulder Bench Area" per lump sum.

The lump sum price for the above, including full compensation for installation of boulder bench area and to satisfactorily complete the work as defined in the Standard Specifications and these Special Provisions. This includes all labor, materials, tools, and equipment necessary or incidental to installing "Boulder Bench Area" as shown on the Plans including work for hauling, placing, and/or compacting, boulder bench, crushed aggregate, and edging with sleeves/anchor.

"Metal Bench" per each.

The unit Contract price, per each "Metal Bench" shall be full compensation for all labor, material, anti-graffiti coating, surface mount anchors, tools and equipment required to, supplies, incidental work, to satisfactorily complete the work defined in the Standard Specifications, Special Provisions and the particular items called for in the Plans.

END OF DIVISION 8

DIVISION 9
MATERIALS

9-05 DRAINAGE STRUCTURES AND CULVERTS

9-05.15 Metal Castings

9-05.15(2) Metal Frame, Grate, and Solid Metal Cover for Catch Basins or Inlets

(City of Duvall)

Section 9-05.15(2) is supplemented by adding the following:

All catch basin grates shall include the stamping “outfall to stream, dump no pollutants.” All frame, grates, and solid lids shall have rust protection coating and four locking bolts if placed in the traveled way, and two locking bolts if placed against the curb or non-traveled way. If storm structure is located within traveled way grate shall have two locking bolts. All closed lids for Type 1 catch basins shall be as shown on the EJ Product Detail 7700A 7715Z Assembly or approved equal. All closed-lids and covers located in the sidewalk or cycle track shall be ADA compliant and slip-resistant. All open grates located adjacent or near crosswalks and curb ramps shall have ADA grates with rectangular frames. All vaned grates for Type 1 and Type 2 catch basins shall be as shown on the EJ Product Detail 7700M2 7715Z Assembly or approved equal. Combination inlets for Type 1 catch basins shall conform to EJ Product Detail 7700M2, 7701Z Assembly, or approved equal.

All metal casting shall be uncoated per AASHTO M306 and Section 9-05.15 of the Standard Specifications.

All metal casting shall be manufactured in the United States of America.

9-14 EROSION CONTROL AND ROADSIDE PLANTING

9-14.2 Topsoil

9-14.2(1) Topsoil Type A

(City of Duvall)

Section 9-14.2(1) is supplemented by adding the following:

Topsoil Type A shall consist of a uniform blend composed by volume of 67-70% Sandy Loam, and 30-33% compost, plus soil amendments. Mechanically blend and pre-mix all topsoil prior to delivery. One hundred percent of this mixture shall pass through a 1-inch sieve. Compost shall comply with the requirements of 9-14.4(8). Mixed soil shall have pH range of 5.0 to 7.0.

For supplying the Topsoil Type A mix, the Contractor may import premixed, commercially available planting soil mixes that are comprised of sandy loam soil that meet the USDA Standards and shall have the following characteristics:

Class	Particle Size Range
Coarse sand	0.5 - 2.0 mm
All sands	0.05 - 2.0 mm
Silt	0.002 - 0.05 mm
Clay	<0.002 mm

The Sandy/Loam component shall also meet or exceed the following specifications:

Screen Size	Percent Retained	Percent Passing
6.35mm	5%	95%
#10	15	85
#30	50	50
#60	60	40
#100	80	20
#200	90	10

Contractor shall send minimum of one representative sample of Topsoil Type A to an approved soil-testing laboratory (state or commercial laboratory) for approval prior to use on the project site. The Contractor shall be responsible for whatever Topsoil additives may be required, as recommended by the testing laboratory. The cost for testing and Topsoil additives shall be borne by the Contractor. Testing shall be performed in accordance with the most current edition of Methods of Soil Analysis published by the Soil Science Society of America, Inc. The soil test analysis reports and recommendations for Topsoil additives shall include the following:

1. Fertility Analysis

   Extractable analyses: nitrate nitrogen, ammonium nitrogen, phosphorous, potassium, calcium, magnesium, copper, zinc, manganese and iron.

   Saturation extract values: calcium, magnesium, potassium, sodium, boron, sulfate, pH, lime content, salinity and sodium adsorption ratio (SAR).

2. Organic Content and Particle Size Appraisal

   Organic percent by oven dried weight, and USDA Particle size.

3. Cation Exchange Capacity (CEC)

4. Recommendations

Statement that the laboratory has reviewed the planting plan and the planting specifications, and that its recommendations respond to the specific needs of the Contract.

Submit soil laboratory tests for Topsoil Type A and supplier's certification of Compost for Owner's Representative review and approval prior to installing Topsoil Type A.

9-14.3 Seed

(City of Duvall)

Section 9-14.3 is supplemented with the following:

The grass seed dealer shall mix the grass seed. The Contractor shall furnish the Engineer with a dealer's guaranteed statement of the composition, mixture, and the percentage of purity and germination of each variety.

The seed mixtures for hydroseeding shall conform to the composition specified below:

Seeded Lawn Mix

	% Weight	% Purity	% Germination
Lolimum perenne/Perennial Rye (2 Varieties Dasher 3 and Cutter II or approved equal)	70	98	90
Festuca rubra var. Garnet	15	98	90
Festuca rubra spp. Fallax or Windward	15	98	90

Seed shall be applied at the rate recommended by the seed supplier.

9-14.4 Fertilizer

(City of Duvall)

Section 9-14.3 is supplemented with the following:

All fertilizer applications for trees and shrubs shall follow Washington State University, National Arborist Association or other accepted agronomic or horticultural standards.

Fertilizer for trees and shrubs shall be Best-Paks Biodegradable Packet, 20-10-5, or approved equal. Apply per manufacturer's recommendations.

9-14.5 Mulch and Amendments

9-14.5(3) Bark or Wood Chips

(City of Duvall)

The first paragraph of Section 9-14.5(3) is revised to read:

Bark Mulch shall be derived from Douglas Fir and Western Hemlock tree species. Bark is defined as the outermost coarse protective layer of the tree, located outside of the cambium layer. It shall be ground so that a minimum of 95-percent, by volume, of the material will pass through a 1-inch sieve. Ground bark shall not contain elements in quantities that would be detrimental to plant life. Wood cellulose tissue fiber (wood pulp), wood waste, wood shavings, wood sawdust, wood chips, or any product that contains greater than 5-percent, by volume, of the hard, lignified wood portion of the tree will not be accepted.

Add new section 9-14.5(3)A as follows:

9-14.5(3)A Arborist Wood Chip Mulch

Arborist Mulch shall be coarse ground wood chips derived from the mechanical grinding and shredding of the above-ground portion of trees. It may contain wood, wood fiber, bark, branches and leaves, but may not contain visible amounts of soil and must be free of weeds and weed seeds. The acceptable size range is ½ inch to 3 inches with a maximum of 20% passion the ½ inch screen. No particles may be longer than 6 inches.

9-14.7 Plant Material

9-14.7(2) Quality

(City of Duvall)

Section 9-14.7(2) is supplemented with the following:

Plants shall be normal in pattern of growth, healthy, well branched, vigorous, with well-developed root systems, and free of pests and disease. Damaged, diseased, pest-infested, scraped, bruised, dried-out, burned, broken, or defective plants will be rejected. Plants with pruning wounds over 1 inch in diameter will be rejected.

Plant material shall be free from disfiguring knots, swollen grafts, sunscald injuries, bark abrasions, evidence of improper pruning or other objectionable disfigurement.

Potted and container stock shall be well rooted and vigorous enough to ensure survival and healthy growth. Shrubs shall have full foliage (not leggy). Container stock shall be grown in its delivery container for not less than six (6) months, but not for more than two (2) years. Root bound or broken containers will not be accepted. Bare root, liner and root stock with dried or shriveled roots from exposure will not be accepted.

Trees will be provided with untapped, straight, single leaders, except for multiple stem (clump) trees. Trees shall have full crowns and balanced branching.

Measurements, caliper, branching, grading, quality, balling and burlapping shall follow the Code of Standards of the American Associate of Nurserymen in the American Standard for Nursery Stock, ANSI 260.1, latest edition. Measurements shall be taken with all branches in their normal growing position. Plants shall not be pruned prior to delivery to site.

9-14.7(3) Handling and Shipping

(City of Duvall)

Section 9-14.7(3) is supplemented with the following:

Plants shall be handled so as to avoid all damage, including breaking, brushing, root damage, sunburn, drying, freezing, or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots with shade and wet soil in the time period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant.

9-14.7(4) Sod

(City of Duvall)

Section 9-14.7(4) is supplemented with the following:

Sod Lawn shall be three-way Tall Fescue Blend Sod, 33.33% Firecracker LS Tall Fescue, 33.33% Dynamite LS Tall Fescue, 33.33% Titanium 2LS Tall Fescue with degradable netting, or approved equal.

Add new section 9-14.9 as follows:

9-14.9 Root Barrier

(City of Duvall)

Root Barrier shall be 24-inch high, minimum thickness 0.090-inch, interlocking root barrier panels constructed of high-impact polypropylene with 1/2-inch reinforcing ribs.

9-15 IRRIGATION SYSTEM

9-15.1 Pipe, Tubing and Fittings

(City of Duvall)

Section 9-15.1 is supplemented with the following:

All pipe and tubing shall be PVC or approved equal. All sleeving shall be Sch. 40 PVC, except as specified for roadway crossings, in 8-03.3(3) Piping of these Special Provisions.

9-15.1(2) Polyvinyl Chloride Pipe And Fittings

(City of Duvall)

Section 9-15.1(2) is supplemented with the following:

PVC pipe shall be Schedule 40 PVC pipe for the main, laterals and sleeves. All fittings shall be Sch 80 PVC, unless otherwise specified on the plans and in these Special Provisions.

9-15.5 Valve Boxes and Protective Sleeves

(City of Duvall)

Section 9-15.5 is supplemented with the following:

Valve boxes for automatic control valve with extensions as necessary and bypass assemblies shall be grey flared box, HDPE construction with UV inhibitors, heavy duty seat collar, drop in locking, 17'L x 24" D x 12" W with green HDPE drop in locking lid.

Valve boxes for quick coupler shall be light duty HDPE with UV inhibitors, 10" diameter flared box with bolt down cover.

Valve boxes for Double Check Valve Assembly shall be grey heavy duty polymer concrete, top dimensions 25"L x 15-16"W and 24" D designed to withstand H-10 and H-20 loading in incidental and non-deliberate traffic areas. Valve box must be compliant with AASHTO H-10 Design Load; ASTM C 857-95 Design Load of A-8, 8,000lbs. Box shall be alkaline, acid and weather resistant, with flush locking polymer concrete cover. Verify size to fit Double Check Valve Assembly.

9-15.17 Electrical Wire And Splices

(City of Duvall)

Section 9-15.17 is supplemented with the following:

Electrical Wire shall be #14 UF wire. Direct bury splice kits shall be premium moisture-resistant connectors, max wire gauge 10AWG minimum wire gauge 18AWG, flame retardant.

Conduit fittings for steel conduit shall be coated with galvanizing repair paint in the same manner as conduit couplings. Electroplated fittings are not allowed.

Steel conduit entering concrete shall be wrapped in 2-inch-wide pipe wrap tape with a minimum 1-inch overlap for 12 inches on each side of the concrete face. Pipe wrap tape shall be installed per the manufacturer's recommendations.

Galvanizing repair paint requirements for conduit couplings shall also apply to end bushings.

9-29 ILLUMINATION, SIGNAL, ELECTRICAL

9-29.1 Conduit, Innerduct, and Outerduct

(City of Duvall)

This section is supplemented with the following:

Mechanical plugs shall be installed per manufacturer's recommendations.

9-29.2(1)A Standard Duty Junction Boxes

(City of Duvall)

This section is supplemented with the following:

Where slip-resistant junction boxes are required, each box shall have slip-resistant surfacing material applied to the steel lid and frame of the box or vault. Where the exposed portion of the frame is 1/2 inch wide or less, slip-resistant surfacing material may be omitted from that portion of the frame.

Slip-resistant surfacing material shall be identified with a permanent marking on the underside of each box or vault lid where it is applied. The permanent marking shall be formed with a mild steel weld bead, with a line thickness of at least 1/8 inch. The marking shall include a two character identification code for the type of material used and the year of manufacture or application. The following materials are approved for application as slip-resistant material, and shall use the associated identification codes:

1. Harsco Industrial IKG, Mebac #1 - Steel: M1
2. W. S. Molnar Co., SlipNOT Grade 3 – Coarse: S3
3. Thermion, SafTrax TH604 Grade #1 – Coarse: T1

9-29.6 Light and Signal Standards
(City of Duvall)
This section is supplemented with the following:

Illumination standards shall be furnished and installed in accordance with the methods and materials noted in the applicable Standard Plans and per the Plans.

All welds shall comply with the latest AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. Welding inspection shall comply with Section 6-03.3(25)A Welding Inspection.

Hardened washers shall be used with all signal arm connecting bolts instead of lockwashers. All signal arm ASTM A 325 connecting bolts tightening shall comply with Section 6-03.3(33).

Add New Section 9-29.6(1)A as follows:

9-29.6(1)A Decorative Luminaire Poles
(City of Duvall)

All poles shall be furnished with and dual GFCI receptacle and cover as shown on the Plans.The receptacle housing shall have a clear, lockable, weatherproof-in-use cover and shall be made of heavy-duty, UV-rated plastic. The color of frame shall match pole color.

Decorative Pedestrian Luminaire Poles

The decorative pedestrian luminaire pole shall be Hapco Jefferson 15 tapered round aluminum pole, part #J5C16B5-E-TR-P (or prior approved equal) with clamshell base and tenon mount and GFCI receptacle as shown on the Plans and shall be complete in all respects. No welding will be allowed at the site at the time of erection.

Decorative Base Sub-Assembly: The top of the base shall be designed to be assembled around the pole and shall have a round ID to match the pole with a minimum clearance between pole and base. The flush access cover is located to match the hand hole opening in

the pole and is secured with (2) stainless steel tamper resistant machine screws. Each part's half must bolt together in such a manner that results in a minimum vertical seam and each part is free of voids, porosity, fins and generally has a smooth sand cast finish.

Paint: Refer to Special Provisions Sec.6-07.2

Decorative Roadway Luminaire Poles

The decorative roadway luminaire pole shall Hapco Jefferson 18 25' anchor base round tapered aluminum pole with with structural 4-bolt base and clamshell base,side drill mount, part #J8C25C7-4-TR-SC (or prior approved equal) and shall be capable of supporting luminaire arm, with GFCI receptacle and shall be complete in all respects. No welding will be allowed at the site at the time of erection.

Decorative Luminaire Arm Sub-Assembly: Decorative luminaire arms shall be Hapco 6' length single mast arms, part #B1110022 rated for 25' mounting height (or prior approved equal) and shall be capable of supporting luminaire. Arm shall be a 4" O.D. tapered elliptical aluminum tube with 0.125" wall. Additional (larger) pipe sizes may be approved if recommended by the manufacturer for structural integrity.

Paint: Refer to Special Provisions Sec.6-07.2

9-29.10(1) Conventional Roadway Luminaires
(City of Duvall)
This section is supplemented with the following:

Conventional Roadway Luminaires installed on the corridor shall be **Current (GE) Evolve ERL1 Roadway Luminaire fixture with wattages and distribution** as shown on the Plans. All luminaires shall include a shorting cap and house side shield. Designations per the Plans shall correspond to the following product:

- **ERL1 60W LED 3000K 240V (ERL1-3-07-C5-30)**
- **ERL1 85W LED 3000K 240V (ERL1-3-09-B5-30)**

Add New Section 9-29.10(2) as follows:

9-29.10(2) Decorative Pedestrian Luminaires
(City of Duvall)

Decorative Pedestrian Luminaires installed shall be **King K595 Aristocrat Decorative Pedestrian Luminaire** fixture with wattage and distribution as shown on the Plans. All luminaires shall include shorting cap. Designations per the Plans shall correspond to the following product:

- **K595 25W LED 3000K 240V (K595-P4NL-II-25(SSL)7030-120V-K30-PR7-3K)**
- **K595 25W LED 3000K 240V (K595-P4NL-II-40(SSL)7030-120V-K30-PR7-3K)**
- **K595 25W LED 3000K 240V (K595-P4NL-II-60(SSL)7030-120V-K30-PR7-3K)**

Paint: Refer to Special Provisions Sec.6-07.2

9-29.11 Control Equipment

(City of Duvall)

This section is supplemented with the following:

Illumination circuits shall be controlled by a combination of photoelectric control mounted on top of electrical service cabinet and lighting contactors as noted in the Contract. A shorting 7-pin cap shall be provided for all the luminaires.

9-29.24 Service Cabinets

(City of Duvall)

This section is supplemented with the following:

Overhead electrical service shall be brought to the load center through a 3" conduit riser and a weatherhead on the service pole. All circuit breakers shall be clearly marked or labeled.

The Contractor shall provide conduit from the electrical service to and up the serving utility's pole in accordance with the requirements set forth by the serving utility. The Contractor shall provide all service conductors, brackets and conduit as required by the serving utility to complete the connection and bring power to the service cabinet.

The electrical service cabinet shall meet EUSERC 308 requirements and meter shall be installed on the outside on the side of the cabinet.

Wiring shall be arranged so that any piece of apparatus may be removed without disconnecting any wiring, except the lead to that piece of apparatus. All wiring shall be appropriately marked with a permanent, indelibly marked, clip-sleeve wire marker. All wiring shall conform to NEMA Class II C.

- Cable in / cable out circuit breakers shall be standard.
- Circuit breakers shall be industrial grade, fully rated.
- Wiring shall be to NEMA IIB standards showing connections to external equipment.
- All terminals shall be permanently labeled.
- The function of all circuit breakers, switches and other components as required shall be identified by laminated engraved plastic nameplates fastened with minimum of two ¼" #4-40 machine screws.

9-29.24(2) Electrical Circuit Breakers and Contactors

(City of Duvall)

This section is supplemented with the following:

Circuit breakers shall be 240 volts maximum rated for 120/240 volt circuits and shall have an interrupting capacity (R.M.S. – symmetrical) of not less than 20,000 amperes. Circuit breakers shall be bolt-on type.

Add New Section 9-29.26 as follows:

9-29.26 Detectable Pull Tape
(City of Duvall)

The Contractor shall furnish and install a flat polyester woven pre-lubed tape that contains a 22- gauge wire.

The tape will be marked with sequential footage markings and be continuous.

The tape shall meet or exceed a breaking strength of 900 lb., with a width of ½-inch.

END OF DIVISION 9

END OF SPECIAL PROVISIONS

APPENDIX A

PREVAILING WAGE RATES

State of Washington
Department of Labor & Industries
Prevailing Wage Section - Telephone 360-902-5335
PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Journey Level Prevailing Wage Rates for the Effective Date: 5/29/2024

County	Trade	Job Classification	Wage	Holiday	Overtime	Note	*Risk Class
King	Asbestos Abatement Workers	Journey Level	$59.07	5D	1H		View
King	Boilermakers	Journey Level	$74.29	5N	1C		View
King	Brick Mason	Journey Level	$69.07	7E	1N		View
King	Brick Mason	Pointer-Caulker-Cleaner	$69.07	7E	1N		View
King	Building Service Employees	Janitor	$29.33	5S	2F		View
King	Building Service Employees	Traveling Waxer/Shampooer	$29.78	5S	2F		View
King	Building Service Employees	Window Cleaner (Non-Scaffold)	$32.93	5S	2F		View
King	Building Service Employees	Window Cleaner (Scaffold)	$33.93	5S	2F		View
King	Cabinet Makers (In Shop)	Journey Level	$22.74		1		View
King	Carpenters	Acoustical Worker	$74.96	15J	4C		View
King	Carpenters	Bridge, Dock And Wharf Carpenters	$74.96	15J	4C		View
King	Carpenters	Floor Layer & Floor Finisher	$74.96	15J	4C		View
King	Carpenters	Journey Level	$74.96	15J	4C		View
King	Carpenters	Scaffold Erector	$74.96	15J	4C		View
King	Cement Masons	Application of all Composition Mastic	$72.87	15J	4U		View
King	Cement Masons	Application of all Epoxy Material	$72.37	15J	4U		View
King	Cement Masons	Application of all Plastic Material	$72.87	15J	4U		View
King	Cement Masons	Application of Sealing Compound	$72.37	15J	4U		View
King	Cement Masons	Application of Underlayment	$72.87	15J	4U		View
King	Cement Masons	Building General	$72.37	15J	4U		View
King	Cement Masons	Composition or Kalman Floors	$72.87	15J	4U		View
King	Cement Masons	Concrete Paving	$72.37	15J	4U		View
King	Cement Masons	Curb & Gutter Machine	$72.87	15J	4U		View
King	Cement Masons	Curb & Gutter, Sidewalks	$72.37	15J	4U		View
King	Cement Masons	Curing Concrete	$72.37	15J	4U		View
King	Cement Masons	Finish Colored Concrete	$72.87	15J	4U		View

King	Cement Masons	Floor Grinding	$72.87	15J	4U		View
King	Cement Masons	Floor Grinding/Polisher	$72.37	15J	4U		View
King	Cement Masons	Green Concrete Saw, self-powered	$72.87	15J	4U		View
King	Cement Masons	Grouting of all Plates	$72.37	15J	4U		View
King	Cement Masons	Grouting of all Tilt-up Panels	$72.37	15J	4U		View
King	Cement Masons	Gunite Nozzleman	$72.87	15J	4U		View
King	Cement Masons	Hand Powered Grinder	$72.87	15J	4U		View
King	Cement Masons	Journey Level	$72.37	15J	4U		View
King	Cement Masons	Patching Concrete	$72.37	15J	4U		View
King	Cement Masons	Pneumatic Power Tools	$72.87	15J	4U		View
King	Cement Masons	Power Chipping & Brushing	$72.87	15J	4U		View
King	Cement Masons	Sand Blasting Architectural Finish	$72.87	15J	4U		View
King	Cement Masons	Screed & Rodding Machine	$72.87	15J	4U		View
King	Cement Masons	Spackling or Skim Coat Concrete	$72.37	15J	4U		View
King	Cement Masons	Troweling Machine Operator	$72.87	15J	4U		View
King	Cement Masons	Troweling Machine Operator on Colored Slabs	$72.87	15J	4U		View
King	Cement Masons	Tunnel Workers	$72.87	15J	4U		View
King	Divers & Tenders	Bell/Vehicle or Submersible Operator (Not Under Pressure)	$129.71	15J	4C		View
King	Divers & Tenders	Dive Supervisor/Master	$93.94	15J	4C		View
King	Divers & Tenders	Diver	$129.71	15J	4C	8V	View
King	Divers & Tenders	Diver On Standby	$88.94	15J	4C		View
King	Divers & Tenders	Diver Tender	$80.82	15J	4C		View
King	Divers & Tenders	Hyperbaric Worker - Compressed Air Worker 0-30.00 PSI	$93.26	15J	4C		View
King	Divers & Tenders	Hyperbaric Worker - Compressed Air Worker 30.01 - 44.00 PSI	$98.26	15J	4C		View
King	Divers & Tenders	Hyperbaric Worker - Compressed Air Worker 44.01 - 54.00 PSI	$102.26	15J	4C		View
King	Divers & Tenders	Hyperbaric Worker - Compressed Air Worker 54.01 - 60.00 PSI	$107.26	15J	4C		View
King	Divers & Tenders	Hyperbaric Worker - Compressed Air Worker 60.01 - 64.00 PSI	$109.76	15J	4C		View
King	Divers & Tenders	Hyperbaric Worker - Compressed Air Worker 64.01 - 68.00 PSI	$114.76	15J	4C		View
King	Divers & Tenders	Hyperbaric Worker - Compressed Air Worker 68.01 - 70.00 PSI	$116.76	15J	4C		View
King	Divers & Tenders	Hyperbaric Worker - Compressed Air Worker 70.01 - 72.00 PSI	$118.76	15J	4C		View

King	Divers & Tenders	Hyperbaric Worker - Compressed Air Worker 72.01 - 74.00 PSI	$120.76	15J	4C		View
King	Divers & Tenders	Manifold Operator	$80.82	15J	4C		View
King	Divers & Tenders	Manifold Operator Mixed Gas	$85.82	15J	4C		View
King	Divers & Tenders	Remote Operated Vehicle Operator/Technician	$80.82	15J	4C		View
King	Divers & Tenders	Remote Operated Vehicle Tender	$75.41	15J	4C		View
King	Dredge Workers	Assistant Engineer	$79.62	5D	3F		View
King	Dredge Workers	Assistant Mate (Deckhand)	$79.01	5D	3F		View
King	Dredge Workers	Boatmen	$79.62	5D	3F		View
King	Dredge Workers	Engineer Welder	$81.15	5D	3F		View
King	Dredge Workers	Leverman, Hydraulic	$82.77	5D	3F		View
King	Dredge Workers	Mates	$79.62	5D	3F		View
King	Dredge Workers	Oiler	$79.01	5D	3F		View
King	Drywall Applicator	Journey Level	$75.73	15O	11S		View
King	Drywall Tapers	Journey Level	$75.73	15O	11S		View
King	Electrical Fixture Maintenance Workers	Journey Level	$38.69	5L	1E		View
King	Electricians - Inside	Cable Splicer	$109.35	7C	4E		View
King	Electricians - Inside	Cable Splicer (tunnel)	$117.52	7C	4E		View
King	Electricians - Inside	Certified Welder	$105.63	7C	4E		View
King	Electricians - Inside	Certified Welder (tunnel)	$113.43	7C	4E		View
King	Electricians - Inside	Construction Stock Person	$51.53	7C	4E		View
King	Electricians - Inside	Journey Level	$101.92	7C	4E		View
King	Electricians - Inside	Journey Level (tunnel)	$109.35	7C	4E		View
King	Electricians - Motor Shop	Journey Level	$48.68	5A	1B		View
King	Electricians - Powerline Construction	Cable Splicer	$93.00	5A	4D		View
King	Electricians - Powerline Construction	Certified Line Welder	$85.42	5A	4D		View
King	Electricians - Powerline Construction	Groundperson	$55.27	5A	4D		View
King	Electricians - Powerline Construction	Heavy Line Equipment Operator	$85.42	5A	4D		View
King	Electricians - Powerline Construction	Journey Level Lineperson	$85.42	5A	4D		View
King	Electricians - Powerline Construction	Line Equipment Operator	$73.35	5A	4D		View
King	Electricians - Powerline Construction	Meter Installer	$55.27	5A	4D	8W	View
King	Electricians - Powerline Construction	Pole Sprayer	$85.42	5A	4D		View
King	Electricians - Powerline Construction	Powderperson	$63.50	5A	4D		View
King	Electronic Technicians	Journey Level	$65.66	7E	1E		View
King	Elevator Constructors	Mechanic	$111.26	7D	4A		View
King	Elevator Constructors	Mechanic In Charge	$120.27	7D	4A		View
King	Fabricated Precast Concrete Products	All Classifications - In-Factory Work Only	$21.34	5B	1R		View

King	Fence Erectors	Fence Erector	$50.07	15J	11P	8Y	View
King	Fence Erectors	Fence Laborer	$50.07	15J	11P	8Y	View
King	Flaggers	Journey Level	$50.07	15J	11P	8Y	View
King	Glaziers	Journey Level	$79.16	7L	1Y		View
King	Heat & Frost Insulators And Asbestos Workers	Journey Level	$87.15	15H	11C		View
King	Heating Equipment Mechanics	Journey Level	$96.42	7F	1E		View
King	Hod Carriers & Mason Tenders	Journey Level	$62.49	15J	11P	8Y	View
King	Industrial Power Vacuum Cleaner	Journey Level	$16.28		1		View
King	Inland Boatmen	Boat Operator	$61.41	5B	1K		View
King	Inland Boatmen	Cook	$56.48	5B	1K		View
King	Inland Boatmen	Deckhand	$57.48	5B	1K		View
King	Inland Boatmen	Deckhand Engineer	$58.81	5B	1K		View
King	Inland Boatmen	Launch Operator	$58.89	5B	1K		View
King	Inland Boatmen	Mate	$57.31	5B	1K		View
King	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Cleaner Operator	$49.48	15M	11O		View
King	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Foamer Operator	$49.48	15M	11O		View
King	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Grout Truck Operator	$49.48	15M	11O		View
King	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Head Operator	$47.41	15M	11O		View
King	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Technician	$41.20	15M	11O		View
King	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	TV Truck Operator	$44.31	15M	11O		View
King	Insulation Applicators	Journey Level	$74.96	15J	4C		View
King	Ironworkers	Journeyman	$87.80	15K	11N		View
King	Laborers	Air, Gas Or Electric Vibrating Screed	$59.07	15J	11P	8Y	View
King	Laborers	Airtrac Drill Operator	$60.90	15J	11P	8Y	View
King	Laborers	Ballast Regular Machine	$59.07	15J	11P	8Y	View
King	Laborers	Batch Weighman	$50.07	15J	11P	8Y	View
King	Laborers	Brick Pavers	$59.07	15J	11P	8Y	View
King	Laborers	Brush Cutter	$59.07	15J	11P	8Y	View
King	Laborers	Brush Hog Feeder	$59.07	15J	11P	8Y	View
King	Laborers	Burner	$59.07	15J	11P	8Y	View
King	Laborers	Caisson Worker	$60.90	15J	11P	8Y	View
King	Laborers	Carpenter Tender	$59.07	15J	11P	8Y	View
King	Laborers	Cement Dumper-paving	$60.15	15J	11P	8Y	View
King	Laborers	Cement Finisher Tender	$59.07	15J	11P	8Y	View
King	Laborers	Change House Or Dry Shack	$59.07	15J	11P	8Y	View

King	Laborers	Chipping Gun (30 Lbs. And Over)	$60.15	15J	11P	8Y	View
King	Laborers	Chipping Gun (Under 30 Lbs.)	$59.07	15J	11P	8Y	View
King	Laborers	Choker Setter	$59.07	15J	11P	8Y	View
King	Laborers	Chuck Tender	$59.07	15J	11P	8Y	View
King	Laborers	Clary Power Spreader	$60.15	15J	11P	8Y	View
King	Laborers	Clean-up Laborer	$59.07	15J	11P	8Y	View
King	Laborers	Concrete Dumper/Chute Operator	$60.15	15J	11P	8Y	View
King	Laborers	Concrete Form Stripper	$59.07	15J	11P	8Y	View
King	Laborers	Concrete Placement Crew	$60.15	15J	11P	8Y	View
King	Laborers	Concrete Saw Operator/Core Driller	$60.15	15J	11P	8Y	View
King	Laborers	Crusher Feeder	$50.07	15J	11P	8Y	View
King	Laborers	Curing Laborer	$59.07	15J	11P	8Y	View
King	Laborers	Demolition: Wrecking & Moving (Incl. Charred Material)	$59.07	15J	11P	8Y	View
King	Laborers	Ditch Digger	$59.07	15J	11P	8Y	View
King	Laborers	Diver	$60.90	15J	11P	8Y	View
King	Laborers	Drill Operator (Hydraulic, Diamond)	$60.15	15J	11P	8Y	View
King	Laborers	Dry Stack Walls	$59.07	15J	11P	8Y	View
King	Laborers	Dump Person	$59.07	15J	11P	8Y	View
King	Laborers	Epoxy Technician	$59.07	15J	11P	8Y	View
King	Laborers	Erosion Control Worker	$59.07	15J	11P	8Y	View
King	Laborers	Faller & Bucker Chain Saw	$60.15	15J	11P	8Y	View
King	Laborers	Fine Graders	$59.07	15J	11P	8Y	View
King	Laborers	Firewatch	$50.07	15J	11P	8Y	View
King	Laborers	Form Setter	$60.15	15J	11P	8Y	View
King	Laborers	Gabian Basket Builders	$59.07	15J	11P	8Y	View
King	Laborers	General Laborer	$59.07	15J	11P	8Y	View
King	Laborers	Grade Checker & Transit Person	$62.49	15J	11P	8Y	View
King	Laborers	Grinders	$59.07	15J	11P	8Y	View
King	Laborers	Grout Machine Tender	$59.07	15J	11P	8Y	View
King	Laborers	Groutmen (Pressure) Including Post Tension Beams	$60.15	15J	11P	8Y	View
King	Laborers	Guardrail Erector	$59.07	15J	11P	8Y	View
King	Laborers	Hazardous Waste Worker (Level A)	$60.90	15J	11P	8Y	View
King	Laborers	Hazardous Waste Worker (Level B)	$60.15	15J	11P	8Y	View
King	Laborers	Hazardous Waste Worker (Level C)	$59.07	15J	11P	8Y	View
King	Laborers	High Scaler	$60.90	15J	11P	8Y	View
King	Laborers	Jackhammer	$60.15	15J	11P	8Y	View
King	Laborers	Laserbeam Operator	$60.15	15J	11P	8Y	View
King	Laborers	Maintenance Person	$59.07	15J	11P	8Y	View
King	Laborers	Manhole Builder-Mudman	$60.15	15J	11P	8Y	View

King	Laborers	Material Yard Person	$59.07	15J	11P	8Y	View
King	Laborers	Mold Abatement Worker	$59.07	15J	11P	8Y	View
King	Laborers	Motorman-Dinky Locomotive	$62.59	15J	11P	8Y	View
King	Laborers	nozzleman (concrete pump, green cutter when using combination of high pressure air & water on concrete & rock, sandblast, gunite, shotcrete, water blaster, vacuum blaster)	$62.49	15J	11P	8Y	View
King	Laborers	Pavement Breaker	$60.15	15J	11P	8Y	View
King	Laborers	Pilot Car	$50.07	15J	11P	8Y	View
King	Laborers	Pipe Layer (Lead)	$62.49	15J	11P	8Y	View
King	Laborers	Pipe Layer/Tailor	$60.15	15J	11P	8Y	View
King	Laborers	Pipe Pot Tender	$60.15	15J	11P	8Y	View
King	Laborers	Pipe Reliner	$60.15	15J	11P	8Y	View
King	Laborers	Pipe Wrapper	$60.15	15J	11P	8Y	View
King	Laborers	Pot Tender	$59.07	15J	11P	8Y	View
King	Laborers	Powderman	$60.90	15J	11P	8Y	View
King	Laborers	Powderman's Helper	$59.07	15J	11P	8Y	View
King	Laborers	Power Jacks	$60.15	15J	11P	8Y	View
King	Laborers	Railroad Spike Puller - Power	$60.15	15J	11P	8Y	View
King	Laborers	Raker - Asphalt	$62.49	15J	11P	8Y	View
King	Laborers	Re-timberman	$60.90	15J	11P	8Y	View
King	Laborers	Remote Equipment Operator	$60.15	15J	11P	8Y	View
King	Laborers	Rigger/Signal Person	$60.15	15J	11P	8Y	View
King	Laborers	Rip Rap Person	$59.07	15J	11P	8Y	View
King	Laborers	Rivet Buster	$60.15	15J	11P	8Y	View
King	Laborers	Rodder	$60.15	15J	11P	8Y	View
King	Laborers	Scaffold Erector	$59.07	15J	11P	8Y	View
King	Laborers	Scale Person	$59.07	15J	11P	8Y	View
King	Laborers	Sloper (Over 20")	$60.15	15J	11P	8Y	View
King	Laborers	Sloper Sprayer	$59.07	15J	11P	8Y	View
King	Laborers	Spreader (Concrete)	$60.15	15J	11P	8Y	View
King	Laborers	Stake Hopper	$59.07	15J	11P	8Y	View
King	Laborers	Stock Piler	$59.07	15J	11P	8Y	View
King	Laborers	Swinging Stage/Boatswain Chair	$50.07	15J	11P	8Y	View
King	Laborers	Tamper & Similar Electric, Air & Gas Operated Tools	$60.15	15J	11P	8Y	View
King	Laborers	Tamper (Multiple & Self-propelled)	$60.15	15J	11P	8Y	View
King	Laborers	Timber Person - Sewer (Lagger, Shorer & Cribber)	$60.15	15J	11P	8Y	View
King	Laborers	Toolroom Person (at Jobsite)	$59.07	15J	11P	8Y	View
King	Laborers	Topper	$59.07	15J	11P	8Y	View
King	Laborers	Track Laborer	$59.07	15J	11P	8Y	View
King	Laborers	Track Liner (Power)	$60.15	15J	11P	8Y	View
King	Laborers	Traffic Control Laborer	$53.54	15J	11P	9C	View
King	Laborers	Traffic Control Supervisor	$56.73	15J	11P	9C	View

King	Laborers	Truck Spotter	$59.07	15J	11P	8Y	View
King	Laborers	Tugger Operator	$60.15	15J	11P	8Y	View
King	Laborers	Tunnel Work-Compressed Air Worker 0-30 psi	$175.79	15J	11P	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 30.01-44.00 psi	$180.82	15J	11P	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 44.01-54.00 psi	$184.50	15J	11P	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 54.01-60.00 psi	$190.20	15J	11P	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 60.01-64.00 psi	$192.32	15J	11P	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 64.01-68.00 psi	$197.42	15J	11P	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 68.01-70.00 psi	$199.32	15J	11P	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 70.01-72.00 psi	$201.32	15J	11P	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 72.01-74.00 psi	$203.32	15J	11P	9B	View
King	Laborers	Tunnel Work-Guage and Lock Tender	$62.59	15J	11P	8Y	View
King	Laborers	Tunnel Work-Miner	$62.59	15J	11P	8Y	View
King	Laborers	Vibrator	$60.15	15J	11P	8Y	View
King	Laborers	Vinyl Seamer	$59.07	15J	11P	8Y	View
King	Laborers	Watchman	$45.51	15J	11P	8Y	View
King	Laborers	Welder	$60.15	15J	11P	8Y	View
King	Laborers	Well Point Laborer	$60.15	15J	11P	8Y	View
King	Laborers	Window Washer/Cleaner	$45.51	15J	11P	8Y	View
King	Laborers - Underground Sewer & Water	General Laborer & Topman	$59.07	15J	11P	8Y	View
King	Laborers - Underground Sewer & Water	Pipe Layer	$60.15	15J	11P	8Y	View
King	Landscape Construction	Landscape Construction/ Landscaping Or Planting Laborers	$45.51	15J	11P	8Y	View
King	Landscape Construction	Landscape Operator	$82.25	15J	11G	8X	View
King	Landscape Maintenance	Groundskeeper	$17.87		1		View
King	Lathers	Journey Level	$75.73	15O	11S		View
King	Marble Setters	Journey Level	$69.07	7E	1N		View
King	Metal Fabrication (In Shop)	Fitter/Certified Welder	$42.17	15I	11E		View
King	Metal Fabrication (In Shop)	General Laborer	$30.07	15I	11E		View
King	Metal Fabrication (In Shop)	Mechanic	$43.63	15I	11E		View
King	Metal Fabrication (In Shop)	Welder/Burner	$39.28	15I	11E		View
King	Millwright	Journey Level	$76.51	15J	4C		View
King	Modular Buildings	Cabinet Assembly	$16.28		1		View
King	Modular Buildings	Electrician	$16.28		1		View
King	Modular Buildings	Equipment Maintenance	$16.28		1		View
King	Modular Buildings	Plumber	$16.28		1		View
King	Modular Buildings	Production Worker	$16.28		1		View
King	Modular Buildings	Tool Maintenance	$16.28		1		View

King	Modular Buildings	Utility Person	$16.28		1		View
King	Modular Buildings	Welder	$16.28		1		View
King	Painters	Journey Level	$51.71	6Z	11J		View
King	Pile Driver	Crew Tender	$80.82	15J	4C		View
King	Pile Driver	Journey Level	$75.41	15J	4C		View
King	Plasterers	Journey Level	$70.91	7Q	1R		View
King	Plasterers	Nozzleman	$74.91	7Q	1R		View
King	Playground & Park Equipment Installers	Journey Level	$16.28		1		View
King	Plumbers & Pipefitters	Journey Level	$103.19	6Z	1G		View
King	Power Equipment Operators	Asphalt Plant Operators	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Assistant Engineer	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Barrier Machine (zipper)	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Batch Plant Operator: concrete	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Boat Operator	$83.95	7A	11H	8X	View
King	Power Equipment Operators	Bobcat	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Brokk - Remote Demolition Equipment	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Brooms	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Bump Cutter	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Cableways	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Chipper	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Compressor	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Concrete Finish Machine - Laser Screed	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Concrete Pump: Truck Mount With Boom Attachment Over 42 M	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Conveyors	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Cranes Friction: 200 tons and over	$86.48	7A	11H	8X	View
King	Power Equipment Operators	Cranes, A-frame: 10 tons and under	$78.95	7A	11H	8X	View
King	Power Equipment Operators	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	$84.77	7A	11H	8X	View
King	Power Equipment Operators	Cranes: 20 tons through 44 tons with attachments	$83.20	7A	11H	8X	View
King	Power Equipment Operators	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	$85.66	7A	11H	8X	View
King	Power Equipment Operators	Cranes: 300 tons and over or 300' of boom including jib with attachments	$86.48	7A	11H	8X	View

King	Power Equipment Operators	Cranes: 45 tons through 99 tons, under 150' of boom(including jib with attachments)	$83.95	7A	11H	8X	View
King	Power Equipment Operators	Cranes: Friction cranes through 199 tons	$85.66	7A	11H	8X	View
King	Power Equipment Operators	Cranes: through 19 tons with attachments, a-frame over 10 tons	$82.56	7A	11H	8X	View
King	Power Equipment Operators	Crusher	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Deck Engineer/Deck Winches (power)	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Derricks, On Building Work	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Dozers D-9 & Under	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Drill Oilers: Auger Type, Truck Or Crane Mount	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Drilling Machine	$84.46	15J	11G	8X	View
King	Power Equipment Operators	Elevator and man-lift: permanent and shaft type	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Finishing Machine, Bidwell And Gamaco & Similar Equipment	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Forklift: 3000 lbs and over with attachments	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Forklifts: under 3000 lbs. with attachments	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Grade Engineer: Using Blue Prints, Cut Sheets, Etc	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Gradechecker/Stakeman	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Guardrail Punch	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Horizontal/Directional Drill Locator	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Horizontal/Directional Drill Operator	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Hydralifts/Boom Trucks Over 10 Tons	$82.56	7A	11H	8X	View
King	Power Equipment Operators	Hydralifts/boom trucks: 10 tons and under	$78.95	7A	11H	8X	View
King	Power Equipment Operators	Leverman	$85.33	15J	11G	8X	View
King	Power Equipment Operators	Loader, Overhead, 6 Yards. But Not Including 8 Yards	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Loaders, Overhead Under 6 Yards	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Loaders, Plant Feed	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Loaders: Elevating Type Belt	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Locomotives, All	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Material Transfer Device	$82.88	15J	11G	8X	View

King	Power Equipment Operators	Mechanics: All (Leadmen - $0.50 per hour over mechanic)	$84.46	15J	11G	8X	View
King	Power Equipment Operators	Motor Patrol Graders	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Oil Distributors, Blower Distribution & Mulch Seeding Operator	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Outside Hoists (Elevators and Manlifts), Air Tuggers, Strato	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Overhead, bridge type Crane: 20 tons through 44 tons	$83.20	7A	11H	8X	View
King	Power Equipment Operators	Overhead, bridge type: 100 tons and over	$84.77	7A	11H	8X	View
King	Power Equipment Operators	Overhead, bridge type: 45 tons through 99 tons	$83.95	7A	11H	8X	View
King	Power Equipment Operators	Pavement Breaker	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Pile Driver (other Than Crane Mount)	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Plant Oiler - Asphalt, Crusher	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Posthole Digger, Mechanical	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Power Plant	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Pumps - Water	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Quad 9, Hd 41, D10 And Over	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Quick Tower: no cab, under 100 feet in height base to boom	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Remote Control Operator On Rubber Tired Earth Moving Equipment	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Rigger and Bellman	$78.95	7A	11H	8X	View
King	Power Equipment Operators	Rigger/Signal Person, Bellman(Certified)	$82.56	7A	11H	8X	View
King	Power Equipment Operators	Rollagon	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Roller, Other Than Plant Mix	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Roller, Plant Mix Or Multi-lift Materials	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Roto-mill, Roto-grinder	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Saws - Concrete	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Scraper, Self Propelled Under 45 Yards	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Scrapers - Concrete & Carry All	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Scrapers, Self-propelled: 45 Yards And Over	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Service Engineers: Equipment	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Shotcrete/Gunite Equipment	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Shovel, Excavator, Backhoe, Tractors Under 15 Metric Tons	$82.25	15J	11G	8X	View

King	Power Equipment Operators	Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons	$84.46	15J	11G	8X	View
King	Power Equipment Operators	Shovel, Excavator, Backhoes: Over 90 Metric Tons	$85.33	15J	11G	8X	View
King	Power Equipment Operators	Slipform Pavers	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Spreader, Topsider & Screedman	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Subgrader Trimmer	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Tower Bucket Elevators	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Tower Crane: over 175' through 250' in height, base to boom	$85.66	7A	11H	8X	View
King	Power Equipment Operators	Tower crane: up to 175' in height base to boom	$84.77	7A	11H	8X	View
King	Power Equipment Operators	Tower Cranes: over 250' in height from base to boom	$86.48	7A	11H	8X	View
King	Power Equipment Operators	Transporters, All Track Or Truck Type	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Trenching Machines	$82.25	15J	11G	8X	View
King	Power Equipment Operators	Truck Crane Oiler/Driver: 100 tons and over	$83.20	7A	11H	8X	View
King	Power Equipment Operators	Truck crane oiler/driver: under 100 tons	$82.56	7A	11H	8X	View
King	Power Equipment Operators	Truck Mount Portable Conveyor	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Vac Truck (Vactor Guzzler, Hydro Excavator)	$82.88	15J	11G	8X	View
King	Power Equipment Operators	Welder	$83.62	15J	11G	8X	View
King	Power Equipment Operators	Wheel Tractors, Farmall Type	$78.65	15J	11G	8X	View
King	Power Equipment Operators	Yo Yo Pay Dozer	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Asphalt Plant Operators	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Assistant Engineer	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Barrier Machine (zipper)	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Batch Plant Operator, Concrete	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Boat Operator	$83.95	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Bobcat	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Brokk - Remote Demolition Equipment	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Brooms	$78.65	15J	11G	8X	View

King	Power Equipment Operators-Underground Sewer & Water	Bump Cutter	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cableways	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Chipper	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Compressor	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Concrete Finish Machine - Laser Screed	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Concrete Pump: Truck Mount With Boom Attachment Over 42 M	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Conveyors	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes Friction: 200 tons and over	$86.48	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes, A-frame: 10 tons and under	$78.95	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	$84.77	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: 20 tons through 44 tons with attachments	$83.20	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	$85.66	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: 300 tons and over or 300' of boom including jib with attachments	$86.48	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: 45 tons through 99 tons, under 150' of boom(including jib with attachments)	$83.95	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: Friction cranes through 199 tons	$85.66	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: through 19 tons with attachments, a-frame over 10 tons	$82.56	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Crusher	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Deck Engineer/Deck Winches (power)	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Derricks, On Building Work	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Dozers D-9 & Under	$82.25	15J	11G	8X	View

King	Power Equipment Operators-Underground Sewer & Water	Drill Oilers: Auger Type, Truck Or Crane Mount	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Drilling Machine	$84.46	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Elevator and man-lift: permanent and shaft type	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Finishing Machine, Bidwell And Gamaco & Similar Equipment	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Forklift: 3000 lbs and over with attachments	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Forklifts: under 3000 lbs. with attachments	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Grade Engineer: Using Blue Prints, Cut Sheets, Etc	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Gradechecker/Stakeman	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Guardrail Punch	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Horizontal/Directional Drill Locator	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Horizontal/Directional Drill Operator	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Hydralifts/boom trucks: 10 tons and under	$78.95	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Hydralifts/boom trucks: over 10 tons	$82.56	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Leverman	$85.33	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Loader, Overhead, 6 Yards. But Not Including 8 Yards	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Loaders, Overhead Under 6 Yards	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Loaders, Plant Feed	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Loaders: Elevating Type Belt	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Locomotives, All	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Material Transfer Device	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Mechanics: All (Leadmen - $0.50 per hour over mechanic)	$84.46	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Motor Patrol Graders	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	$83.62	15J	11G	8X	View

King	Power Equipment Operators-Underground Sewer & Water	Oil Distributors, Blower Distribution & Mulch Seeding Operator	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Outside Hoists (Elevators and Manlifts), Air Tuggers, Strato	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Overhead, bridge type Crane: 20 tons through 44 tons	$83.20	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Overhead, bridge type: 100 tons and over	$84.77	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Overhead, bridge type: 45 tons through 99 tons	$83.95	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Pavement Breaker	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Pile Driver (other Than Crane Mount)	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Plant Oiler - Asphalt, Crusher	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Posthole Digger, Mechanical	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Power Plant	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Pumps - Water	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Quad 9, Hd 41, D10 And Over	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Quick Tower: no cab, under 100 feet in height base to boom	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Remote Control Operator On Rubber Tired Earth Moving Equipment	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Rigger and Bellman	$78.95	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Rigger/Signal Person, Bellman(Certified)	$82.56	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Rollagon	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Roller, Other Than Plant Mix	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Roller, Plant Mix Or Multi-lift Materials	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Roto-mill, Roto-grinder	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Saws - Concrete	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Scraper, Self Propelled Under 45 Yards	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Scrapers - Concrete & Carry All	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Scrapers, Self-propelled: 45 Yards And Over	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Shotcrete/Gunite Equipment	$78.65	15J	11G	8X	View

King	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoe, Tractors Under 15 Metric Tons	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons	$84.46	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes: Over 90 Metric Tons	$85.33	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Slipform Pavers	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Spreader, Topsider & Screedman	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Subgrader Trimmer	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Tower Bucket Elevators	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Tower Crane: over 175' through 250' in height, base to boom	$85.66	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Tower crane: up to 175' in height base to boom	$84.77	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Tower Cranes: over 250' in height from base to boom	$86.48	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Transporters, All Track Or Truck Type	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Trenching Machines	$82.25	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Truck Crane Oiler/Driver: 100 tons and over	$83.20	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Truck crane oiler/driver: under 100 tons	$82.56	7A	11H	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Truck Mount Portable Conveyor	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Vac Truck (Vactor Guzzler, Hydro Excavator)	$82.88	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Welder	$83.62	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Wheel Tractors, Farmall Type	$78.65	15J	11G	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Yo Yo Pay Dozer	$82.88	15J	11G	8X	View
King	Power Line Clearance Tree Trimmers	Journey Level In Charge	$57.22	5A	4A		View
King	Power Line Clearance Tree Trimmers	Spray Person	$54.32	5A	4A		View
King	Power Line Clearance Tree Trimmers	Tree Equipment Operator	$57.22	5A	4A		View
King	Power Line Clearance Tree Trimmers	Tree Trimmer	$51.18	5A	4A		View

King	Power Line Clearance Tree Trimmers	Tree Trimmer Groundperson	$38.99	5A	4A		View
King	Refrigeration & Air Conditioning Mechanics	Journey Level	$95.89	6Z	1G		View
King	Residential Brick Mason	Journey Level	$69.07	7E	1N		View
King	Residential Carpenters	Journey Level	$36.44		1		View
King	Residential Cement Masons	Journey Level	$46.64		1		View
King	Residential Drywall Applicators	Journey Level	$74.96	15J	4C		View
King	Residential Drywall Tapers	Journey Level	$36.36		1		View
King	Residential Electricians	Journey Level	$48.80		1		View
King	Residential Glaziers	Journey Level	$28.93		1		View
King	Residential Insulation Applicators	Journey Level	$28.18		1		View
King	Residential Laborers	Journey Level	$29.73		1		View
King	Residential Marble Setters	Journey Level	$27.38		1		View
King	Residential Painters	Journey Level	$23.47		1		View
King	Residential Plumbers & Pipefitters	Journey Level	$45.40		1		View
King	Residential Refrigeration & Air Conditioning Mechanics	Journey Level	$96.42	7F	1E		View
King	Residential Sheet Metal Workers	Journey Level	$96.42	7F	1E		View
King	Residential Soft Floor Layers	Journey Level	$57.11	5A	3J		View
King	Residential Sprinkler Fitters (Fire Protection)	Journey Level	$63.61		1		View
King	Residential Stone Masons	Journey Level	$69.07	7E	1N		View
King	Residential Terrazzo Workers	Journey Level	$62.36	7E	1N		View
King	Residential Terrazzo/Tile Finishers	Journey Level	$24.39		1		View
King	Residential Tile Setters	Journey Level	$21.04		1		View
King	Roofers	Journey Level	$64.45	5A	3H		View
King	Roofers	Using Irritable Bituminous Materials	$67.39	5A	3H		View
King	Sheet Metal Workers	Journey Level (Field or Shop)	$96.42	7F	1E		View
King	Shipbuilding & Ship Repair	New Construction Boilermaker	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	New Construction Carpenter	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	New Construction Crane Operator	$43.16	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Electrician	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	New Construction Heat & Frost Insulator	$87.15	15H	11C		View
King	Shipbuilding & Ship Repair	New Construction Laborer	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	New Construction Machinist	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	New Construction Operating Engineer	$43.16	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Painter	$51.95	7X	4J		View
King	Shipbuilding & Ship Repair	New Construction Pipefitter	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	New Construction Rigger	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	New Construction Sheet Metal	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	New Construction Shipwright	$51.85	7X	4J		View

King	Shipbuilding & Ship Repair	New Construction Warehouse/ Teamster	$43.16	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Welder / Burner	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Boilermaker	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Carpenter	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Crane Operator	$45.06	7Y	4K		View
King	Shipbuilding & Ship Repair	Ship Repair Electrician	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Heat & Frost Insulator	$87.15	15H	11C		View
King	Shipbuilding & Ship Repair	Ship Repair Laborer	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Machinist	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Operating Engineer	$45.06	7Y	4K		View
King	Shipbuilding & Ship Repair	Ship Repair Painter	$51.95	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Pipefitter	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Rigger	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Sheet Metal	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Shipwright	$51.85	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Warehouse / Teamster	$45.06	7Y	4K		View
King	Sign Makers & Installers (Electrical)	Journey Level	$58.04	0	1		View
King	Sign Makers & Installers (Non-Electrical)	Journey Level	$37.08	0	1		View
King	Soft Floor Layers	Journey Level	$66.32	15J	4C		View
King	Solar Controls For Windows	Journey Level	$16.28		1		View
King	Sprinkler Fitters (Fire Protection)	Journey Level	$95.49	5C	1X		View
King	Stage Rigging Mechanics (Non Structural)	Journey Level	$16.28		1		View
King	Stone Masons	Journey Level	$69.07	7E	1N		View
King	Street And Parking Lot Sweeper Workers	Journey Level	$19.09		1		View
King	Surveyors	Assistant Construction Site Surveyor	$82.56	7A	11H	8X	View
King	Surveyors	Chainman	$78.95	7A	11H	8X	View
King	Surveyors	Construction Site Surveyor	$83.95	7A	11H	8X	View
King	Surveyors	Drone Operator (when used in conjunction with survey work only)	$78.95	7A	11H	8X	View
King	Surveyors	Ground Penetrating Radar Operator	$78.95	7A	11H	8X	View
King	Telecommunication Technicians	Journey Level	$65.66	7E	1E		View
King	Telephone Line Construction - Outside	Cable Splicer	$40.36	5A	2B		View
King	Telephone Line Construction - Outside	Hole Digger/Ground Person	$26.92	5A	2B		View
King	Telephone Line Construction - Outside	Telephone Equipment Operator (Light)	$33.74	5A	2B		View

King	Telephone Line Construction - Outside	Telephone Lineperson	$38.15	5A	2B		View
King	Terrazzo Workers	Journey Level	$62.36	7E	1N		View
King	Tile Setters	Journey Level	$62.36	7E	1N		View
King	Tile, Marble & Terrazzo Finishers	Finisher	$53.19	7E	1N		View
King	Traffic Control Stripers	Journey Level	$89.54	15L	1K		View
King	Truck Drivers	Asphalt Mix Over 16 Yards	$74.95	15J	11M	8L	View
King	Truck Drivers	Asphalt Mix To 16 Yards	$74.02	15J	11M	8L	View
King	Truck Drivers	Dump Truck	$74.02	15J	11M	8L	View
King	Truck Drivers	Dump Truck & Trailer	$74.95	15J	11M	8L	View
King	Truck Drivers	Other Trucks	$74.95	15J	11M	8L	View
King	Truck Drivers - Ready Mix	Transit Mix	$74.95	15J	11M	8L	View
King	Well Drillers & Irrigation Pump Installers	Irrigation Pump Installer	$17.71		1		View
King	Well Drillers & Irrigation Pump Installers	Oiler	$16.28		1		View
King	Well Drillers & Irrigation Pump Installers	Well Driller	$18.00		1		View

Washington State Department of Labor and Industries
Policy Statement
(Regarding the Production of "Standard" or "Non-standard" Items)

Below is the department's (State L&I's) list of criteria to be used in determining whether a prefabricated item is "standard" or "non-standard". For items not appearing on WSDOT's predetermined list, these criteria shall be used by the Contractor (and the Contractor's subcontractors, agents to subcontractors, suppliers, manufacturers, and fabricators) to determine coverage under RCW 39.12. The production, in the State of Washington, of non-standard items is covered by RCW 39.12, and the production of standard items is not. The production of any item outside the State of Washington is not covered by RCW 39.12.

1. Is the item fabricated for a public works project? If not, it is not subject to RCW 39.12. If it is, go to question 2.

2. Is the item fabricated on the public works jobsite? If it is, the work is covered under RCW 39.12. If not, go to question 3.

3. Is the item fabricated in an assembly/fabrication plant set up for, and dedicated primarily to, the public works project? If it is, the work is covered by RCW 39.12. If not, go to question 4.

4. Does the item require any assembly, cutting, modification or other fabrication by the supplier? If not, the work is not covered by RCW 39.12. If yes, go to question 5.

5. Is the prefabricated item intended for the public works project typically an inventory item which could reasonably be sold on the general market? If not, the work is covered by RCW 39.12. If yes, go to question 6.

6. Does the specific prefabricated item, generally defined as standard, have any unusual characteristics such as shape, type of material, strength requirements, finish, etc? If yes, the work is covered under RCW 39.12.

Any firm with questions regarding the policy, WSDOT's Predetermined List, or for determinations of covered and non-covered workers shall be directed to State L&I at (360) 902-5330.

WSDOT's
Predetermined List for
Suppliers - Manufactures - Fabricator

Below is a list of potentially prefabricated items, originally furnished by WSDOT to Washington State Department of Labor and Industries, that may be considered non-standard and therefore covered by the prevailing wage law, RCW 39.12. Items marked with an X in the "YES" column should be considered to be non-standard and therefore covered by RCW 39.12. Items marked with an X in the "NO" column should be considered to be standard and therefore not covered. Of course, exceptions to this general list may occur, and in that case shall be evaluated according to the criteria described in State and L&I's policy statement.

	ITEM DESCRIPTION	YES	NO
1.	Metal rectangular frames, solid metal covers, herringbone grates, and bi-directional vaned grates for Catch Basin Types 1, 1L, 1P, and 2 and Concrete Inlets. See Std. Plans		X
2.	Metal circular frames (rings) and covers, circular grates, and prefabricated ladders for Manhole Types 1, 2, and 3, Drywell Types 1, 2, and 3 and Catch Basin Type 2. See Std. Plans		X
3.	Prefabricated steel grate supports and welded grates, metal frames and dual vaned grates, and Type 1, 2, and 3 structural tubing grates for Drop Inlets. See Std. Plans.		X
4.	Concrete Pipe - Plain Concrete pipe and reinforced concrete pipe Class 2 to 5 sizes smaller than 60 inch diameter.		X
5.	Concrete Pipe - Plain Concrete pipe and reinforced concrete pipe Class 2 to 5 sizes larger than 60 inch diameter.		X
6.	Corrugated Steel Pipe - Steel lock seam corrugated pipe for culverts and storm sewers, sizes 30 inch to 120 inches in diameter. May also be treated, 1 thru 5.		X
7.	Corrugated Aluminum Pipe - Aluminum lock seam corrugated pipe for culverts and storm sewers, sizes 30 inch to 120 inches in diameter. May also be treated, #5.		X

	ITEM DESCRIPTION	YES	NO
8.	Anchor Bolts & Nuts - Anchor Bolts and Nuts, for mounting sign structures, luminaries and other items, shall be made from commercial bolt stock. See Contract Plans and Std. Plans for size and material type.		X
9.	Aluminum Pedestrian Handrail - Pedestrian handrail conforming to the type and material specifications set forth in the contract plans. Welding of aluminum shall be in accordance with Section 9-28.14(3).	X	
10.	Major Structural Steel Fabrication - Fabrication of major steel items such as trusses, beams, girders, etc., for bridges.	X	
11.	Minor Structural Steel Fabrication - Fabrication of minor steel Items such as special hangers, brackets, access doors for structures, access ladders for irrigation boxes, bridge expansion joint systems, etc., involving welding, cutting, punching and/or boring of holes. See Contact Plans for item description and shop drawings.	X	
12.	Aluminum Bridge Railing Type BP - Metal bridge railing conforming to the type and material specifications set forth in the Contract Plans. Welding of aluminum shall be in accordance with Section 9-28.14(3).		X
13.	Concrete Piling--Precast-Prestressed concrete piling for use as 55 and 70 ton concrete piling. Concrete to conform to Section 9-19.1 of Std. Spec..	X	
14.	Precast Manhole Types 1, 2, and 3 with cones, adjustment sections and flat top slabs. See Std. Plans.		X
15.	Precast Drywell Types 1, 2, and with cones and adjustment Sections. See Std. Plans.		X
16.	Precast Catch Basin - Catch Basin type 1, 1L, 1P, and 2 With adjustment sections. See Std. Plans.		X

	ITEM DESCRIPTION	YES	NO
17.	Precast Concrete Inlet - with adjustment sections, See Std. Plans		X
18.	Precast Drop Inlet Type 1 and 2 with metal grate supports. See Std. Plans.		X
19.	Precast Grate Inlet Type 2 with extension and top units. See Std. Plans		X
20.	Metal frames, vaned grates, and hoods for Combination Inlets. See Std. Plans		X
21.	Precast Concrete Utility Vaults - Precast Concrete utility vaults of various sizes. Used for in ground storage of utility facilities and controls. See Contract Plans for size and construction requirements. Shop drawings are to be provided for approval prior to casting		X
22.	Vault Risers - For use with Valve Vaults and Utilities X Vaults.		X
23.	Valve Vault - For use with underground utilities. See Contract Plans for details.		X
24.	Precast Concrete Barrier - Precast Concrete Barrier for use as new barrier or may also be used as Temporary Concrete Barrier. Only new state approved barrier may be used as permanent barrier.		X
25.	Reinforced Earth Wall Panels – Reinforced Earth Wall Panels in size and shape as shown in the Plans. Fabrication plant has annual approval for methods and materials to be used. See Shop Drawing. Fabrication at other locations may be approved, after facilities inspection, contact HQ. Lab.	X	
26.	Precast Concrete Walls - Precast Concrete Walls - tilt-up wall panel in size and shape as shown in Plans. Fabrication plant has annual approval for methods and materials to be used	X	

	ITEM DESCRIPTION	YES	NO
27.	Precast Railroad Crossings - Concrete Crossing Structure Slabs.	X	
28.	12, 18 and 26 inch Standard Precast Prestressed Girder – Standard Precast Prestressed Girder for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A	X	
29.	Prestressed Concrete Girder Series 4-14 - Prestressed Concrete Girders for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A .	X	
30.	Prestressed Tri-Beam Girder - Prestressed Tri-Beam Girders for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A	X	
31.	Prestressed Precast Hollow-Core Slab – Precast Prestressed Hollow-core slab for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A.	X	
32.	Prestressed-Bulb Tee Girder - Bulb Tee Prestressed Girder for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A	X	
33.	Monument Case and Cover See Std. Plan.		X

	ITEM DESCRIPTION	YES	NO
34.	Cantilever Sign Structure - Cantilever Sign Structure fabricated from steel tubing meeting AASHTO-M-183. See Std. Plans, and Contract Plans for details. The steel structure shall be galvanized after fabrication in accordance with AASHTO-M-111.	X	
35.	Mono-tube Sign Structures - Mono-tube Sign Bridge fabricated to details shown in the Plans. Shop drawings for approval are required prior to fabrication.	X	
36.	Steel Sign Bridges - Steel Sign Bridges fabricated from steel tubing meeting AASHTO-M-138 for Aluminum Alloys. See Std. Plans, and Contract Plans for details. The steel structure shall be galvanized after fabrication in accordance with AASHTO-M-111.	X	
37.	Steel Sign Post - Fabricated Steel Sign Posts as detailed in Std Plans. Shop drawings for approval are to be provided prior to fabrication		X
38.	Light Standard-Prestressed - Spun, prestressed, hollow concrete poles.	X	
39.	Light Standards - Lighting Standards for use on highway illumination systems, poles to be fabricated to conform with methods and materials as specified on Std. Plans. See Specia Provisions for pre-approved drawings.	X	
40.	Traffic Signal Standards - Traffic Signal Standards for use on highway and/or street signal systems. Standards to be fabricated to conform with methods and material as specified on Std. Plans. See Special Provisions for pre-approved drawings	X	
41.	Precast Concrete Sloped Mountable Curb (Single and DualFaced) See Std. Plans.		X

	ITEM DESCRIPTION	YES	NO
42.	Traffic Signs - Prior to approval of a Fabricator of Traffic Signs, the sources of the following materials must be submitted and approved for reflective sheeting, legend material, and aluminum sheeting. **NOTE:** *** Fabrication inspection required. Only signs tagged "Fabrication Approved" by WSDOT Sign Fabrication Inspector to be installed	X	X
		Custom Message	Std Signing Message
43.	Cutting & bending reinforcing steel		X
44.	Guardrail components	X	X
		Custom End Sec	Standard Sec
45.	Aggregates/Concrete mixes	Covered by WAC 296-127-018	
46.	Asphalt	Covered by WAC 296-127-018	
47.	Fiber fabrics		X
48.	Electrical wiring/components		X
49.	treated or untreated timber pile		X
50.	Girder pads (elastomeric bearing)	X	
51.	Standard Dimension lumber		X
52.	Irrigation components		X

ITEM DESCRIPTION	YES	NO
53. Fencing materials		X
54. Guide Posts		X
55. Traffic Buttons		X
56. Epoxy		X
57. Cribbing		X
58. Water distribution materials		X
59. Steel "H" piles		X
60. Steel pipe for concrete pile casings		X
61. Steel pile tips, standard		X
62. Steel pile tips, custom	X	

Prefabricated items specifically produced for public works projects that are prefabricated in a county other than the county wherein the public works project is to be completed, the wage for the offsite prefabrication shall be the applicable prevailing wage for the county in which the actual prefabrication takes place.

It is the manufacturer of the prefabricated product to verify that the correct county wage rates are applied to work they perform.

See RCW 39.12.010
(The definition of "locality" in RCW 39.12.010(2) contains the phrase "wherein the physical work is being performed." The department interprets this phrase to mean the actual work site.

WSDOT's List of State Occupations not applicable to Heavy and Highway Construction Projects

This project is subject to the state hourly minimum rates for wages and fringe benefits in the contract provisions, as provided by the state Department of Labor and Industries.
The following list of occupations, is comprised of those occupations that are not normally used in the construction of heavy and highway projects.
When considering job classifications for use and / or payment when bidding on, or building heavy and highway construction projects for, or administered by WSDOT, these Occupations will be excepted from the included "Washington State Prevailing Wage Rates For Public Work Contracts" documents.

- Building Service Employees
- Electrical Fixture Maintenance Workers
- Electricians - Motor Shop
- Heating Equipment Mechanics
- Industrial Engine and Machine Mechanics
- Industrial Power Vacuum Cleaners
- Inspection, Cleaning, Sealing of Water Systems by Remote Control
- Laborers - Underground Sewer & Water
- Machinists (Hydroelectric Site Work)
- Modular Buildings
- Playground & Park Equipment Installers
- Power Equipment Operators - Underground Sewer & Water
- Residential *** ALL ASSOCIATED RATES ***
- Sign Makers and Installers (Non-Electrical)
- Sign Makers and Installers (Electrical)
- Stage Rigging Mechanics (Non Structural)

The following occupations may be used only as outlined in the preceding text concerning "WSDOT's list for Suppliers - Manufacturers - Fabricators"

- Fabricated Precast Concrete Products
- Metal Fabrication (In Shop)

Definitions for the Scope of Work for prevailing wages may be found at the Washington State Department of Labor and Industries web site and in WAC Chapter 296-127.

Washington State Department of Labor and Industries
Policy Statements
(Regarding Production and Delivery of Gravel, Concrete, Asphalt, etc.)

WAC 296-127-018 Agency filings affecting this section

Coverage and exemptions of workers involved in the production and delivery of gravel, concrete, asphalt, or similar materials.

(1) The materials covered under this section include but are not limited to: Sand, gravel, crushed rock, concrete, asphalt, or other similar materials.

(2) All workers, regardless of by whom employed, are subject to the provisions of chapter 39.12 RCW when they perform any or all of the following functions:

(a) They deliver or discharge any of the above-listed materials to a public works project site:

(i) At one or more point(s) directly upon the location where the material will be incorporated into the project; or

(ii) At multiple points at the project; or

(iii) Adjacent to the location and coordinated with the incorporation of those materials.

(b) They wait at or near a public works project site to perform any tasks subject to this section of the rule.

(c) They remove any materials from a public works construction site pursuant to contract requirements or specifications (e.g., excavated materials, materials from demolished structures, clean-up materials, etc.).

(d) They work in a materials production facility (e.g., batch plant, borrow pit, rock quarry, etc.,) which is established for a public works project for the specific, but not necessarily exclusive, purpose of supplying materials for the project.

(e) They deliver concrete to a public works site regardless of the method of incorporation.

(f) They assist or participate in the incorporation of any materials into the public works project.

(3) All travel time that relates to the work covered under subsection (2) of this section requires the payment of prevailing wages. Travel time includes time spent waiting to load, loading, transporting, waiting to unload, and delivering materials. Travel time would include all time spent in travel in support of a public works project whether the vehicle is empty or full. For example, travel time spent returning to a supply source to obtain another load of material for use on a public works site or returning to the public works site to obtain another load of excavated material is time spent in travel that is subject to prevailing wage. Travel to a supply source, including travel from a public works site, to obtain materials for use on a private project would not be travel subject to the prevailing wage.

(4) Workers are not subject to the provisions of chapter 39.12 RCW when they deliver materials to a stockpile.

(a) A "stockpile" is defined as materials delivered to a pile located away from the site of incorporation such that the stockpiled materials must be physically moved from the stockpile and transported to another location on the project site in order to be incorporated into the project.

(b) A stockpile does not include any of the functions described in subsection (2)(a) through (f) of this section; nor does a stockpile include materials delivered or distributed to multiple locations upon the project site; nor does a stockpile include materials dumped at the place of incorporation, or adjacent to the location and coordinated with the incorporation.

(5) The applicable prevailing wage rate shall be determined by the locality in which the work is performed. Workers subject to subsection (2)(d) of this section, who produce such materials at an off-site facility shall be paid the applicable prevailing wage rates for the county in which the off-site facility is located. Workers subject to subsection (2) of this section, who deliver such materials to a public works project site shall be paid the applicable prevailing wage rates for the county in which the public works project is located.

[Statutory Authority: Chapter 39.12 RCW, RCW 43.22.051 and 43.22.270. 08-24-101, § 296-127-018, filed 12/2/08, effective 1/2/09. Statutory Authority: Chapters 39.04 and 39.12 RCW and RCW 43.22.270. 92-01-104 and 92-08-101, § 296-127-018, filed 12/18/91 and 4/1/92, effective 8/31/92.]

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Overtime Codes

Overtime calculations are based on the hourly rate actually paid to the worker. On public works projects, the hourly rate must be not less than the prevailing rate of wage minus the hourly rate of the cost of fringe benefits actually provided for the worker.

1. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

B. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

C. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

D. The first two (2) hours before or after a five-eight (8) hour workweek day or a four-ten (10) hour workweek day and the first eight (8) hours worked the next day after either workweek shall be paid at one and one-half times the hourly rate of wage. All additional hours worked and all worked on Sundays and holidays shall be paid at double the hourly rate of wage.

E. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

F. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.

G. The first ten (10) hours worked on Saturdays and the first ten (10) hours worked on a fifth calendar weekday in a four-ten hour schedule, shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

H. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions or equipment breakdown) shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

I. All hours worked on Sundays and holidays shall also be paid at double the hourly rate of wage.

J. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over ten (10) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage.

K. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.

M. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

1. N. All hours worked on Saturdays (except makeup days) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

O. The first ten (10) hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays, holidays and after twelve (12) hours, Monday through Friday and after ten (10) hours on Saturday shall be paid at double the hourly rate of wage.

P. All hours worked on Saturdays (except makeup days if circumstances warrant) and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.

Q. The first two (2) hours after eight (8) regular hours Monday through Friday and up to ten (10) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays (except Christmas day) shall be paid at double the hourly rate of wage. All hours worked on Christmas day shall be paid at two and one-half times the hourly rate of wage.

R. All hours worked on Sundays and holidays shall be paid at two times the hourly rate of wage.

U. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays (except Labor Day) shall be paid at two times the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.

V. All hours worked on Sundays and holidays (except Thanksgiving Day and Christmas day) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Thanksgiving Day and Christmas day shall be paid at double the hourly rate of wage.

W. All hours worked on Saturdays and Sundays (except make-up days due to conditions beyond the control of the employer)) shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.

X. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over twelve (12) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage. When holiday falls on Saturday or Sunday, the day before Saturday, Friday, and the day after Sunday, Monday, shall be considered the holiday and all work performed shall be paid at double the hourly rate of wage.

Y. All hours worked outside the hours of 5:00 am and 5:00 pm (or such other hours as may be agreed upon by any employer and the employee) and all hours worked in excess of eight (8) hours per day (10 hours per day for a 4 x 10 workweek) and on Saturdays and holidays (except labor day) shall be paid at one and one-half times the hourly rate of wage. (except for employees who are absent from work without prior approval on a scheduled workday during the workweek shall be paid at the straight-time rate until they have worked 8 hours in a day (10 in a 4 x 10 workweek) or 40 hours during that workweek.) All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and Labor Day shall be paid at double the hourly rate of wage.

Z. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid the straight time rate of pay in addition to holiday pay.

Overtime Codes Continued

2. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

   B. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.

   F. The first eight (8) hours worked on holidays shall be paid at the straight hourly rate of wage in addition to the holiday pay. All hours worked in excess of eight (8) hours on holidays shall be paid at double the hourly rate of wage.

   M. This code appears to be missing. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage.

   R. All hours worked on Sundays and holidays and all hours worked over sixty (60) in one week shall be paid at double the hourly rate of wage.

   U. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked over 12 hours in a day or on Sundays and holidays shall be paid at double the hourly rate of wage.

3. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

   F. All hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sunday shall be paid at two times the hourly rate of wage. All hours worked on paid holidays shall be paid at two and one-half times the hourly rate of wage including holiday pay.

   H. All work performed on Sundays between March 16th and October 14th and all Holidays shall be compensated for at two (2) times the regular rate of pay. Work performed on Sundays between October 15th and March 15th shall be compensated at one and one half (1-1/2) times the regular rate of pay.

   J. All hours worked between the hours of 10:00 pm and 5:00 am, Monday through Friday, and all hours worked on Saturdays shall be paid at a one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

   K. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.

   After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more. When an employee returns to work without at least eight (8) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the eight (8) hours rest period.

Overtime Codes Continued

4. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

A. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage

C. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay. On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay, except that if the job is down on Monday through Friday due to weather conditions or other conditions outside the control of the employer, the first ten (10) hours on Saturday may be worked at the straight time rate of pay. All hours worked over twelve (12) hours in a day and all hours worked on Sunday and Holidays shall be paid at two (2) times the straight time rate of pay.

D. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturday, Sundays and holidays shall be paid at double the hourly rate of pay. Rates include all members of the assigned crew.

EXCEPTION:
On all multipole structures and steel transmission lines, switching stations, regulating, capacitor stations, generating plants, industrial plants, associated installations and substations, except those substations whose primary function is to feed a distribution system, will be paid overtime under the following rates:

The first two (2) hours after eight (8) regular hours Monday through Friday of overtime on a regular workday, shall be paid at one and one-half times the hourly rate of wage. All hours in excess of ten (10) hours will be at two (2) times the hourly rate of wage. The first eight (8) hours worked on Saturday will be paid at one and one-half (1-1/2) times the hourly rate of wage. All hours worked in excess of eight (8) hours on Saturday, and all hours worked on Sundays and holidays will be at the double the hourly rate of wage.

All overtime eligible hours performed on the above described work that is energized, shall be paid at the double the hourly rate of wage.

E. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

On a four-day, ten-hour weekly schedule, either Monday thru Thursday or Tuesday thru Friday schedule, all hours worked after ten shall be paid at double the hourly rate of wage. The Monday or Friday not utilized in the normal four-day, ten hour work week, and Saturday shall be paid at one and one half (1½) times the regular shift rate for the first eight (8) hours. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

G. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

I. The First eight (8) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) per day on Saturdays shall be paid at double the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

4. J. The first eight (8) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) hours on a Saturday shall be paid at double the hourly rate of wage. All hours worked over twelve (12) in a day, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.

K. All hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage, so long as Saturday is the sixth consecutive day worked. All hours worked over twelve (12) in a day Monday through Saturday, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.

L. The first twelve (12) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on a Saturday in excess of twelve (12) hours shall be paid at double the hourly rate of pay. All hours worked over twelve (12) in a day Monday through Friday, and all hours worked on Sundays shall be paid at double the hourly rate of wage. All hours worked on a holiday shall be paid at one and one-half times the hourly rate of wage, except that all hours worked on Labor Day shall be paid at double the hourly rate of pay.

S. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, work performed in excess of (10) hours shall be paid at one and one half (1-1/2) times the hourly rate of pay. On Monday through Friday, work performed outside the normal work hours of 6:00 a.m. and 6:00 p.m. shall be paid at one and one-half (1-1/2) times the straight time rate, (except for special shifts or multiple shift operations).

All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed on Sundays and holidays shall be paid at double the hourly rate of wage. When an employee returns to work without at least eight (8) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

Multiple Shift Operations: When the first shift of a multiple shift (a two or three shift) operation is started at the basic straight time rate or at a specific overtime rate, all shifts of that day's operation shall be completed at that rate. Special Shifts: The Special Shift Premium is the basic hourly rate of pay plus $2.00 an hour. When due to conditions beyond the control of the employer or when an owner (not acting as the contractor), a government agency or the contract specifications require more than four (4) hours of a special shift can only be performed outside the normal 6am to 6pm shift then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they shall be paid the special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday).

U. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. (Except on makeup days if work is lost due to inclement weather, then the first eight (8) hours on Saturday may be paid the regular rate.) All hours worked over twelve (12) hours Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

4. V. Work performed in excess of ten (10) hours of straight time per day when four ten (10) hour shifts are established or outside the normal shift (5 am to 6pm), and all work on Saturdays, except for make-up days shall be paid at time and one-half (1 ½) the straight time rate.

In the event the job is down due to weather conditions, then Saturday may, be worked as a voluntary make-up day at the straight time rate. However, Saturday shall not be utilized as a make-up day when a holiday falls on Friday. All work performed on Sundays and holidays and work in excess of twelve (12) hours per day shall be paid at double (2x) the straight time rate of pay.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

When an employee returns to work without a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

X. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage. Work performed outside the normal shift of 6 am to 6pm shall be paid at one and one-half the straight time rate, (except for special shifts or three shift operations). All work performed on Sundays and holidays shall be paid at double the hourly rate of wage. Shifts may be established when considered necessary by the Employer.

The Employer may establish shifts consisting of eight (8) or ten (10) hours of work (subject to WAC 296-127-022), that shall constitute a normal forty (40) hour work week. The Employer can change from a 5-eight to a 4-ten hour schedule or back to the other. All hours of work on these shifts shall be paid for at the straight time hourly rate. Work performed in excess of eight hours (or ten hours per day (subject to WAC 296-127-022) shall be paid at one and one-half the straight time rate.

When due to conditions beyond the control of the Employer, or when contract specifications require that work can only be performed outside the regular day shift, then by mutual agreement a special shift may be worked at the straight time rate, eight (8) hours work for eight (8) hours pay. The starting time shall be arranged to fit such conditions of work.

When an employee returns to work without at a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

11. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

B After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

C The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, and all hours on Sunday shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage. All non-overtime and non-holiday hours worked between 4:00 pm and 5:00 am, Monday through Friday, shall be paid at a premium rate of 15% over the hourly rate of wage.

Overtime Codes Continued

11. D. All hours worked on Saturdays and holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

E. The first two (2) hours after eight (8) regular hours Monday through Friday, the first ten (10) hours on Saturday, and the first ten (10) hours worked on Holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked over ten (10) hours Monday through Saturday, and Sundays shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

F. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

On a four-day, ten-hour weekly schedule, either Monday thru Thursday or Tuesday thru Friday schedule, all hours worked after ten shall be paid at double the hourly rate of wage. The Monday or Friday not utilized in the normal four-day, ten hour work week, and Saturday shall be paid at one-half times the hourly rate of wage for the first eight (8) hours. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

G. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage.

All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of nine (9) hours or more. When an employee returns to work without at least nine (9) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the nine (9) hours rest period.

H. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage.

All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of ten (10) hours or more. When an employee returns to work without at least ten (10) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the ten (10) hours rest period.

Overtime Codes Continued

11. J. All hours worked on holidays shall be paid at double the hourly rate of wage.

K. On Monday through Friday hours worked outside 4:00 am and 5:00 pm, and the first two (2) hours after eight (8) hours worked shall be paid at one and one-half times the hourly rate. All hours worked over 10 hours per day Monday through Friday, and all hours worked on Saturdays, Sundays, and Holidays worked shall be paid at double the hourly rate of wage.

L. An employee working outside 5:00 am and 5:00 pm shall receive an additional two dollar ($2.00) per hour for all hours worked that shift. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.

M. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay.

Work performed outside the normal work hours of 5:00 a.m. and 6:00 p.m. shall be paid at one and one-half (1-1/2) times the straight time rate, (except for special shifts or multiple shift operations). When the first shift of a multiple shift (a two or three shift) operation is started at the basic straight time rate or at a specific overtime rate, all shifts of that day's operation shall be completed at that rate. When due to conditions beyond the control of the Employer or when contract specifications require that work can only be performed outside the regular day shift of 5:00 am to 6:00 pm, then a special shift may be worked at the straight time rate, plus the shift pay premium when applicable. The starting time of work will be arranged to fit such conditions of work. Such shift shall consist of eight (8) hours work for eight (8) hours pay or ten (10) hours work for ten (10) hours pay for four ten shifts.

On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay. All work performed after 6:00 pm Saturday to 5:00 am Monday, all work performed over twelve (12) hours, and all work performed on holidays shall be paid at double the straight time rate of pay.

Shift Pay Premium: In an addition to any overtime already required, all hours worked between the hours of 6:00 pm and 5:00 am shall receive an additional two dollars ($2.00) per hour.

N. All work performed over twelve hours in a shift and all work performed on Sundays and Holidays shall be paid at double the straight time rate.

Any time worked over eight (8) hours on Saturday shall be paid double the straight time rate, except employees assigned to work six 10-hour shifts per week shall be paid double the straight time rate for any time worked on Saturday over 10 hours.

O. All work performed on Saturdays, Sundays, and Holidays shall be paid at one and one half (1-1/2) times the straight time rate of pay.

Overtime Codes Continued

11. P. Work performed in excess of ten (10) hours of straight time per day when four ten (10) hour shifts are established and all work on Saturdays, except for make-up days shall be paid at time and one-half (1 ½) the straight time rate.

Work performed outside the normal work hours of 5:00 a.m. and 6:00 p.m. shall be paid at one and one-half (1-1/2) times the straight time rate, (except for special shifts or multiple shift operations). When the first shift of multiple shift (a two or three shift) operation is started at the basic straight time rate or at a specific overtime rate, all shifts of that day's operation shall be completed at that rate. When due to conditions beyond the control of the Employer or when contract specifications require that work can only be performed outside the regular day shift of 5:00 a.m. to 6:00 p.m., then a special shift may be worked at the straight time rate, plus the shift pay premium when applicable. The starting time of work will be arranged to fit such conditions of work. Such shifts shall consist of eight (8) hours work for eight (8) hours pay or ten (10) hours work for ten (10) hours pay for four ten-hour shifts.

In the event the job is down due to weather conditions, then Saturday may, be worked as a voluntary make-up day at the straight time rate. However, Saturday shall not be utilized as a make-up day when a holiday falls on Friday. All work performed on Sundays and holidays and work in excess of twelve (12) hours per day shall be paid at double (2x) the straight time rate of pay.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

When an employee returns to work without a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

Q. All hours worked between the hours of 6:00 pm and 6:00 am, Monday through Saturday, shall be paid at a premium rate of 35% over the hourly rate of wage. Work performed on Sundays shall be paid at double time. All hours worked on holidays shall be paid at double the hourly rate of wage.

R On Monday through Saturday hours worked outside 6:00 am and 7:00 pm, and all hours after eight (8) hours worked shall be paid at one and one-half times the hourly rate. All hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.

S. The first ten (10) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. In the event the job is down due to weather conditions, or other conditions beyond the control of the Employer, then Saturday may be worked at the straight time rate, for the first eight (8) hours, or the first ten (10) hours when a four day ten hour workweek has been established.

All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

When an employee returns to work without a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

Holiday Codes

5. A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, and Christmas Day (7).

B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, the day before Christmas, and Christmas Day (8).

C. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8).

D. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8).

H. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Day after Thanksgiving Day, And Christmas (6).

I. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6).

K. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday After Thanksgiving Day, The Day Before Christmas, And Christmas Day (9).

L. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (8).

N. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, The Friday After Thanksgiving Day, And Christmas Day (9).

P. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday And Saturday After Thanksgiving Day, The Day Before Christmas, And Christmas Day (9). If A Holiday Falls On Sunday, The Following Monday Shall Be Considered As A Holiday.

Q. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6).

R. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Day After Thanksgiving Day, One-Half Day Before Christmas Day, And Christmas Day. (7 1/2).

S. Paid Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, And Christmas Day (7).

Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8).

G. Paid Holidays: New Year's Day, Martin Luther King Jr. Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and Christmas Eve Day (11).

H. Paid Holidays: New Year's Day, New Year's Eve Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday After Thanksgiving Day, Christmas Day, The Day After Christmas, And A Floating Holiday (10).

Holiday Codes Continued

7. T. Paid Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Last Working Day Before Christmas Day, And Christmas Day (9).

Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). If a holiday falls on Saturday, the preceding Friday shall be considered as the holiday. If a holiday falls on Sunday, the following Monday shall be considered as the holiday.

A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any Holiday Which Falls On A Sunday Shall Be Observed As A Holiday On The Following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.

B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

C. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

D. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Unpaid Holidays: President's Day. Any paid holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any paid holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

E. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

F. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the last working day before Christmas day and Christmas day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

G. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.

H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

I. Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

Holiday Codes Continued

7. J. Holidays: New Year's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

K. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

L. Holidays: New Year's Day, Memorial Day, Labor Day, Independence Day, Thanksgiving Day, the Last Work Day before Christmas Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

N. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. When Christmas falls on a Saturday, the preceding Friday shall be observed as a holiday.

P. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.

Q. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.

S. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Day, the Day after Christmas, and A Floating Holiday (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

V. Holidays: New Year's Day, President's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, the day before or after Christmas, and the day before or after New Year's Day. If any of the above listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

W. Holidays: New Year's Day, Day After New Year's, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Eve Day, Christmas Day, the day after Christmas, the day before New Year's Day, and a Floating Holiday.

X. Holidays: New Year's Day, Day before or after New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and the day before or after Christmas day. If a holiday falls on a Saturday or on a Friday that is the normal day off, then the holiday will be taken on the last normal workday. If the holiday falls on a Monday that is the normal day off or on a Sunday, then the holiday will be taken on the next normal workday.

Y. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day. (8) If the holiday falls on a Sunday, then the day observed by the federal government shall be considered a holiday and compensated accordingly.

Holiday Codes Continued

7. Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, Christmas Eve, and Christmas Day (9). Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday. Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.

15. G. New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, the last scheduled workday before Christmas, and Christmas Day (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

I. Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

J. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.

K. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

L. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.

M. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Eve Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.

N. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.

O. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, the day before Christmas day, and Christmas Day (10). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.

Note Codes

8. D. Workers working with supplied air on hazmat projects receive an additional $1.00 per hour.

L. Workers on hazmat projects receive additional hourly premiums as follows -Level A: $0.75, Level B: $0.50, And Level C: $0.25.

M. Workers on hazmat projects receive additional hourly premiums as follows: Levels A & B: $1.00, Levels C & D: $0.50.

N. Workers on hazmat projects receive additional hourly premiums as follows -Level A: $1.00, Level B: $0.75, Level C: $0.50, And Level D: $0.25.

S. Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.

T. Effective August 31, 2012 – A Traffic Control Laborer performs the setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control vehicular, bicycle, and pedestrian traffic during construction operations. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.

U. Workers on hazmat projects receive additional hourly premiums as follows – Class A Suit: $2.00, Class B Suit: $1.50, And Class C Suit: $1.00. Workers performing underground work receive an additional $0.40 per hour for any and all work performed underground, including operating, servicing and repairing of equipment. The premium for underground work shall be paid for the entire shift worked. Workers who work suspended by a rope or cable receive an additional $0.50 per hour. The premium for work suspended shall be paid for the entire shift worked. Workers who do “pioneer” work (break open a cut, build road, etc.) more than one hundred fifty (150) feet above grade elevation receive an additional $0.50 per hour.

V. In addition to the hourly wage and fringe benefits, the following depth and enclosure premiums shall be paid. The premiums are to be calculated for the maximum depth and distance into an enclosure that a diver reaches in a day. The premiums are to be paid one time for the day and are not used in calculating overtime pay.

Depth premiums apply to depths of fifty feet or more. Over 50' to 100' - $2.00 per foot for each foot over 50 feet. Over 101' to 150' - $3.00 per foot for each foot over 101 feet. Over 151' to 220' - $4.00 per foot for each foot over 220 feet. Over 221' - $5.00 per foot for each foot over 221 feet.

Enclosure premiums apply when divers enter enclosures (such as pipes or tunnels) where there is no vertical ascent and is measured by the distance travelled from the entrance. 25’ to 300’ - $1.00 per foot from entrance. 300’ to 600’ - $1.50 per foot beginning at 300’. Over 600’ - $2.00 per foot beginning at 600’.

W. Meter Installers work on single phase 120/240V self-contained residential meters. The Lineman/Groundmen rates would apply to meters not fitting this description.

Note Codes Continued

X. Workers on hazmat projects receive additional hourly premiums as follows - Class A Suit: $2.00, Class B Suit: $1.50, Class C Suit: $1.00, and Class D Suit: $0.50. Special Shift Premium: Basic hourly rate plus $2.00 per hour.

When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications requires that work can only be performed outside the normal 5 am to 6pm shift, then the special shift premium will be applied to the basic hourly rate. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in OT or Double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

Y. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay.

Swinging Stage/Boatswains Chair: Employees working on a swinging state or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents ($0.75) per hour above the classification rate.

Z. Workers working with supplied air on hazmat projects receive an additional $1.00 per hour.

Special Shift Premium: Basic hourly rate plus $2.00 per hour. When due to conditions beyond the control of the Employer or when an owner (not acting as a contractor), a government agency or the contract specifications require that more than (4) hours of a special shift can only be performed outside the normal 6 am to 6pm shift, then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they will be paid a special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

9. A. Workers working with supplied air on hazmat projects receive an additional $1.00 per hour.

Special Shift Premium: Basic hourly rate plus $2.00 per hour. When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications require that more than four (4) hours of a special shift can only be performed outside the normal 6 am to 6pm shift, then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

Certified Crane Operator Premium: Crane operators requiring certifications shall be paid $0.50 per hour above their classification rate.

Boom Pay Premium: All cranes including tower shall be paid as follows based on boom length:

(A) – 130’ to 199’ – $0.50 per hour over their classification rate.
(B) – 200’ to 299’ – $0.80 per hour over their classification rate.
(C) – 300’ and over – $1.00 per hour over their classification rate.

Note Codes Continued

B. The highest pressure registered on the gauge for an accumulated time of more than fifteen (15) minutes during the shift shall be used in determining the scale paid.

Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay. Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents ($0.75) per hour above the classification rate.

C. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay. Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents ($0.75) per hour above the classification rate.

Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. A Traffic Control Laborer performs the setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control vehicular, bicycle, and pedestrian traffic during construction operations. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. These classifications are only effective on or after August 31, 2012.

D. Industrial Painter wages are required for painting within industrial facilities such as treatment plants, pipelines, towers, dams, bridges, power generation facilities and manufacturing facilities such as chemical plants, etc., or anywhere abrasive blasting is necessary to prepare surfaces, or hazardous materials encapsulation is required.

9. E. Heavy Construction includes construction, repair, alteration or additions to the production, fabrication or manufacturing portions of industrial or manufacturing plants, hydroelectric or nuclear power plants and atomic reactor construction. Workers on hazmat projects receive additional hourly premiums as follows -Level A: $1.00, Level B: $0.75, Level C: $0.50, And Level D: $0.25.

F. Industrial Painter wages are required for painting within industrial facilities such as treatment plants, pipelines, towers, dams, power generation facilities and manufacturing facilities such as chemical plants, etc., or anywhere abrasive blasting is necessary to prepare surfaces, or hazardous materials encapsulation is required.

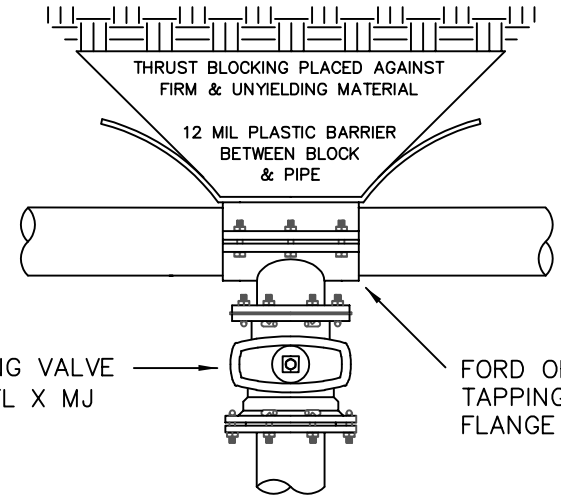
H. One (1) person crew shall consist of a Party Chief. (Total Station or similar one (1) person survey system). Two (2) person survey party shall consist of a least a Party Chief and a Chain Person. Three (3) person survey party shall consist of at least a Party Chief, an Instrument Person, and a Chain Person.

APPENDIX B

CITY OF DUVALL STANDARD DETAILS

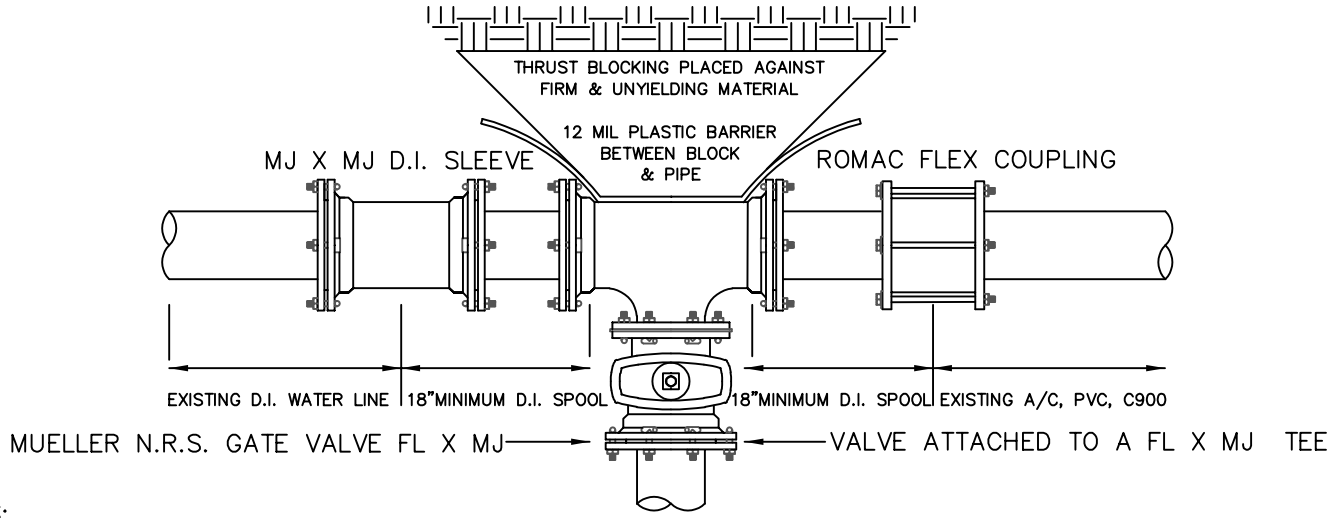
'HOT TAP / DIRECT TAP'

MAY BE USED ANYTIME THE BRANCH SIZE IS SMALLER THAN MAIN SIZE, SAME SIZE TAPS MAY BE PERFORMED ON DUCTILE IRON PIPE ONLY



'CUT-IN'

MUST BE USED WHEN EXISTING WATER MAIN IS MADE FROM A/C, C-900, OR PVC PIPE AND THE NEW BRANCH MUST BE THE SAME SIZE



NOTES:

1. ALL CONNECTIONS TO BE MADE WITH THE CITY INSPECTOR PRESENT
2. WHEN HOT TAPPING SUPPORT WEIGHT OF VALVE BY PLACING A CONCRETE BLOCK UNDER THE VALVE BEFORE TIGHTENING THE TAPPING TEE
3. CUT-IN'S REQUIRING WATER MAIN SHUTDOWN ARE REQUIRED TO HAVE A MINIMUM OF 3 DAYS NOTICE TO ALL EFFECTED CUSTOMERS IN WRITING AND APPROVED BY THE CITY OF DUVALL, TO BE CONSIDERED ONE FULL DAY SHUT OFF NOTICES MUST BE DELIVERED BEFORE 12:00 PM, DO NOT COUNT WEEKEND DAYS
4. ALL PIPE AND FITTINGS TO BE SWABBED WITH A CL SOLUTION OF AT LEAST 50 PPM
5. CONTRACTOR MAY NOT OPERATE CITY WATER VALVES UNLESS GIVEN CONSENT BY THE CITY INSPECTOR OR DURING AN EMERGENCY

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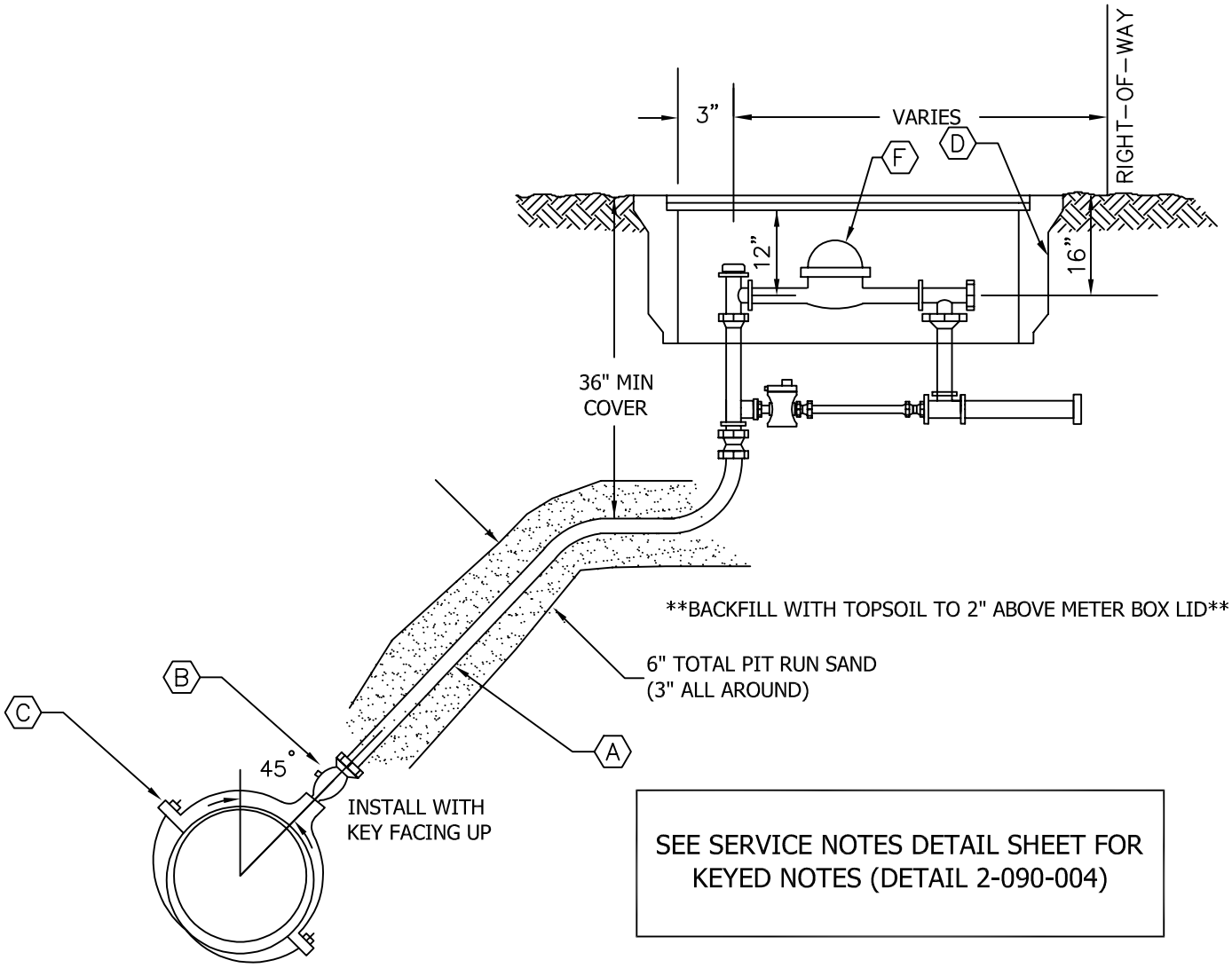
DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

City of Duvall

TITLE
WATER MAIN CONNECTIONS HOT TAP & DIRECT TAP

DRAWING NUMBER 2-070-004



SEE SERVICE NOTES DETAIL SHEET FOR KEYED NOTES (DETAIL 2-090-004)

NOTES:
1. METER SETTER WITH BYPASS, MUELLER, FORD, OR APPROVED EQUAL. SPACE BETWEEN ANGLE STOP AND CHECK ANGLE SHALL BE 13–12" FOR 1" SERVICE OR 17–1/2" FOR 2" SERVICE.
2. INSTALL IDLER PRIOR TO METER INSTALLATION IF METER IS TO BE INSTALLED AT LATER DATE.
3. 1" OR 2" DIAMETER 12" LONG BRASS NIPPLE WITH PVC CAP REQUIRED.

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DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

City of Duvall

TITLE

Single Service Meter 1" to 2"

DRAWING NUMBER 2-090-003

GENERAL NOTES

1. INSTALLATION: FAULTY INSTALLATION OR POOR WORKMANSHIP NOT CORRECTED BY THE DEVELOPER OR CONTRACTOR WILL BE CORRECTED BY THE CITY. THE COST OF SUCH CORRECTIONS WILL BE CHARGED TO THE DEVELOPER.
2. SERVICES: INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE SERVICE DETAIL DRAWINGS.
3. FITTINGS: ALL FITTINGS SHALL BE BRASS AND ALL JOINTS ON FITTINGS SHALL BE INSTA-TITE BY MUELLER.

KEYED NOTES

Ⓐ ¾ " OR 1" SERVICES: ALL DOUBLE SERVICES (REGARDLESS OF LENGTH) AND SINGLE SERVICE LINES OVER 50' IN LENGTH SHALL BE MINIMUM 1" HDPE PRESSURE CLASS 200. PIPE SHALL BE NEW AND FREE OF SHARP BENDS, KINKS, OR DENTS. DOUBLE SERVICE SHALL BE SET WITH FORD OR MUELLER 14" YOKE FITTING OR APPROVED EQUAL. STAINLESS STEEL INSERTS AND LOCATOR WIRE SHALL BE REQUIRED.

Ⓑ CORPORATION COCK: SHALL BE BALL VALVE TYPE OR PLUG EQUAL TO FORD OR MUELLER WITH TAPERED THREAD (CC) INLET, OUTLET WITH INSTA-TITE FITTING FOR BRASS OUTLET.

Ⓒ SADDLES: ON 4" DUCTILE (DI) PIPE, USE DOUBLE STRAP SADDLES FOR ALL TAPS. ON THICKNESS CLASS 52 DI PIPE 6" AND LARGER, 1" DIRECT TAP IS ACCEPTABLE. ON ASBESTOS CONCRETE (AC), PVC AND WELDED STEEL PIPE, USE ROMAC STYLE 202-S SADDLE OR APPROVED EQUAL. DIRECT TAPS ARE NOT ALLOWED ON THESE PIPE TYPES.

Ⓓ METER BOX: METER BOX TO BE CARSON HDPE TYPE METER BOX WITH HDPE COVER AND READER WINDOW, FURNISHED AND INSTALLED BY THE CONTRACTOR AND ADJUSTED TO FINAL GRADE PRIOR TO METER INSTALLATION. METER BOXES LOCATED IN DRIVEWAYS, PAVED AREAS OR AREA SUBJECT TO TRAFFIC SHALL BE TRAFFIC BEARING. BOX SHALL PROVIDE ADEQUATE SPACE FOR RADIO READ UNITS AND ELECTRONICS. DRILL 1-3/4" HOLE IN UPPER LEFT CORNER.

Ⓔ BRASS METER SETTER - MUELLER, FORD, OR APPROVED EQUAL. TO BE EQUIPPED AS FOLLOWS:

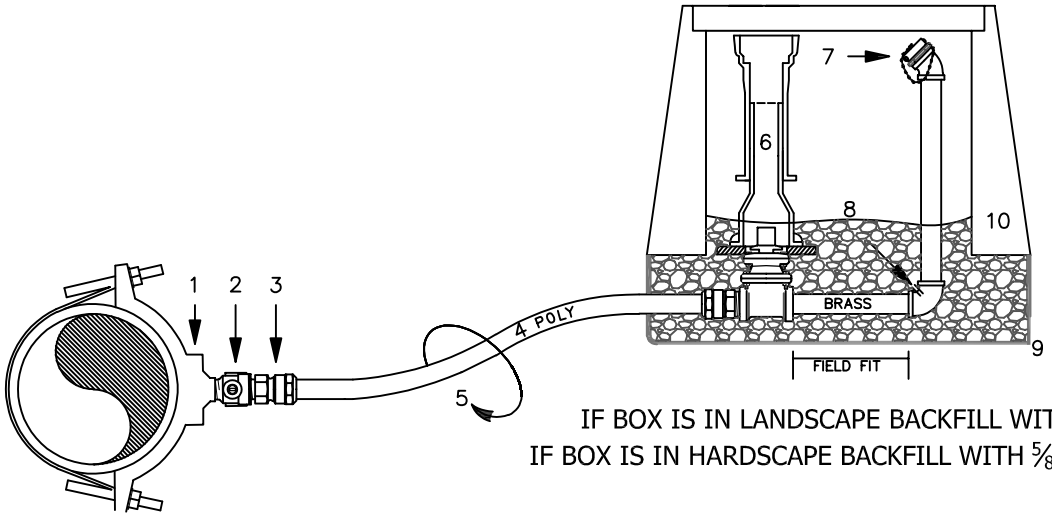
- PADLOCK WINGS ON KEY VALVE
- ANGLE CHECK ON METER OUTLET (AS REQUIRED)
- IRON PIPE CONNECTIONS ON SETTER AND INLET AND OUTLET
- INSTA-TITE FITTING ON SETTER INLET
- 18" BRASS NIPPLE ON SETTER OUTLET
- 1" BYPASS WITH PADLOCK WINGS ON CURB STOP (AS REQUIRED)

Ⓕ METER: METER TO BE FURNISHED AND INSTALLED BY THE CITY UNLESS OTHERWISE NOTED.

Ⓖ SERVICE LINE TO STRUCTURE: CONSTRUCTED BY DEVELOPER OR PROPERTY OWNER IN ACCORDANCE WITH THESE STANDARDS.

NTS

IF VALVE BOX LIES WITHIN LANDSCAPE (NOT COUNTING LANDSCAPE STRIP), INSTALL CONCRETE VALVE MARKERS AS SHOWN IN DETAIL 2-070-002. END OF WATER MAIN SHALL BE CAPPED AND BLOCKED ACCORDING TO THE TRUST BLOCK DETAIL 2-130-002.



IF BOX IS IN LANDSCAPE BACKFILL WITH NATIVE MATERIAL.
IF BOX IS IN HARDSCAPE BACKFILL WITH $\frac{5}{8}$" MINUS CRUSHED ROCK.

NOTES:

1. SADDLE SHALL BE EITHER FORD FC202 OR ROMAC 202NS, PLACED SO OUTLET IS ABOVE SPRINGLINE.
2. FORD FB400 OR MUELLER 300 BALLCORP VALVES (AWWA/CC TAPER THREAD INLET BY MIP THREAD OUTLET).
3. MUELLER 110 COMPRESSION CONNECTION OR FORD QUICK JOINT COUPLING (2" CTS x 2" FIP).
4. 2" CTS POLY MAY BE USED FROM THE MAIN TO THE BOX. ALL HARD PIPES & FITTINGS SHALL BE 2" BRASS.
5. BED PIPE IN 3" PIT RUN SAND ON ALL SIDES.
6. 2" MUELLER RESILIENT WEDGE (NRS) GATE VALVE WITH IPS THREADED ENDS. PLACE GATE VALVE AS CLASE TO BOX AS PRACTICAL. SEE DRAWING 2-070-001 FOR VALVE BOX INFORAMTION.
7. BRASS 2 ½" MALE NST x 2" IPS MALE HOSE ADAPTER & 2 ½" NTS LUG CAP WITH CHAIN.
8. DRILL ¼" DRAINAGE HOLE IN BRASS 90 AT THE INSIDE OF THE TURN.
9. 1" DRAIN ROCK FILLED TO A DEPTH OF 12". USE GEOTEXTILE FABRIC AS A BARRIER BETWEEN NATIVE SOIL AND DRAIN ROCK.
10. BOX SELECTION: TO BE CARSON HDPE TYPE BOX WITH HDPE COVER AND READER WINDOW. BOXES LOCATED IN DRIVEWAYS, PAVED AREAS OR AREA SUBJECT TO TRAFFIC SHALL BE TRAFFIC BEARING.

ALL EFFORTS SHALL BE MADE TO KEEP THE BOXES OUT OF PAVED AREAS. LOCATE BOX IN LANDSCAPE STRIP IF POSSIBLE. IF NOT, LOCATE 12" BEHIND SIDEWALK. IF SIDEWALKS ARE NOT AVAILABLE, PLACE BOX 6' BEHIND CURB.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

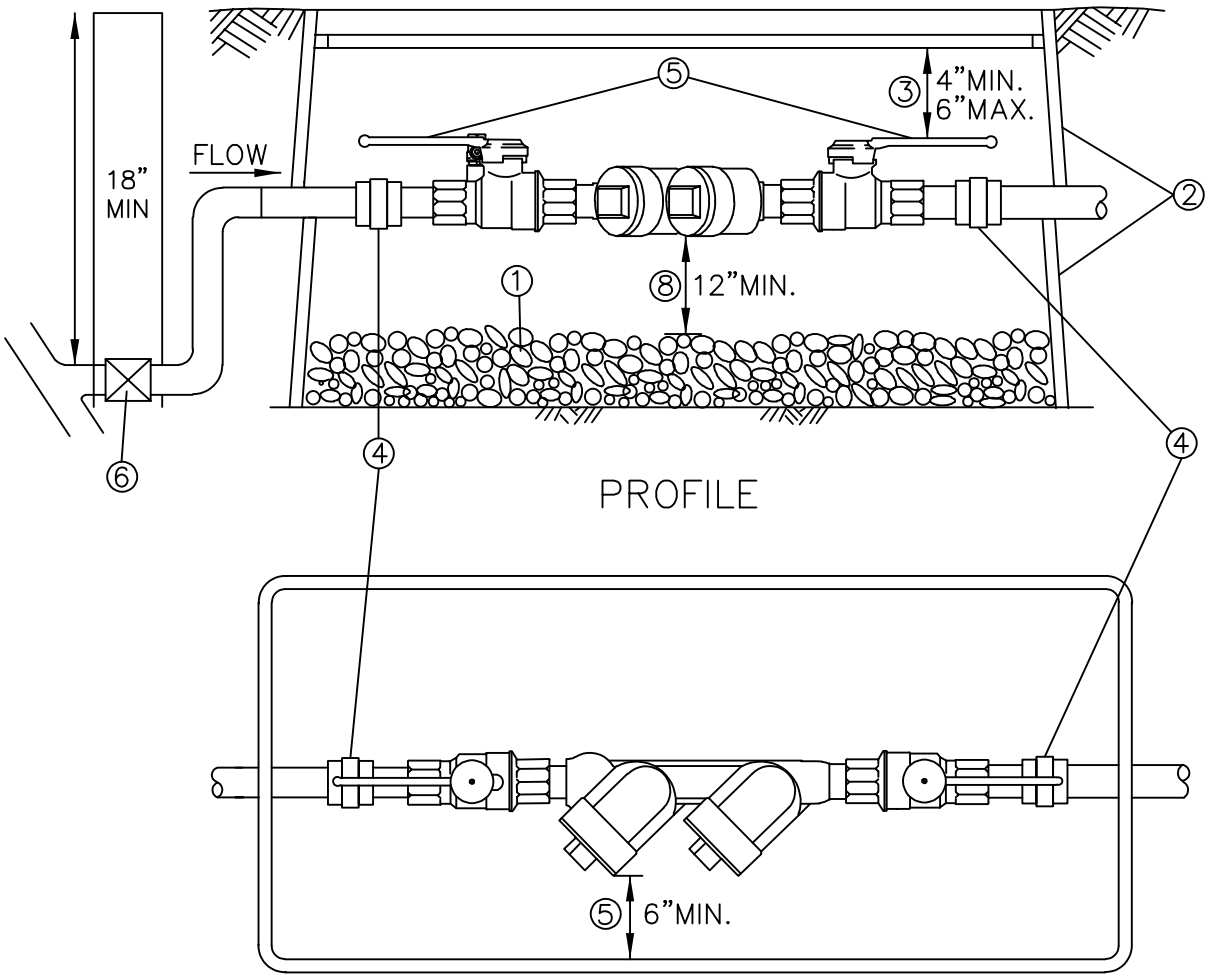
August 2021

City of Duvall

TITLE

2" Blow Off Assembly

DRAWING NUMBER 2-120-001



① 1" ROUND WASHED ROCK, 6" DEEP ON BOTTOM OF BOX.

② ENCLOSE 2" & SMALLER D.C.V.A. ON TWO METER BOXES STACKED ON TOP OF EACH OTHER OR, OVERSIZED BOX. MUST HAVE REMOVABLE COVER. BOXES TO BE LOCATED IN SIDEWALK AND AREAS WITH VEHICULAR TRAFFIC SHALL BE METAL, EQUAL TO OLYMPIC FOUNDRY SM30. BOXES IN OTHER NON-TRAFFIC AREAS TO BE CARSON 1730 HDPE WITH COVER. MAXIMUM OF 6" DISTANCE BETWEEN UNDERSIDE OF LID AND HIGHEST POINT OF DEVICE.

③ (2) UNIONS.

④ WHEN TEST-COCKS ARE FACING SIDEWAYS THERE MUST BE A 6" MINIMUM CLEARANCE

⑤ BETWEEN THEM AND SIDE OF BOX.

⑥ IN ACCORDANCE WITH PLUMBING CODE REQUIREMENT, IRRIGATION SYSTEMS MUST HAVE SHUT OFF INSTALLED AS SHOWN. FEMALE FITTINGS ARE PROHIBITED IN CONJUNCTION WITH METALLIC MALE FITTINGS.

NOTES:

1. ALL INSTALLATIONS MUST MEET MINIMUM STANDARDS OF THE UNIFORM PLUMBING CODE AND WSDOH APPROVED INSTALLATIONS LIST.
2. TESTING IS REQUIRED BY A WASHINGTON STATE DEPARTMENT OF HEALTH CERTIFIED BACKFLOW ASSEMBLY TESTER UPON INSTALLATION AND ANNUALLY THEREAFTER.
3. ASSEMBLY TO BE MAINTAINED BY OWNER.

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DEVELOPMENT DESIGN STANDARD DETAILS

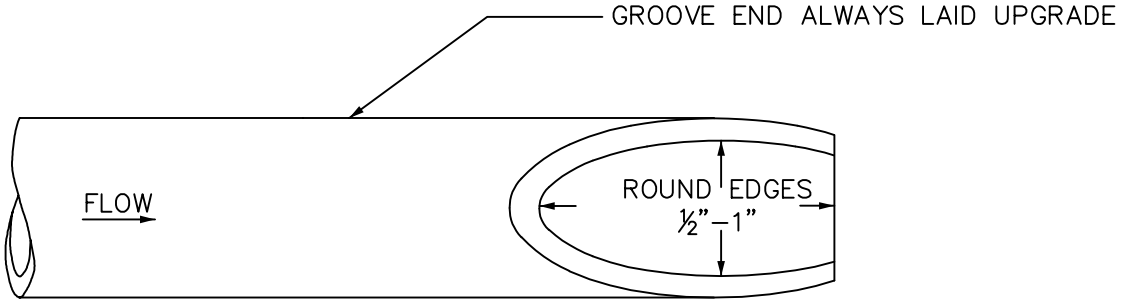
August 2021

City of Duvall

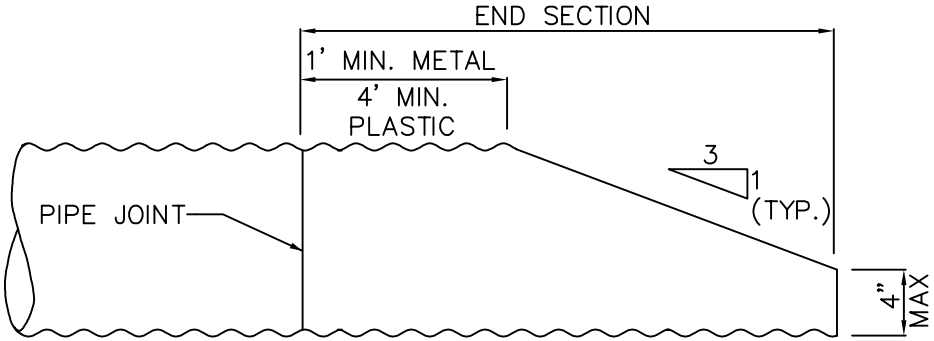
TITLE

Double Check Valve Outside

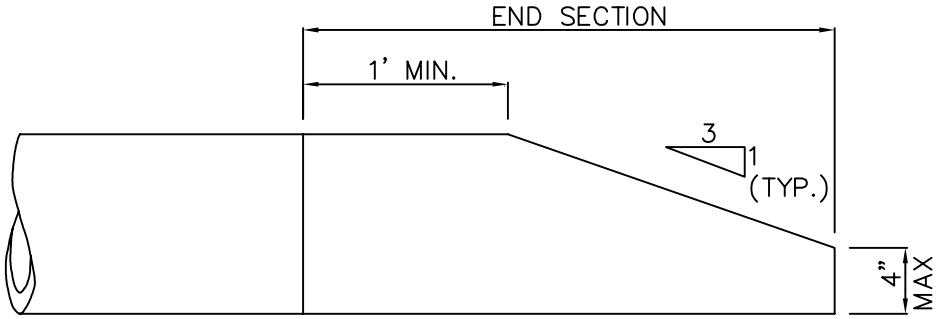
DRAWING NUMBER 2-153-002



PLAN



PROFILE – METAL & PLASTIC PIPE



PROFILE – CONCRETE

NOTES:

1. SIDE SLOPE SHALL BE WARPED TO MATCH THE BEVELED PIPE END WHEN CULVERT IS ON SKEW.
2. BEVELED END SHALL BE ROTATED TO CONFORM TO SLOPE IF SLOPE DIFFERS FROM 3:1.
3. PIPE SHALL BE BEVELED TO MATCH SLOPE.
4. PIPED OUTLETS GREATER THAN 12–INCHES REQUIRES TRASH RACK OR OTHER AS APPROVED BY THE CITY ENGINEER.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

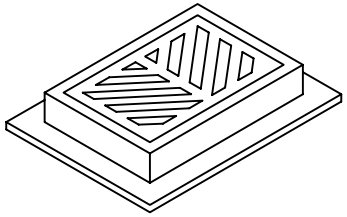
City of Duvall

TITLE

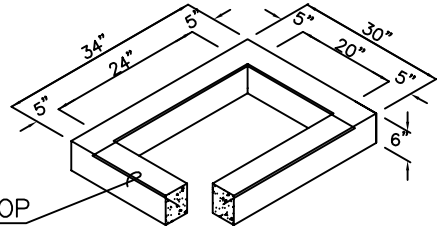
Culvert - Beveled End Pipe Section

DRAWING NUMBER

3-020-001

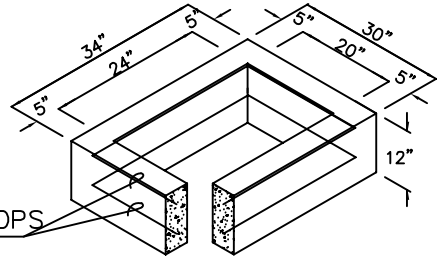


FRAME AND GRATE
SEE SECTION 3–7.05



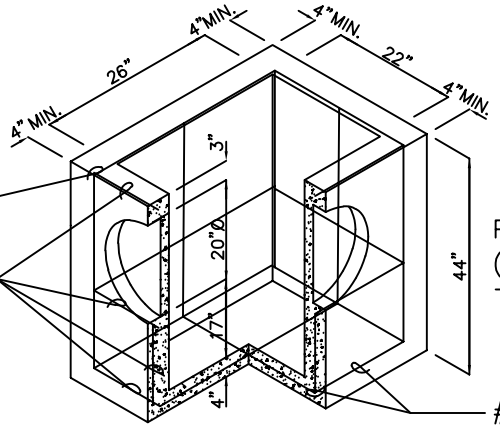
1 – #3 BAR HOOP

6" RISER SECTION



2 – #3 BAR HOOPS

12" RISER SECTION



#3 BAR EACH CORNER

#3 BAR EACH SIDE

PRECAST BASE SECTION
(MEASUREMENT AT THE TOP OF THE BASE)

#3 BAR EACH WAY

NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) AND C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED AND SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
3. ALL REINFORCED CAST–IN–PLACE CONCRETE SHALL BE CLASS 4000 PSI.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS WITH A MINIMUM WALL THICKNESS OF 2 INCHES. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CATCH BASIN WALL THICKNESS.
6. ROUND KNOCKOUTS MAY BE ON ALL FOUR SIDES, WITH A MAXIMUM DIAMETER OF 20 INCHES, KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
7. THE MAX DEPTH FROM THE FINISHED GRADE TO PIPE INVERT IS FIVE FEET.
8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED ½ INCH PER FOOT.
9. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR–F–62ID. MATING SURFACES SHALL BE FINISHED TO ASSURE NON–ROCKING FIT WITH ANY COVER POSITION.
10. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
11. FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT/APWA STANDARD DRAWING B1–b.
12. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN TWO INCHES FROM VERTICAL EDGE OF CATCH BASIN WALL.
13. GROUT BETWEEN ALL RISERS AND CONTACT SURFACES OF CATCH BASIN WITH APPROVED GROUT.
14. VANED GRATE REQUIRED FOR INLETS ON ROADS WITH 5% SLOPE OR GREATER.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

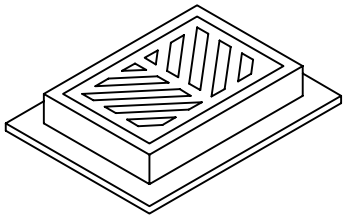
City of Duvall

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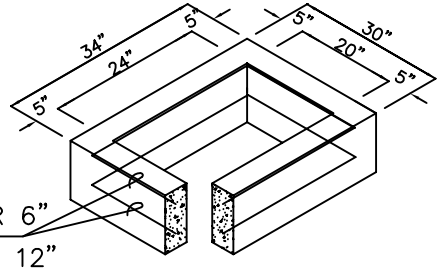
Catch Basin - Type I

DRAWING NUMBER

3-020-003

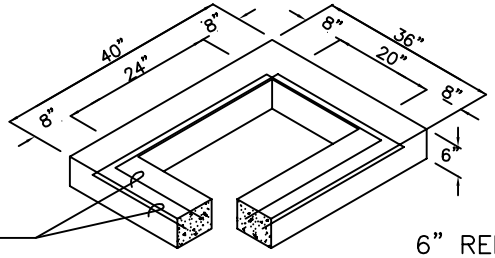


FRAME AND GRATE
SEE SECTION 3–7.05



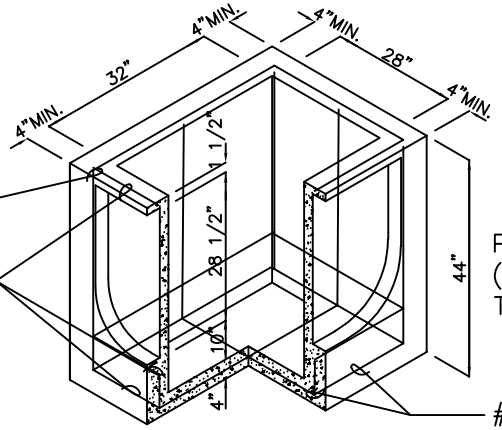
RISER SECTION

1 – #3 BAR HOOP FOR 6"
2 – #3 BAR HOOP FOR 12"



2 – #3 BAR HOOP

6" REDUCING SECTION



#3 BAR EACH CORNER

#3 BAR EACH SIDE

PRECAST BASE SECTION (MEASUREMENT AT THE TOP OF THE BASE)

#3 BAR EACH WAY

NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) AND C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED AND SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
3. ALL REINFORCED CAST–IN–PLACE CONCRETE SHALL BE CLASS 4000 PSI.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS WITH A MINIMUM WALL THICKNESS OF 2 INCHES. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CATCH BASIN WALL THICKNESS.
6. KNOCKOUTS MAY BE ON ALL SIDES WITH MAXIMUM DIAMETER OF 28 INCHES. KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
7. THE MAXIMUM DEPTH FROM FINISHED GRADE TO PIPE INVERT SHALL BE FIVE FEET.
8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED ½ INCHES PER FOOT.
9. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR–F–62ID. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
10. EDGE OF REDUCING SECTION OR BRICK SHALL NOT BE MORE THAN TWO INCHES FROM VERTICAL EDGE OF CATCH BASIN WALL.
13. GROUT BETWEEN ALL RISERS AND CONTACT SURFACES OF CATCH BASIN WITH APPROVED GROUT.
14. VANED GRATE REQUIRED FOR INLETS ON ROADS WITH 5% SLOPE OR GREATER.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

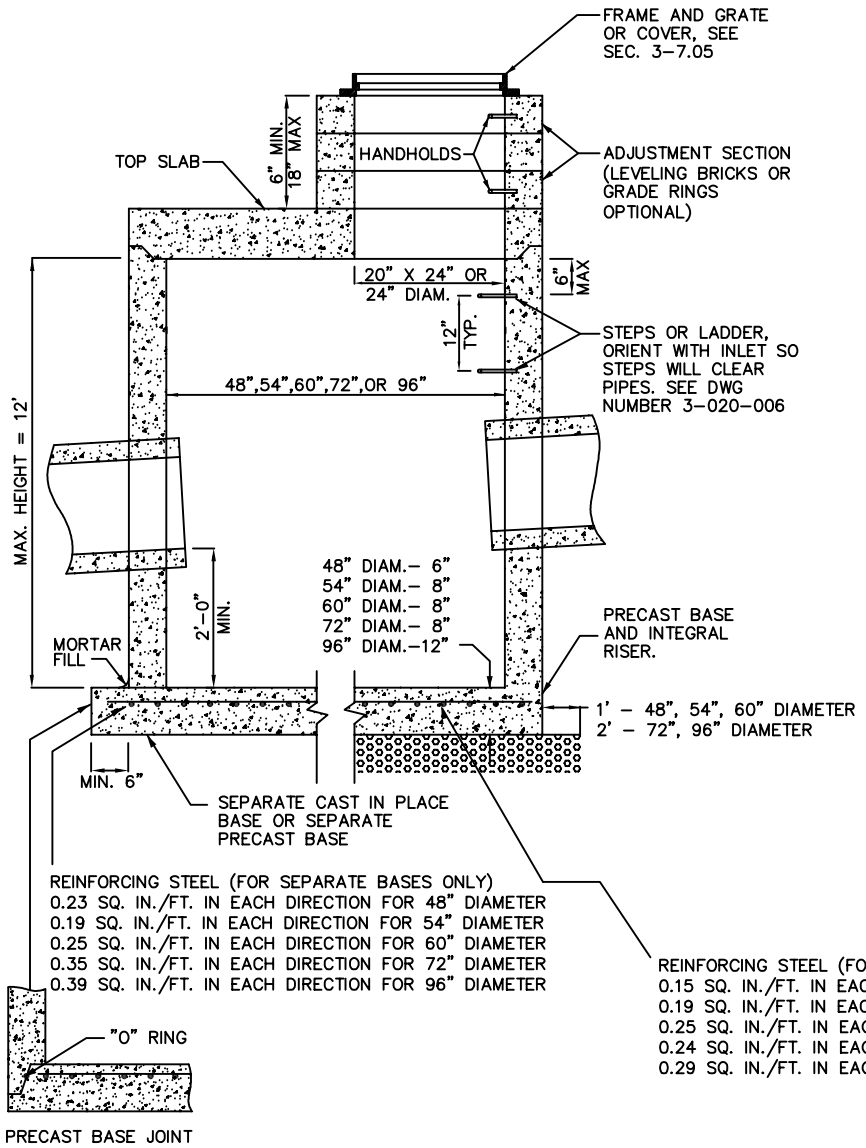
City of Duvall

TITLE

Catch Basin - Type IL

DRAWING NUMBER

3-020-004



NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M199) AND ASTM C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. MINIMUM CLEARANCE (SEE DETAIL 3-020-006):
   - 2.1. HANDHOLDS IN ADJUSTMENT SECTION = 3 INCHES.
   - 2.2. STEPS IN CATCH BASIN = 6 INCHES.
3. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MINIMUM OF ONE HANDHOLD BETWEEN THE LAST STEP AND TOP OF THE STRUCTURE.
4. ALL PRECAST AND REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000 PSI.
5. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS WITH A MINIMUM WALL THICKNESS OF 2 INCHES. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF LEFT INTACT.
6. MINIMUM 6 INCHES COMPACTED DEPTH GRAVEL BACKFILL FOR PRECAST BASE FOUNDATIONS ONLY.
7. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CATCH BASIN WALL THICKNESS.
8. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-62ID. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
9. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH MINIMUM 1 INCH CLEARANCE.
10. MINIMUM SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT.
11. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SECTION 7-05.3 FOR JOINT REQUIREMENTS.
12. GROUT BETWEEN ALL RISERS AND CONTACT SURFACES OF CATCH BASIN WITH APPROVED GROUT.
13. VANED GRATE REQUIRED FOR INLETS ON ROADS WITH 5% SLOPE OR GREATER.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

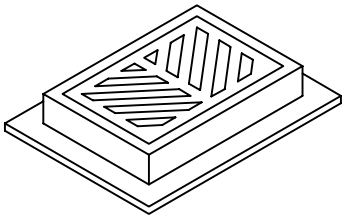
City of Duvall

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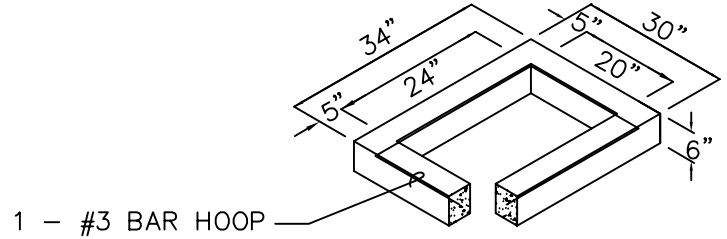
Catch Basin Type 2 - 48", 54", 72" & 96"

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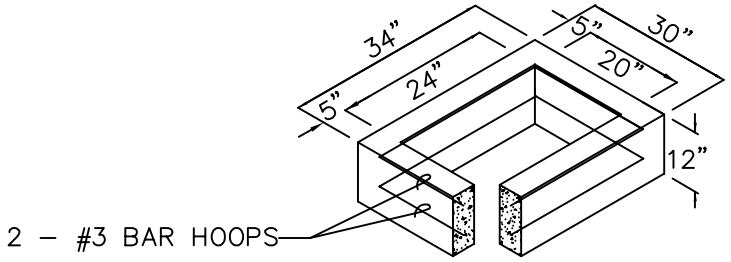
3-020-005



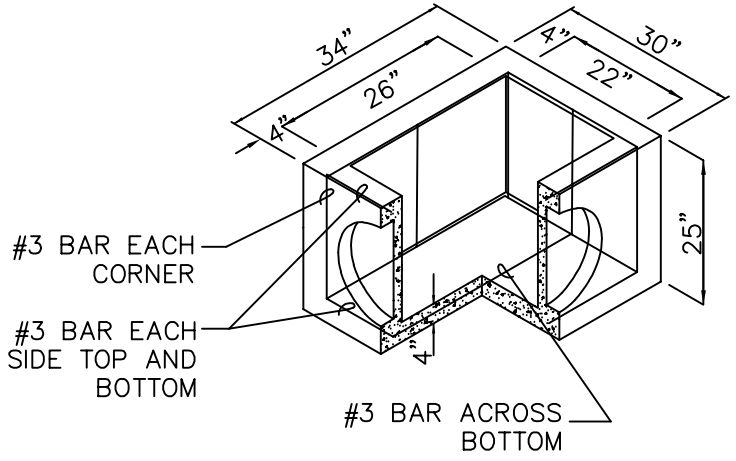
FRAME AND GRATE
SEE SECTION 3–7.05



6" RISER SECTION



12" RISER SECTION



PRECAST BASE SECTION
(MEASUREMENT AT THE
TOP OF THE BASE)

NOTES:

1. CURB INLET TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 & C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS
2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497, WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS
3. ALL REINFORCED CAST–IN–PLACE CONCRETE SHALL BE CLASS 4000 PSI.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS WITH A MINIMUM WALL THICKNESS OF TWO INCHES. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CURB INLET WALL THICKNESS
6. ROUND KNOCKOUTS MAY BE ON ALL FOUR SIDES WITH A MAXIMUM DIAMETER OF 17 INCHES.
7. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS FIVE FEET.
8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED ½ INCHES PER FOOT.
9. CURB INLET FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR–F–62ID, FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
13. GROUT BETWEEN ALL RISERS AND CONTACT SURFACES OF CATCH BASIN WITH APPROVED GROUT.
14. VANED GRATE REQUIRED FOR INLETS ON ROADS WITH 5% SLOPE OR GREATER.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

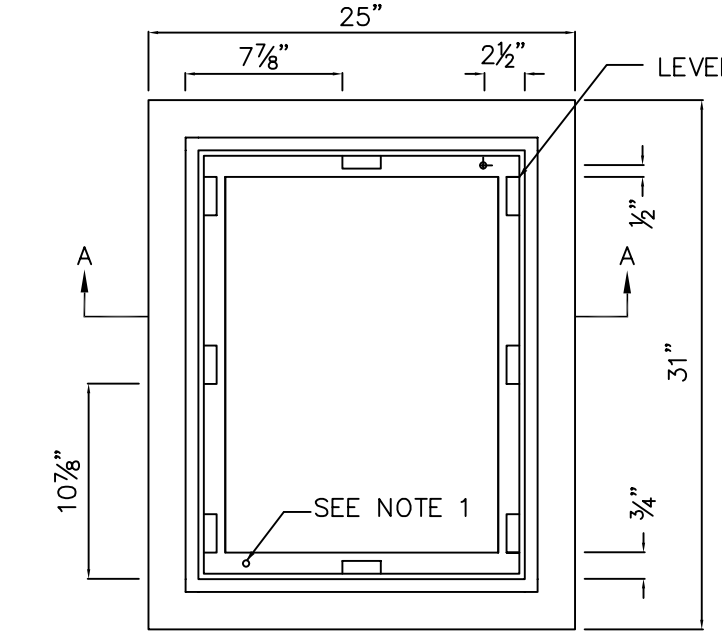
City of Duvall

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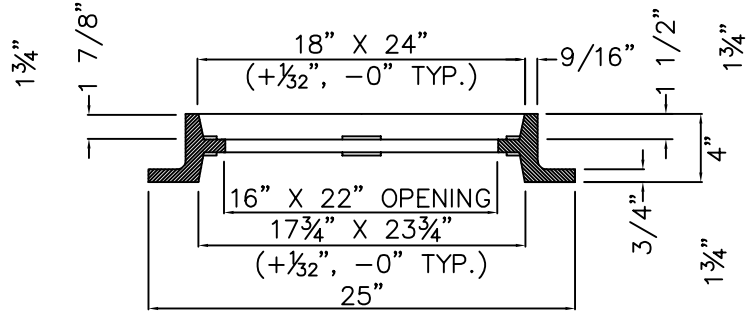
Catch Basin - Curb Inlet

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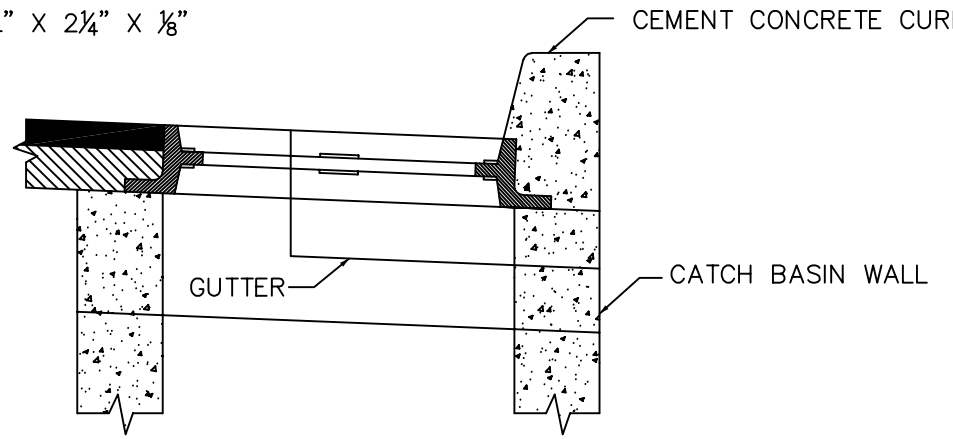
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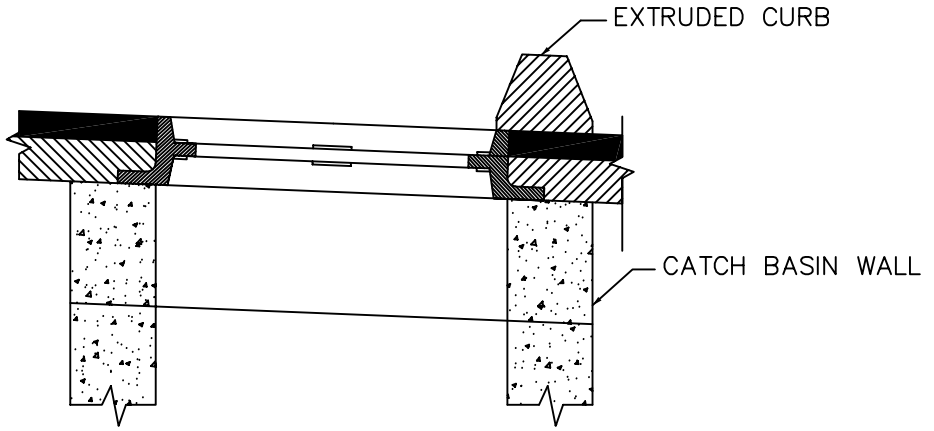
PLAN



SECTION A–A



VERTICAL CURB



EXTRUDED CURB

NOTES:

1. DRILL AND TAP FOR, AND PROVIDE, TWO LOCKING BOLTS ⅝"–11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS, 2–INCHES LONG WHEN USED WITH SOLID COVER (STANDARD DETAIL 3–020–015) OR WHEN SPECIFIED BY ENGINEER.
2. FRAME MATERIAL IS CAST IRON PER ASTM A48 CLASS 35.
3. SET FRAME TO GRADE AND CONSTRUCT ROAD AND GUTTER TO BE FLUSH WITH FRAME.
4. SEE DEVELOPMENT DESIGN STANDARDS SECTION 3–7.05 FRAME, GRATES, AND COVERS FOR FURTHER INFORMATION.
5. GRATES AND FRAMES SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
6. EAST JORDAN IRON WORKS MANUFACTURING CO. PRODUCT NUMBER 072 OR APPROVED EQUAL.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

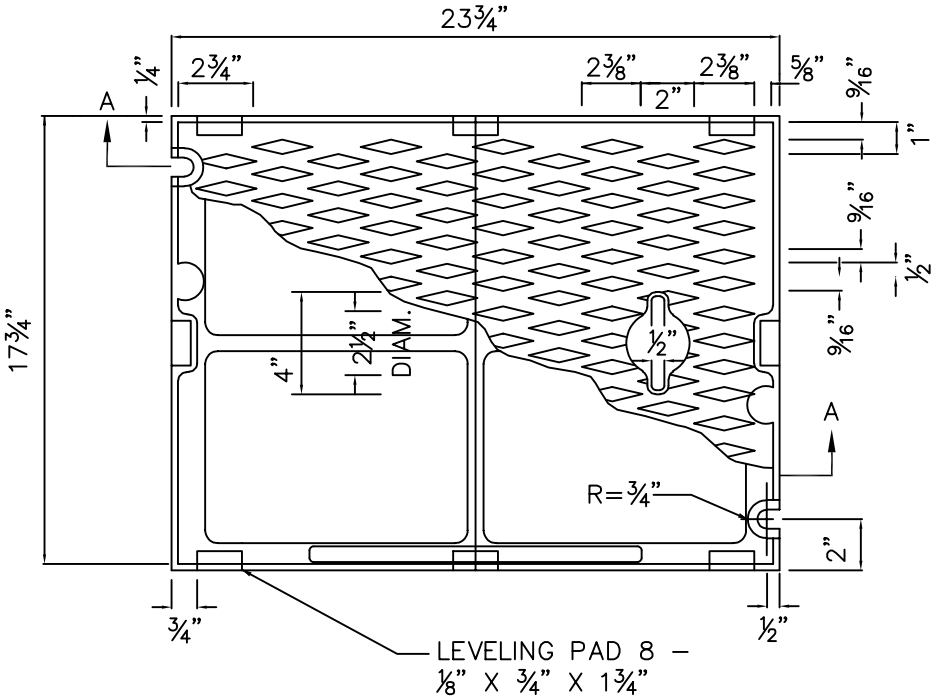
City of Duvall

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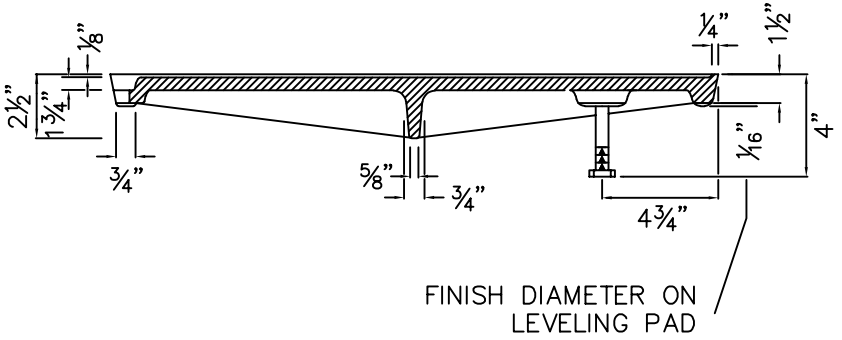
Curb Installation - Standard Grate

DRAWING NUMBER

3-020-014



PLAN



SECTION A–A

NOTES:

1. USE WITH FRAME (STANDARD DETAIL 3–020–014) DRILLED AND TAPPED FOR LOCKING BOLTS.
2. USE WITH TWO LOCKING BOLTS ⅝"–11 NC STAINLESS STEEL TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS, 2–INCHES LONG.
3. MATERIAL IS CAST IRON PER ASTM A48 CLASS 35.
4. SEE DEVELOPMENT DESIGN STANDARDS SECTION 3–7.05 FRAME, GRATES, AND COVERS FOR FURTHER INFORMATION.
5. GRATES AND FRAMES SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
6. EAST JORDAN IRON WORKS MANUFACTURING CO. PRODUCT NUMBER 00770070 OR APPROVED EQUAL.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

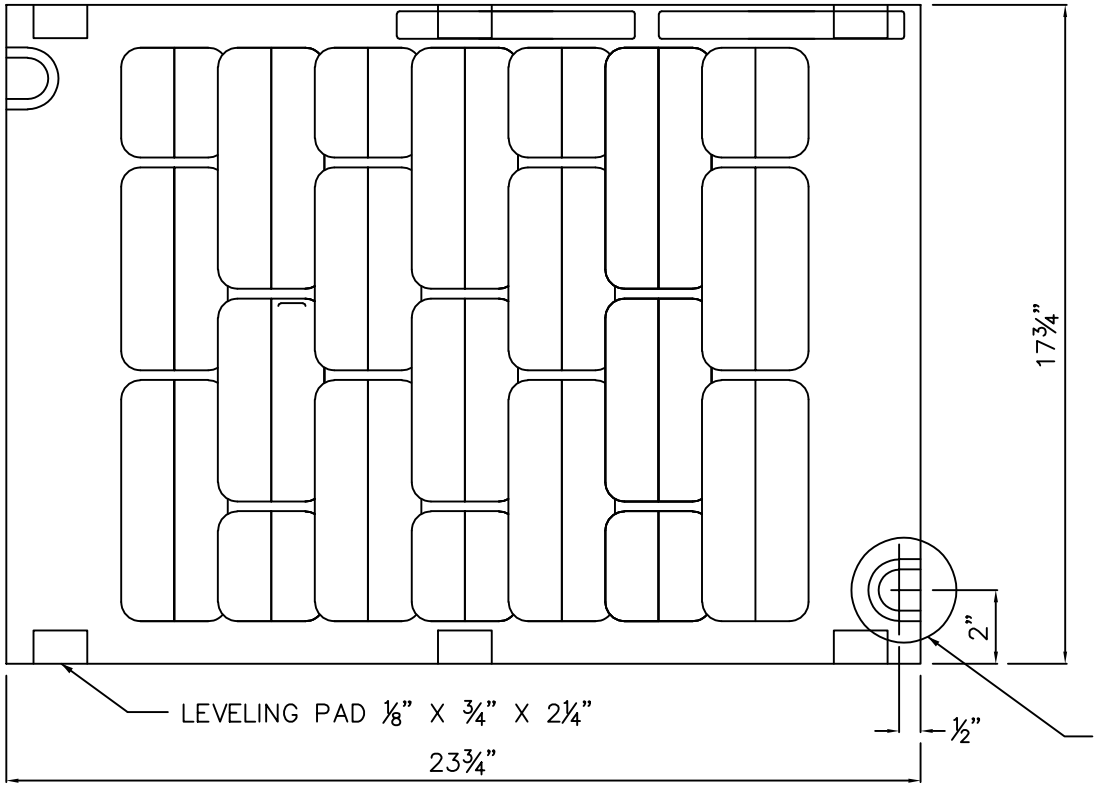
City of Duvall

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Standard Solid Cover

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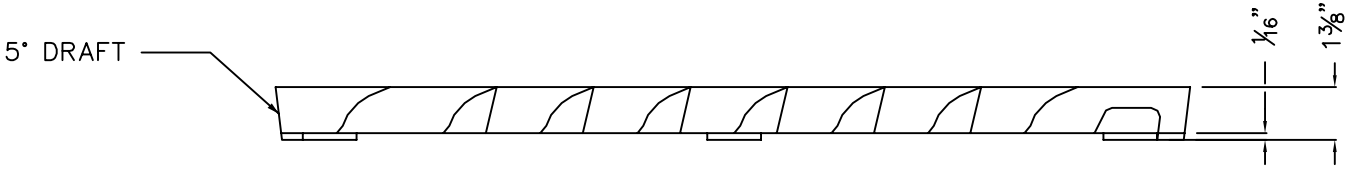
3-020-015



PLAN

NOTES:

1. SELF-LOCK VANED GRATE MANUFACTURER SUBJECT TO APPROVAL BY ENGINEER.
2. USE WITH TWO LOCKING BOLTS ⅝"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2 INCHES LONG.MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80-55-06.
3. "OUTFALL TO STREAM DUMP NO POLLUTANTS" MAY BE LOCATED ON BORDER AREA.
5. SEE DEVELOPMENT DESIGN STANDARDS SECTION 3-7.05 FRAME, GRATES, AND COVERS FOR FURTHER INFORMATION.
6. VANED GRATE REQUIRED ON STREETS WHERE ROADWAY SLOPE IS GREATER THAN 5%.
7. GRATES AND FRAMES SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
8. EAST JORDAN IRON WORKS MANUFACTURING CO. PRODUCT NUMBER 00770178 OR APPROVED EQUAL.
9. GRATE CAN BE ADDED FOR BI-DIRECTIONAL FLOWS OF STORMWATER.



ELEVATION

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

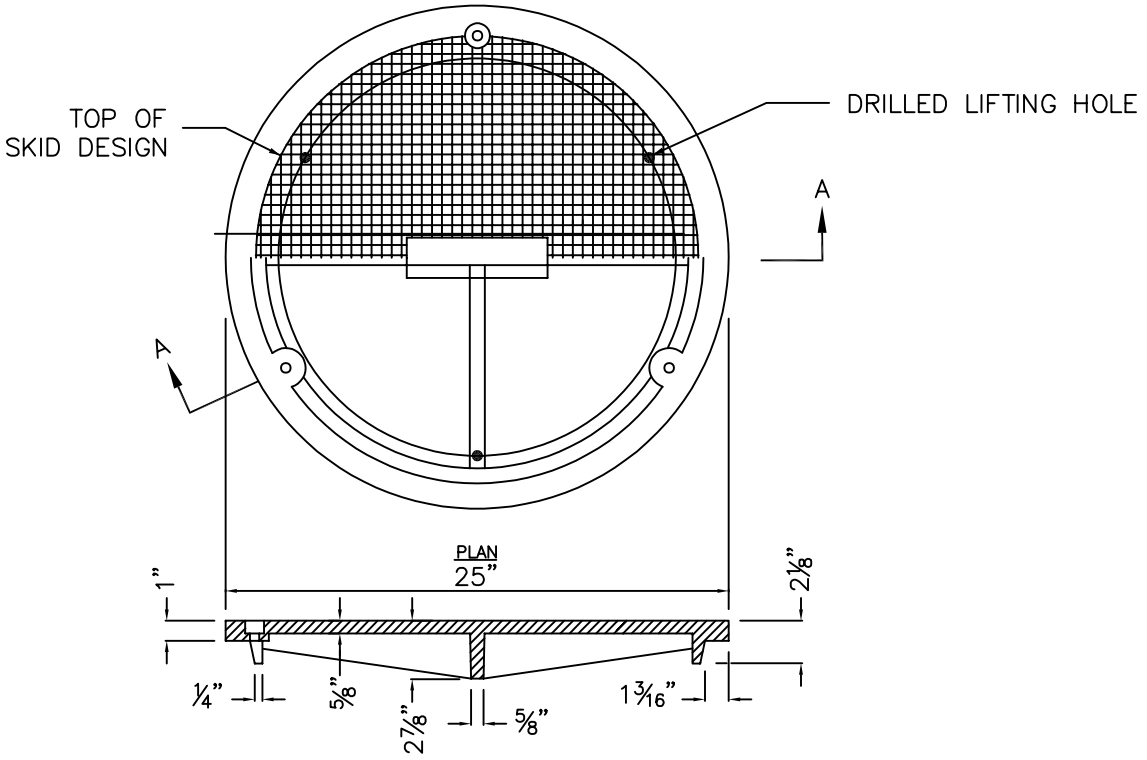
City of Duvall

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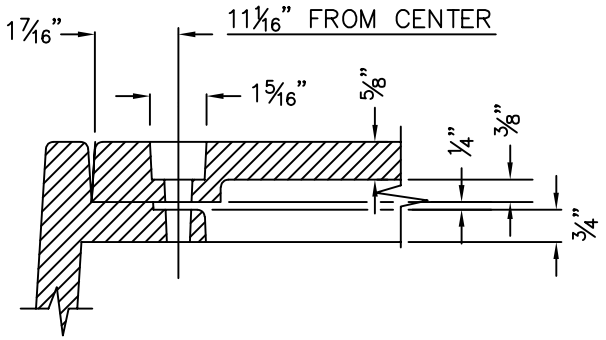
Vaned Grate

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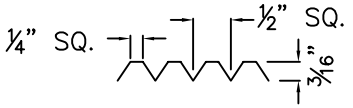
3-020-018



SECTION A–A



BOLT–DOWN DETAIL



COVER SKID DESIGN DETAIL

NOTES:

1. USE WITH THREE LOCKING BOLTS ⅝"–11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS, 2–INCHES LONG. DRILL HOLES SPACED 120° AT 11 1⁄16" RADIUS.
2. DRILL THREE 1–INCH LIFTING HOLES SPACED 120° AT 9½" RADIUS.
3. MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80–55–06 AND SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
4. SEE DEVELOPMENT DESIGN STANDARDS SECTION 3–7.05 FRAME, GRATES, AND COVERS FOR FURTHER INFORMATION.
5. A NON–LOCKING STYLE COVER MAY BE REQUIRED. IF SO IT SHALL BE EAST JORDAN IRON WORKS NUMBER 370568 OR APPROVED EQUAL.
6. EAST JORDAN IRON WORKS MANUFACTURING CO. PRODUCT NUMBER 00371570 OR APPROVED EQUAL.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

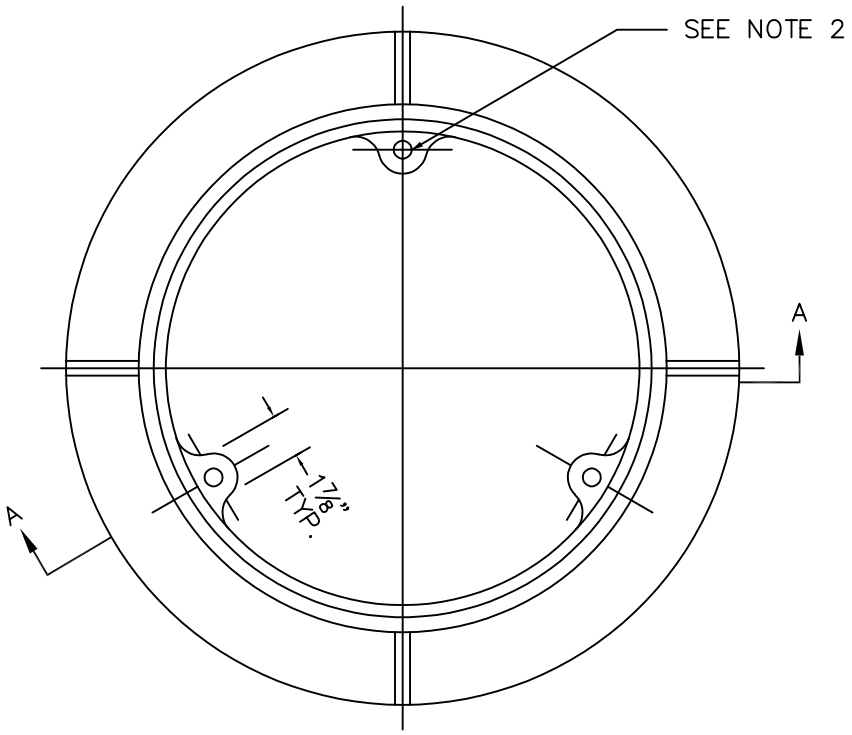
City of Duvall

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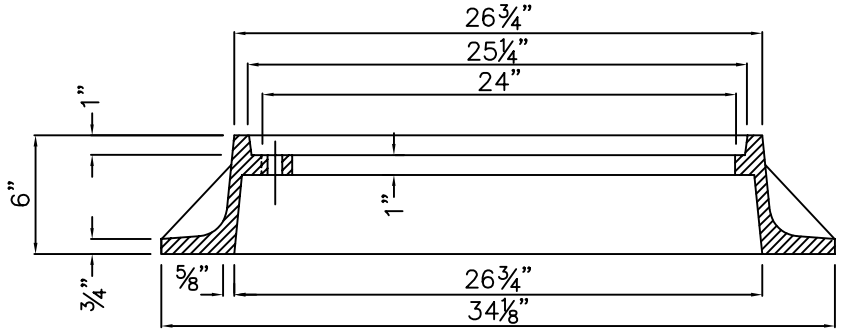
Solid Locking Cover

DRAWING NUMBER

3-020-022



PLAN



SECTION A–A

NOTES:

1. DRILL AND TAP THREE ⅝"–11 NC HOLES THROUGH FRAME AT 120° AND 11 1/16" RADIUS.
2. SEE STANDARD DETAIL 3–020–022 LOCKING STRUCTURE COVER FOR BOLT DOWN DETAIL.
3. SEE DEVELOPMENT DESIGN STANDARDS SECTION 3–7.05 FRAME, GRATES, AND COVERS FOR FURTHER INFORMATION.
4. MATERIAL IS CAST IRON ASTM A48 CLASS 30 AND SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
5. EAST JORDAN IRON WORKS MANUFACTURING CO. PRODUCT NUMBER 00371512 OR APPROVED EQUAL.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

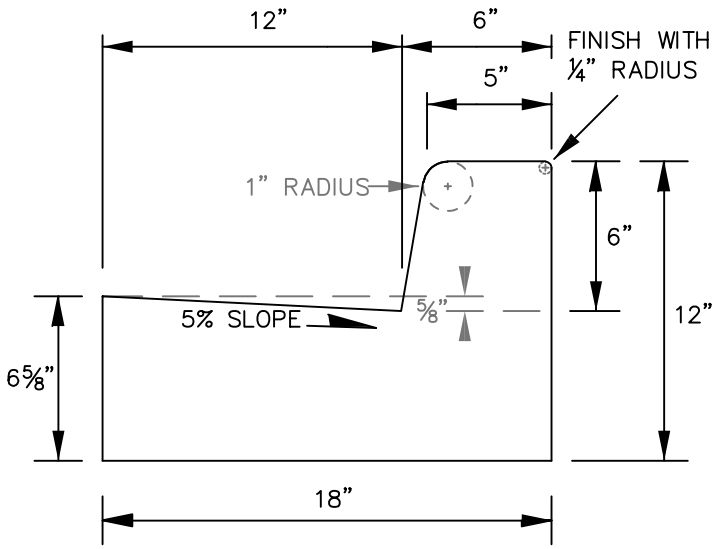
City of Duvall

TITLE

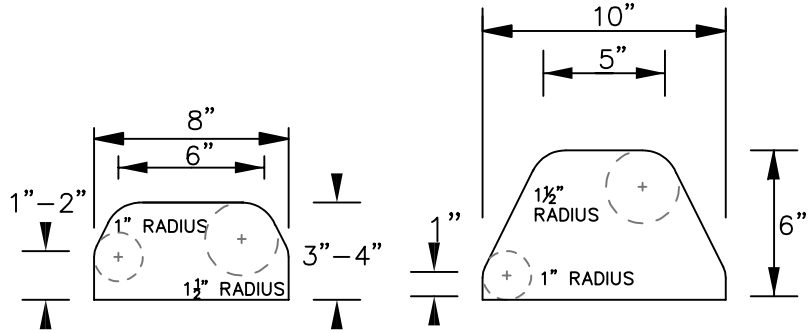
Locking Cover Frame

DRAWING NUMBER

3-020-023



TYPICAL VERTICAL CURB AND GUTTER



EXTRUDED CURB

NOTES:

1. EXTRUDED CURB SHALL BE ATTACHED WITH STEEL TIE BARS OR A TACK COAT. ALL ATTACHMENT METHODS MUST CONFORM TO WSDOT/APWA STANDARDS.
2. SEE SECTION 3–3.03 – SIDEWALKS, CURB AND GUTTER OF THE DESIGN STANDARDS FOR MORE DETAILS.
3. DEFAULT TO VERTICAL CURB IF PLANS DO NOT SPECIFY.

RELATED STANDARD DETAILS:

- ROAD REQUIREMENTS: 3–010–001, 3–010–002
- DRIVEWAY REQUIREMENTS: 3–030–003 TO 3–030–006
- EXPANSION JOINT REQUIREMENTS: DETAIL 3–03–005B.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

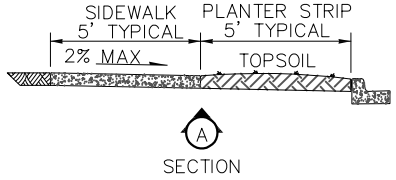
City of Duvall

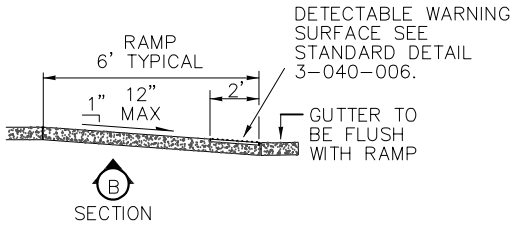
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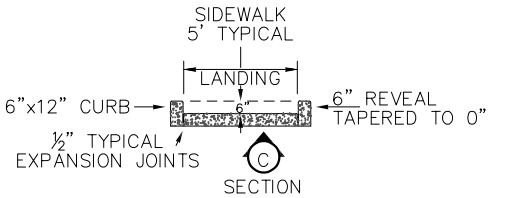
Vertical & Extruded Curb

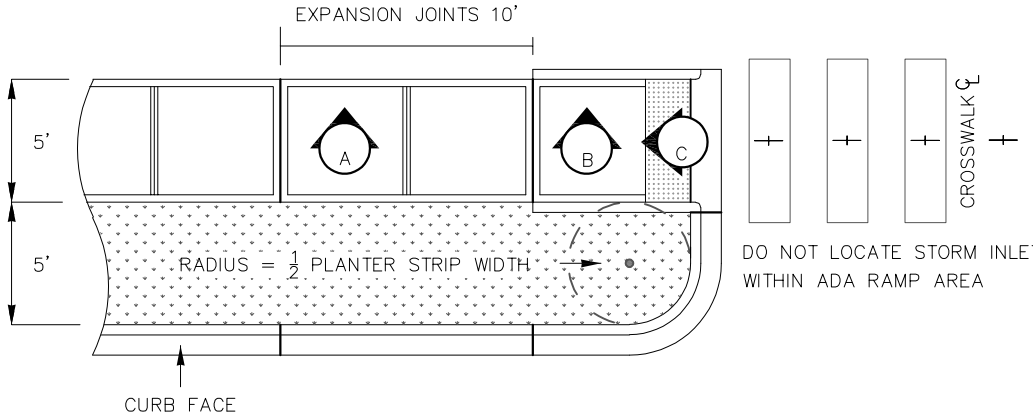
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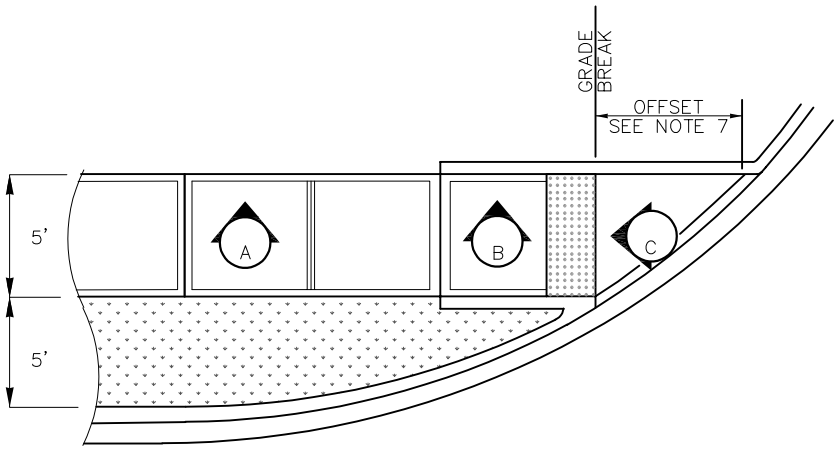
3-030-002











NOTES:

1. RAMP SLOPES SHALL NOT EXCEED 12 HORIZONTAL TO 1 VERTICAL (12H:1V).
2. RAMP & APPROACHES SHALL BE CLEAR OF OBSTACLES INCLUDING HYDRANTS, POLES, & DRAINS.
3. SEE PLANS FOR SPECIFIED CURB AND GUTTER STYLE (VERTICAL, ROLLED, OR INTEGRAL POUR).
4. FELT EXPANSION JOINTS SHALL BE 2" BY ½" THICK.
5. CURB RAMP SHALL BE SQUARE TO CURB AND ROADWAY.
6. ACCOMMODATION MUST BE MADE SO PROPOSED CURB RAMPS HAVE A CORRESPONDING RAMP(S) ON THE OPPOSITE SIDE OF THE STREET IN ACCORDANCE WITH RCW 35.68.075.
7. WHEN THE GRADE BREAK BETWEEN THE CURB RAMP AND THE LANDING IS LESS THAN OR EQUAL TO 5' FROM THE BACK OF CURB AT ALL POINTS, PLACE THE DETECTABLE WARNING SURFACE ON THE BOTTOM OF THE CURB RAMP DIRECTLY ABOVE THE GRADE BREAK.
8. FOR AREAS WITHOUT PLANTER STRIP, OMIT ASSOCIATED CURBING AS SHOWN IN THE ISOMETRIC VIEW(S) ABOVE.
9. FOR WIDTHS OF SIDEWALK REFER TO DEVELOPMENT DESIGN STANDARDS SECTION 3-3.03 SIDEWALKS, CURB AND GUTTER.
10. FOR CURB AND SIDEWALK JOINTS REFER TO STANDARD DRAWING 3-030-005B.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

City of Duvall

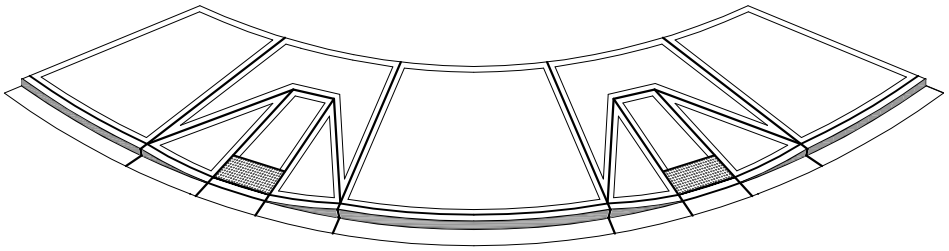
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Single Direction Curb Ramp

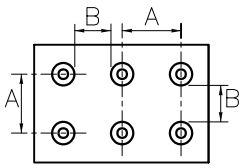
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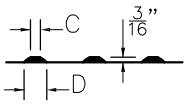
3-040-005

ISOMETRIC VIEW CORRESPONDING TO
STANDARD DETAIL 3-040-002



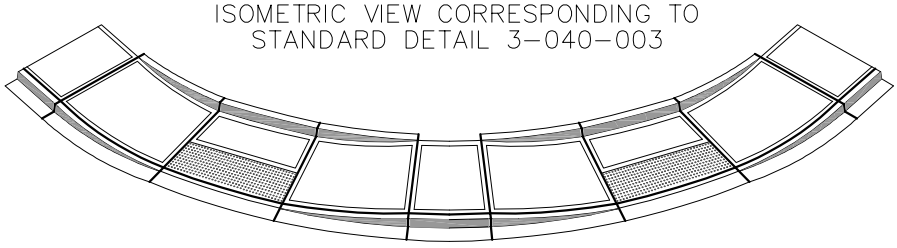
DETECTABLE WARNING DETAIL



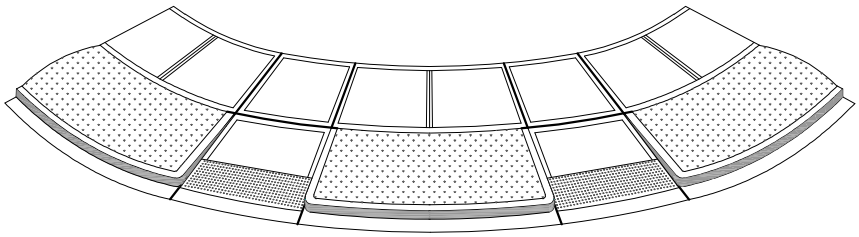


	MIN	MAX
A	1 5/8"	2 3/8"
B	5/8"	1 1/2"
C	7/16"	3/4"
D	7/8"	1 7/16"

ISOMETRIC VIEW CORRESPONDING TO
STANDARD DETAIL 3-040-003



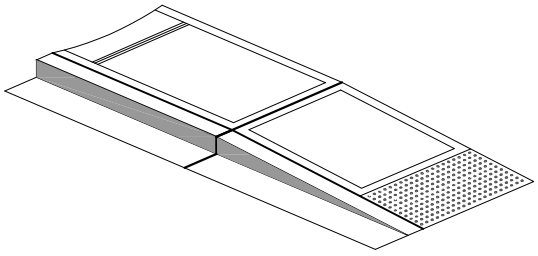
ISOMETRIC VIEW CORRESPONDING TO
STANDARD DETAIL 3-004-004

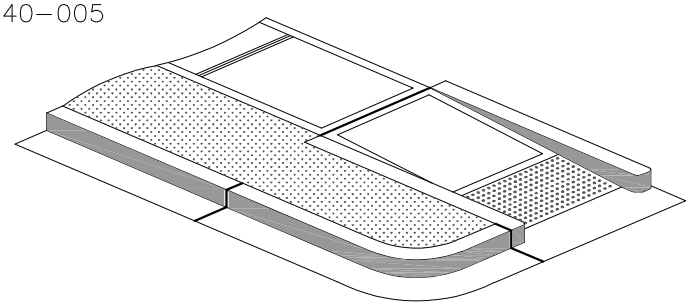


NOTES:

1. DETECTABLE WARNING DEVICE MUST BE OF AN APPROVED COLOR AND REMOVABLE UNLESS OTHERWISE APPROVED.
2. DETECTABLE WARNING MATERIAL SHALL BE INCLUDED IN MATERIAL SUBMITTALS AND APPROVED BY CITY PRIOR TO INSTALLATION.
3. TRUNCATED DOME INSTALLATION HEIGHT MUST BE WITHIN 1/4" OF CONCRETE GRADE.

ISOMETRIC VIEW CORRESPONDING TO
STANDARD DETAIL 3-040-005





NTS

DEVELOPMENT DESIGN STANDARD DETAILS

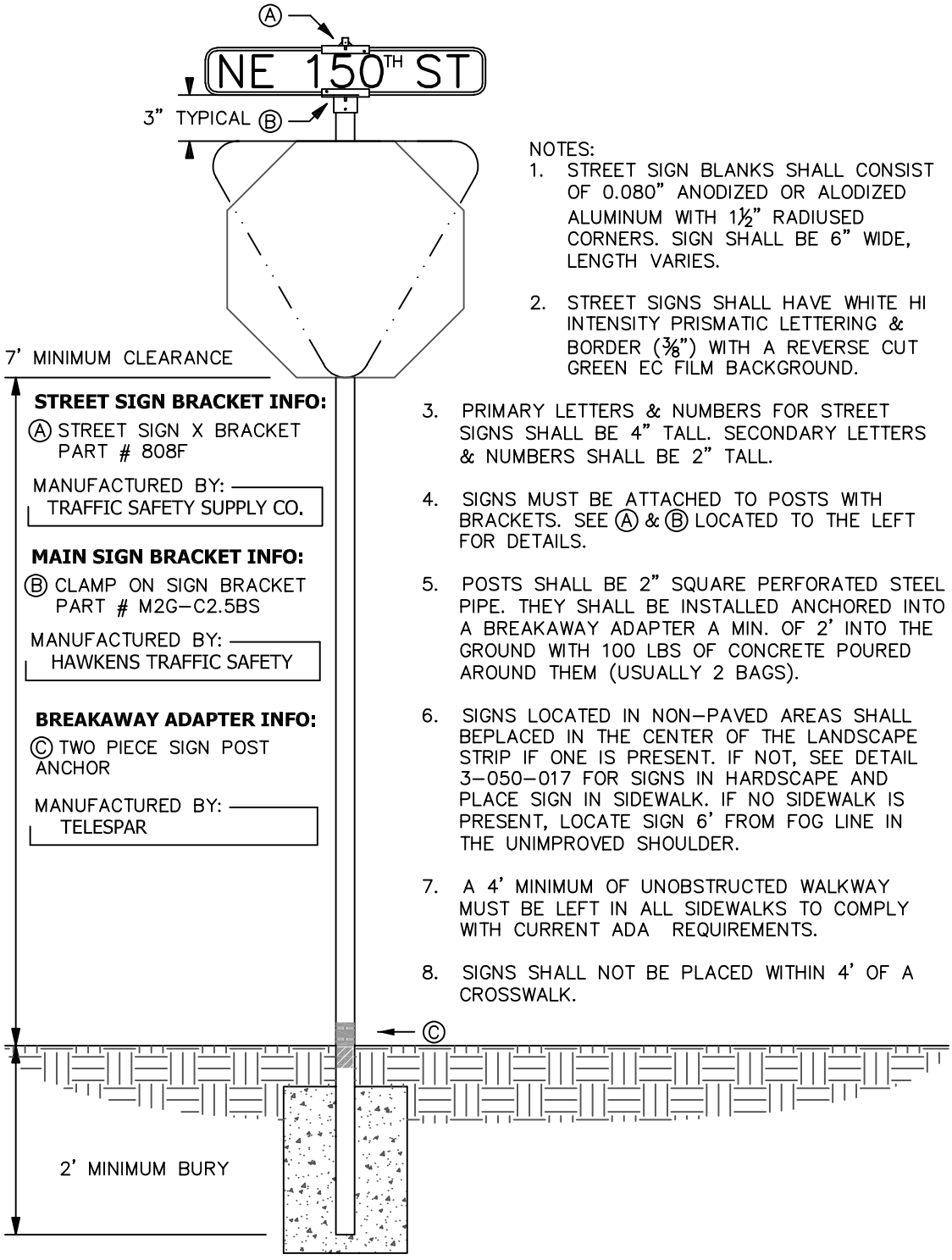
August 2021

City of Duvall

TITLE

Detectable Warning Surface

DRAWING NUMBER 3-040-006



NOTES:

1. STREET SIGN BLANKS SHALL CONSIST OF 0.080" ANODIZED OR ALODIZED ALUMINUM WITH 1½" RADIUSED CORNERS. SIGN SHALL BE 6" WIDE, LENGTH VARIES.
2. STREET SIGNS SHALL HAVE WHITE HI INTENSITY PRISMATIC LETTERING & BORDER (⅜") WITH A REVERSE CUT GREEN EC FILM BACKGROUND.
3. PRIMARY LETTERS & NUMBERS FOR STREET SIGNS SHALL BE 4" TALL. SECONDARY LETTERS & NUMBERS SHALL BE 2" TALL.
4. SIGNS MUST BE ATTACHED TO POSTS WITH BRACKETS. SEE Ⓐ & Ⓑ LOCATED TO THE LEFT FOR DETAILS.
5. POSTS SHALL BE 2" SQUARE PERFORATED STEEL PIPE. THEY SHALL BE INSTALLED ANCHORED INTO A BREAKAWAY ADAPTER A MIN. OF 2' INTO THE GROUND WITH 100 LBS OF CONCRETE POURED AROUND THEM (USUALLY 2 BAGS).
6. SIGNS LOCATED IN NON-PAVED AREAS SHALL BEPLACED IN THE CENTER OF THE LANDSCAPE STRIP IF ONE IS PRESENT. IF NOT, SEE DETAIL 3-050-017 FOR SIGNS IN HARDSCAPE AND PLACE SIGN IN SIDEWALK. IF NO SIDEWALK IS PRESENT, LOCATE SIGN 6' FROM FOG LINE IN THE UNIMPROVED SHOULDER.
7. A 4' MINIMUM OF UNOBSTRUCTED WALKWAY MUST BE LEFT IN ALL SIDEWALKS TO COMPLY WITH CURRENT ADA REQUIREMENTS.
8. SIGNS SHALL NOT BE PLACED WITHIN 4' OF A CROSSWALK.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

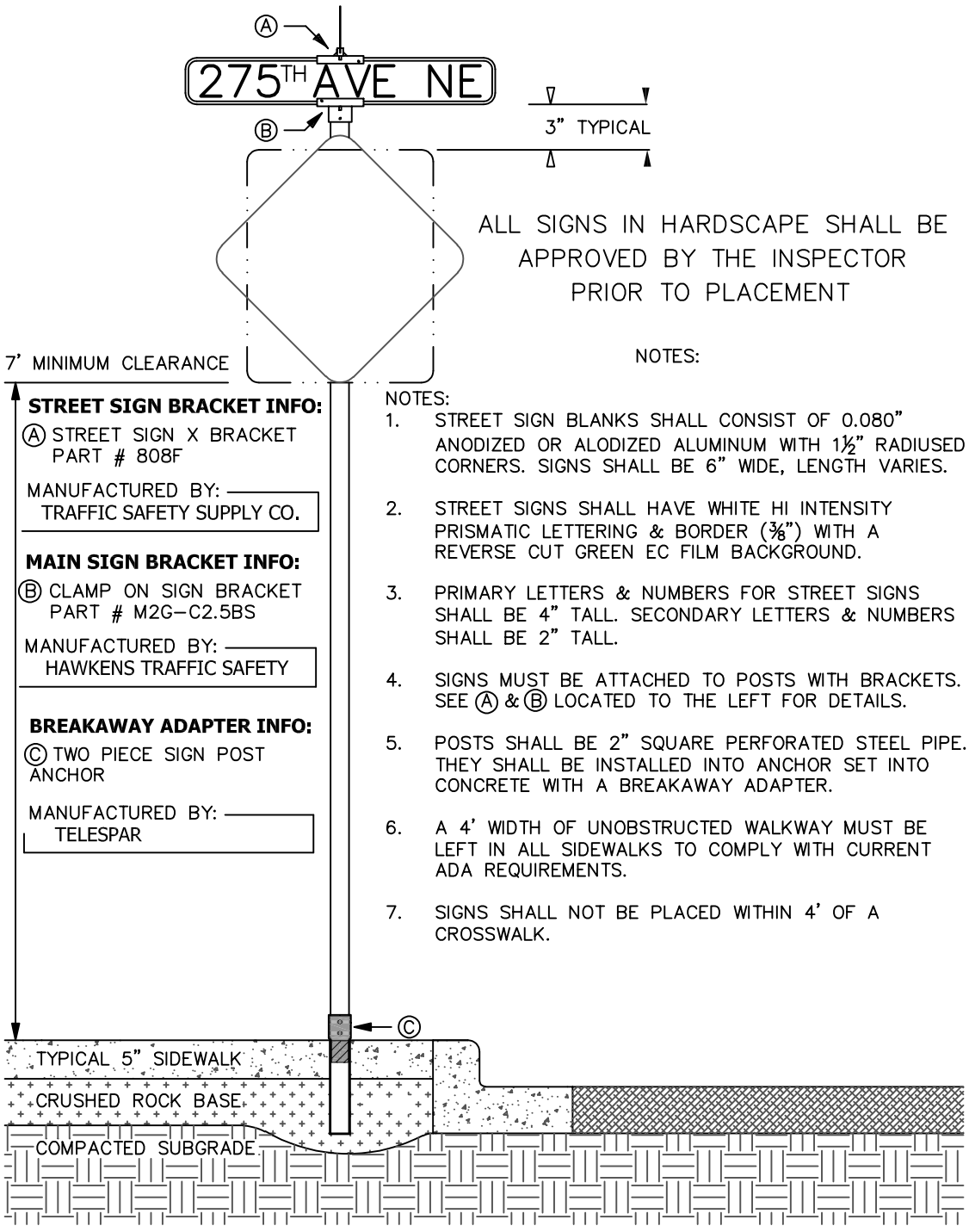
August 2021

City of Duvall

TITLE

Street Signs in Landscape

DRAWING NUMBER 3-050-016



ALL SIGNS IN HARDSCAPE SHALL BE APPROVED BY THE INSPECTOR PRIOR TO PLACEMENT

NOTES:

NOTES:

1. STREET SIGN BLANKS SHALL CONSIST OF 0.080" ANODIZED OR ALODIZED ALUMINUM WITH 1½" RADIUSED CORNERS. SIGNS SHALL BE 6" WIDE, LENGTH VARIES.
2. STREET SIGNS SHALL HAVE WHITE HI INTENSITY PRISMATIC LETTERING & BORDER (⅜") WITH A REVERSE CUT GREEN EC FILM BACKGROUND.
3. PRIMARY LETTERS & NUMBERS FOR STREET SIGNS SHALL BE 4" TALL. SECONDARY LETTERS & NUMBERS SHALL BE 2" TALL.
4. SIGNS MUST BE ATTACHED TO POSTS WITH BRACKETS. SEE Ⓐ & Ⓑ LOCATED TO THE LEFT FOR DETAILS.
5. POSTS SHALL BE 2" SQUARE PERFORATED STEEL PIPE. THEY SHALL BE INSTALLED INTO ANCHOR SET INTO CONCRETE WITH A BREAKAWAY ADAPTER.
6. A 4' WIDTH OF UNOBSTRUCTED WALKWAY MUST BE LEFT IN ALL SIDEWALKS TO COMPLY WITH CURRENT ADA REQUIREMENTS.
7. SIGNS SHALL NOT BE PLACED WITHIN 4' OF A CROSSWALK.

NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

City of Duvall

TITLE

Street Signs in Hardscape

DRAWING NUMBER 3-050-0017

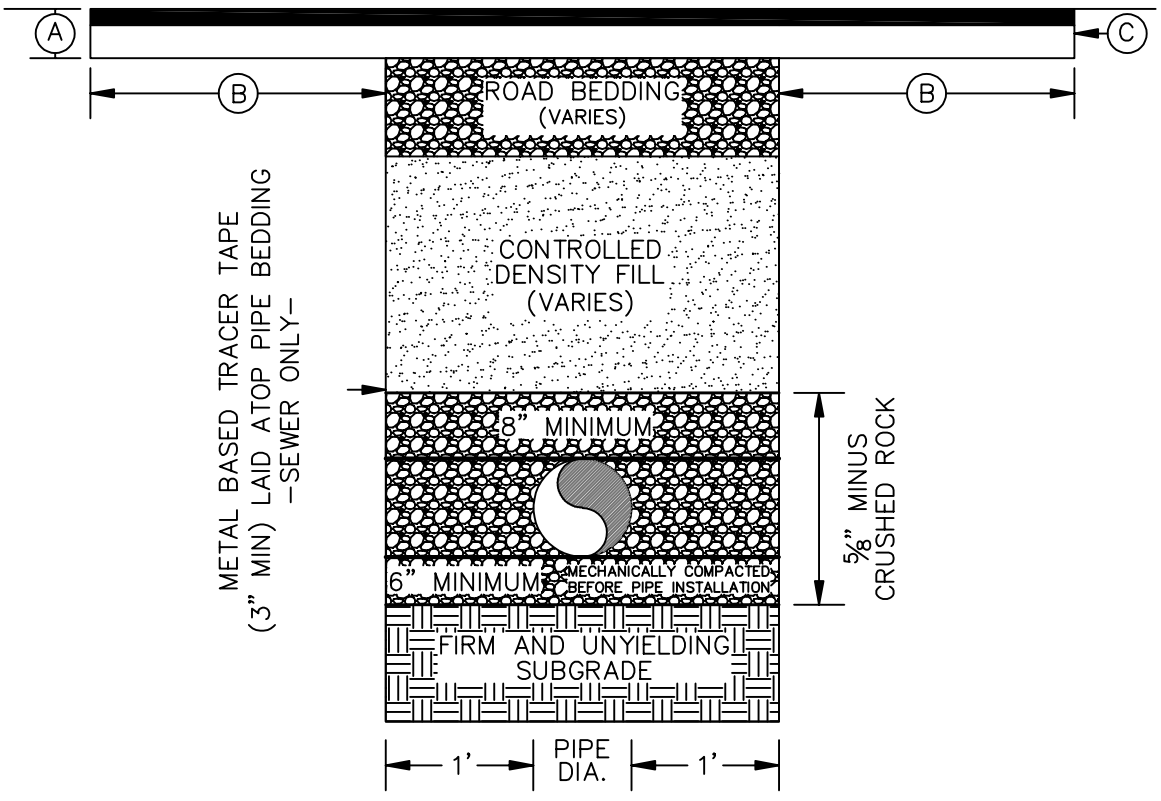
(A) PERMANENT ASPHALT TRENCH PATCH TO BE THE THICKNESS OF THE EXISTING ASPHALT + 1" OR A TOTAL OF 3", WHICHEVER IS GREATER UNLESS OTHERWISE.

(B) 3' TYPICAL "T–CUT" MUST BE SQUARE IN SHAPE AND CONTAIN ONLY 90 DEGREE ANGLES UNLESS OTHERWISE APPROVED. "T–CUTTING" MAY BE DONE BEFORE OR AFTER EXCAVATION, HOWEVER, IF THE SAWCUT ASPHALT EDGES BECOME BROKEN DURING CONSTRUCTION ANOTHER CUT WILL BE REQUIRED PRIOR TO PAVING.

(C) CUT EDGES OF ASPHALT SHALL BE CLEAN, STRAIGHT AND SQUARE BEFORE PAVING, ASPHALT EMULSION TACK SHALL BE APPLIED TO THE CLEAN CUT EDGES JUST PRIOR TO PAVING, LIQUID RUBBERIZED TAR SHALL BE APPLIED AND BROOMED TO ALL SEAMS AFTER PAVING ACTIVITIES, SAND SHALL BE APPLIED TO THE LIQUID TAR AFTER BROOMING, SPECIFICATIONS ON THE ASPHALT EMULSION AND LIQUID TAR CAN BE FOUND IN THE CURRENT WSDOT MANUAL

COMPACTION NOTES:

1. AREAS WITHIN ROW: THE TOP 4' OF BACKFILL MUST MEET 95% COMPACTION. BELOW THAT MUST MEET A MINIMUM OF 90% COMPACTION.
2. AREAS OUTSIDE THE ROW: MUST MEET A MINIMUM OF 90% COMPACTION IN LANDSCAPE AREAS. IN HARDSCAPE AREAS, THE TOP 4' MUST MEET 95% COMPACTION WITH A MINIMUM OF 90% COMPACTION BELOW.



NTS

DEVELOPMENT DESIGN STANDARD DETAILS

August 2021

City of Duvall

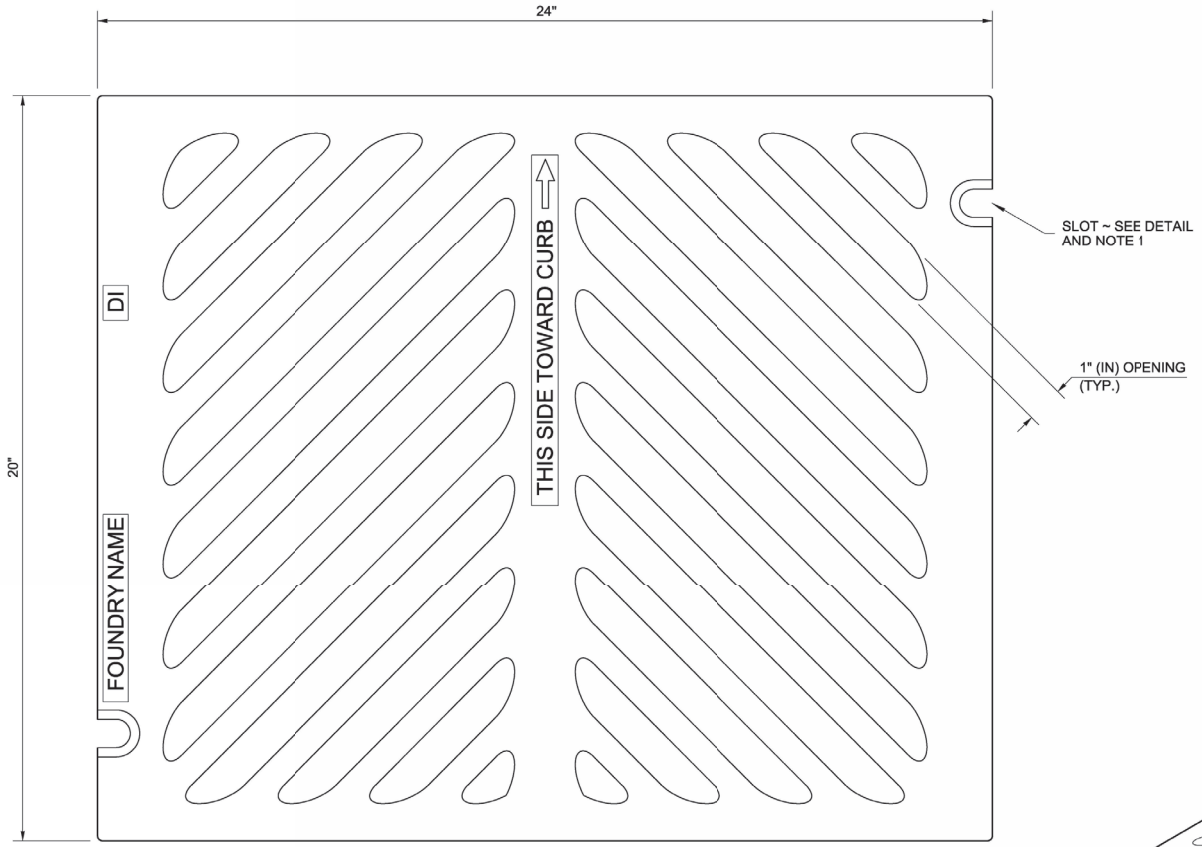
TITLE
Pipe Bedding, Trench Section & Asphalt Restoration

DRAWING NUMBER 5-010-007

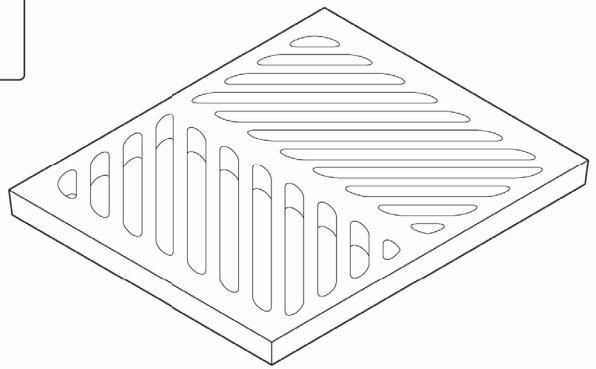
APPENDIX C

WSDOT STANDARD PLANS

DRAWN BY: FERN LIDDELL



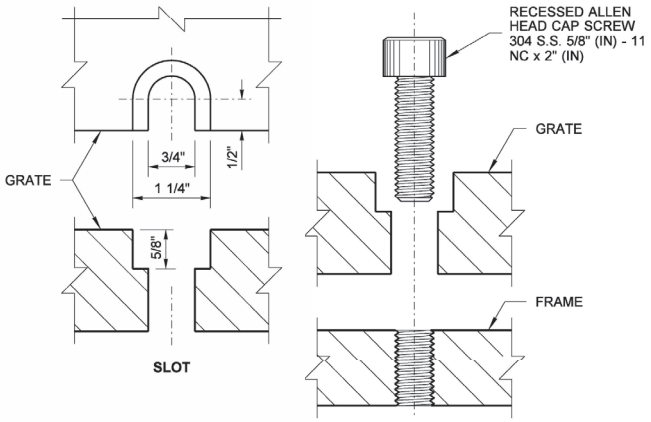
TOP



ISOMETRIC

NOTES

1. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8" (in) - 11 NC × 2" (in) allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.
2. Refer to **Standard Specification section 9-05.15,** and **9-05.15(2)** for additional requirements.
3. For frame details, see **Standard Plan B-30.10**.
4. The thickness of the grate shall not exceed 1 5/8" (in).



BOLT-DOWN DETAILS
SEE NOTE 1

JULIE HEILMAN
STATE OF WASHINGTON
41819
REGISTERED
PROFESSIONAL ENGINEER

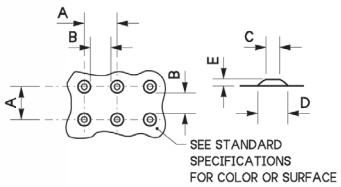
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cosign

RECTANGULAR HERRINGBONE GRATE

STANDARD PLAN B-30.50-03

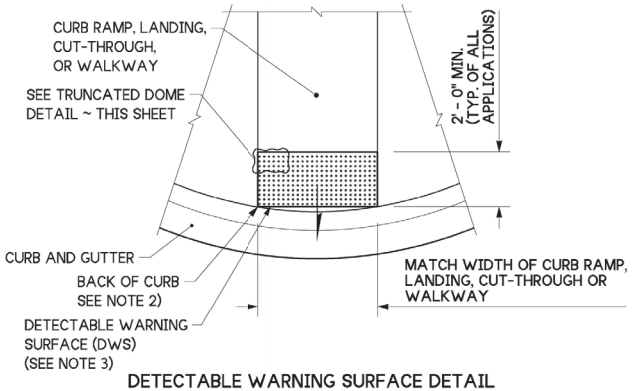
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Carpenter, Jeff
Feb 27 2018 7:59 AM
cosign
STATE DESIGN ENGINEER
Washington State Department of Transportation

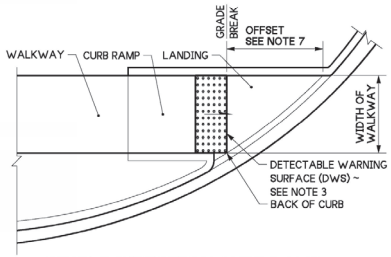


	MIN.	MAX.
A	1.60"	2.40"
B	0.65"	—
C	0.45"	0.90"
D	0.90"	1.40"
E	0.20"	0.20"

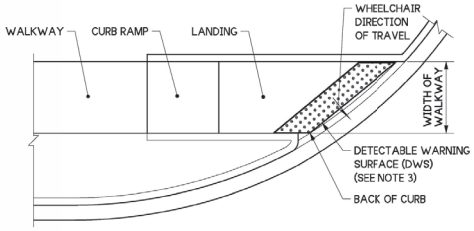
TRUNCATED DOME DETAILS
SEE NOTE 3



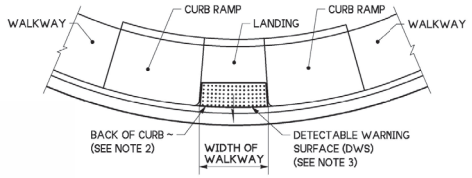
DETECTABLE WARNING SURFACE DETAIL



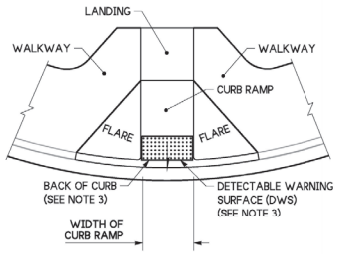
SINGLE DIRECTION CURB RAMP
(GRADE BREAK BETWEEN CURB AND LANDING < 5 FEET FROM BACK OF CURB)
(SEE NOTE 5)



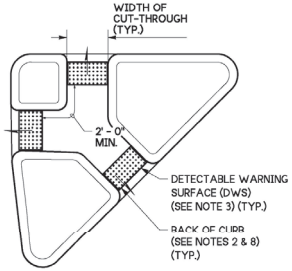
SINGLE DIRECTION CURB RAMP
(GRADE BREAK BETWEEN CURB AND LANDING > 5 FEET FROM BACK OF CURB)
(SEE NOTE 5)



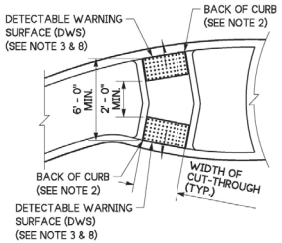
PARALLEL CURB RAMP
(SEE NOTE 6)



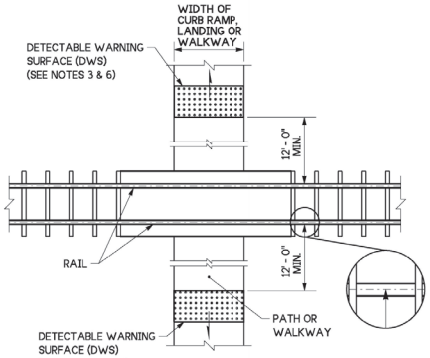
PERPENDICULAR CURB RAMP
(SEE NOTE 6)



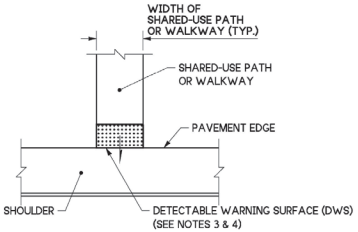
ISLAND CUT-THROUGH



ROUNDABOUT SPLITTER ISLAND



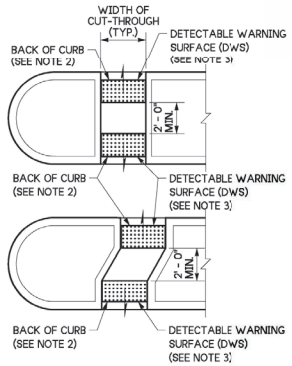
PEDESTRIAN PAILROAD CROSSING



SHARED-USE PATH CONNECTION

NOTES

1. Permanent Detectable Warning Surfaces (DWS) shall extend the full width of the curb ramp, landing, or other roadway entrance as applicable. Exception: If the manufacturer of the DWS requires a concrete border around the DWS, a variance of up to 2" (in) on each side of the DWS is permitted.
2. Permanent Detectable Warning Surfaces (DWS) shall be placed on a minimum 4" (in) thick concrete pad. The DWS panel shall be placed adjacent to the back of the curb and with no more than a 2" (in) gap between the DWS and the back of the curb measured at the center of the DWS panel. Exception: if the Manufacturer of the selected DWS requires a concrete border around the DWS, a variance of up to 2" (in) from the back of the curb is permitted (measured at the leading corners of the DWS panel).
3. The rows of truncated domes shall be aligned to be parallel to the direction of travel, and perpendicular to the grade break at the back of curb.
4. If curb and gutter are not present, such as a shared-use path connection, the Detectable Warning Surface shall be placed at the pavement edge.
5. See Standard Plans for sidewalk and curb ramp details.
6. If a curb ramp is required, the location of the Detectable Warning Surface must be at the bottom of the ramp and within the required distance from the rail crossing.
7. When the grade break between the curb ramp and the landing is less than or equal to 5 feet from the back of curb at all points, place the Detectable Warning Surface on the bottom of the curb ramp directly above the grade break.
8. Glued or stick down Detectable Warning Surfaces are allowed only for temporary work zone applications.



MEDIAN CUT-THROUGH

LEGEND
DIRECTION OF TRAVEL



Oct 13, 2023

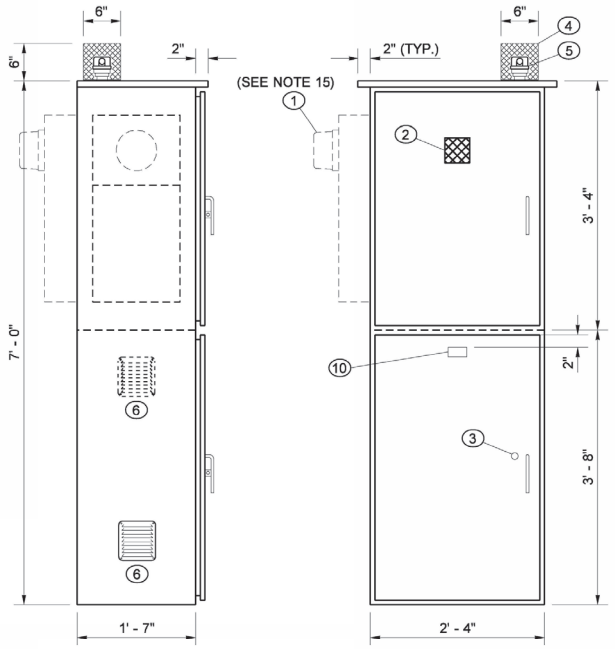
DETECTABLE WARNING SURFACE

STANDARD PLAN F-45.10-04

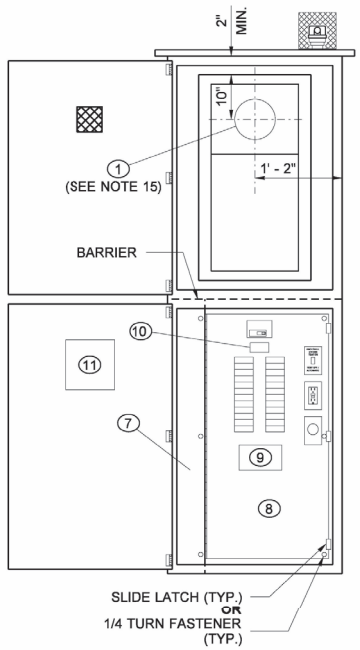
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Mark A Reaves Oct 16, 2023
STATE DESIGN ENGINEER
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



SERVICE CABINET DETAIL

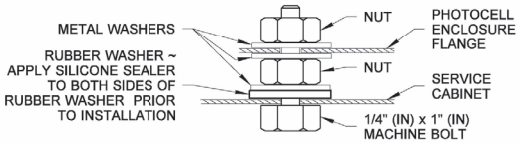


FRONT
(SHOWN WITH DOORS OPEN AND DEAD FRONT CLOSED)

SERVICE CABINET INTERIOR

KEY

1. METER SOCKET/BASE PANEL PER UTILITY REQUIREMENTS ~ UTILITY MAY REQUIRE METER TO BE INSTALLED ON THE OUTSIDE OF THE CABINET INSTEAD OF INSIDE THE UTILITY SECTION OF THE CABINET
2. UTILITY SECTION DOOR ~ HINGED FRONT FACING DOOR WITH 4" (IN) x 4" (IN) MINIMUM POLISHED WIRE GLASS WINDOW
3. CUSTOMER SECTION DOOR WITH BEST CX 6-PIN LOCK CORE
4. PHOTOCELL ENCLOSURE ~ SEE PHOTOCELL MOUNTING DETAIL ~ ENCLOSURE SHALL BE FABRICATED FROM EITHER:
   A. 5/8" (IN) EXPANDED STEEL MESH WITH WELDED SEAMS AND MOUNTING FLANGES ~ HOT-DIP GALVANIZED AFTER FABRICATION ~ OR ~
   B. TYPE 5052 - H32 ALUMINUM WITH 5/8" (IN) x 5/8" (IN) OPENINGS EQUIVALENT TO 5/8" (IN) EXPANDED STEEL MESH
5. PHOTOELECTRIC CONTROL ~ SEE **STANDARD SPECIFICATION, SECTION 9-29.11(2).**
6. SCREENED VENTS ~ TWO REQUIRED, ONE EACH SIDE ~ LOUVERED PLATES
7. 6" (IN) x 6" (IN) MIN. UTILITY WIREWAY ~ BACK LEFT CORNER OF CUSTOMER SECTION ~ SHALL REQUIRE TOOLS TO OPEN ~ LABEL WITH "UTILITY WIREWAY"
8. HINGED DEAD FRONT WITH 1/4 TURN FASTENERS OR SLIDE LATCHES ~ DEAD FRONT PANEL BOLTS SHALL NOT EXTEND INTO VERTICAL LIMITS OF THE BREAKER ARRAY(S)
9. ARC FLASH AND SHOCK HAZARD LABEL (FIELD INSTALLED) ~ SEE DETAIL
10. CABINET BUSSWORK RATING LABEL
11. METAL WIRING DIAGRAM HOLDER



PHOTOCELL ENCLOSURE MOUNTING DETAIL

NOTES

1. See **Standard Specification Section 9-29.24** (Service Cabinets).
2. Cabinet shall be rated NEMA 3R and shall include two rain-tight vents.
3. Dimensions shown are minimum and shall be adjusted to accommodate the various sizes of equipment installed. A 1% tolerance is allowed for all dimensions.
4. Doors shall be pad-lockable and gasketed. Customer side door shall include a Best CX 6-pin Construction core lock. Each door shall use either a continuous piano hinge, three two-piece hinges, or two heavy-duty lift-off type hinges.
5. Hinges with pins shall have stainless steel or brass pins - see **Standard Plan J-10.20** door hinge details. When using two piece hinge type on galvanized enclosure, remove hinge pin prior to welding hinge to cabinet and prior to hot-dip galvanizing. After galvanizing, replace pin with brass pin and solder in place.
6. Equipment identified by Key Numbers **14**, **16**, **17**, **18**, **19**, **20**, **21**, **22**, **23**, and **28** shall have an appropriately engraved phenolic name plate attached with screws or rivets. The name plate for Key Number 21 (Test Switch only) shall read as follows:
   "PHOTOCELL BYPASS TEST ON" AND "PHOTOCELL TEST OFF - AUTOMATIC."
   See service cabinet detail.
7. All busswork shall be **ASTM B187** copper and shall have a minimum rating of 250 amps. All breakers shall bolt on to the busswork. Jumpering of breakers shall not be allowed. Busswork shall accommodate all future equipment as shown in the Breaker Schedule.
8. All nuts, bolts, and washers used for mounting the photocell enclosure shall be stainless steel.
9. The photocell unit shall be centered in the photocell enclosure to permit 360 degree rotation of the photocell without removal of the photocell unit or the photocell enclosure.
10. All internal wire runs shall be identified with "TO - FROM" coded tags labeled with the code letters and/or numbers shown on the Schedules. Approved PVC or polyolefin wire marking sleeves shall be used.
11. Key items **23**, **24**, and **25** shall be connected to the cabinet main bonding jumper assembly by appropriately sized wire.
12. See Contract for Breaker and Contactor Schedule.
13. Buss bars shall be sized to accommodate up to #4 AWG wires.
14. The meter base portion of this service was designed to meet metering portion of **EUSERC Drawing 309** requirements.
15. Metering arrangements vary with different serving Utilities. The Utility may require meter base mounting in the enclosure, on the side, or on the back of the enclosure. The Utility may require the dimension between the door and the front of the safety socket box to be less than the 11" (in) shown in the Left Side - Safety Socket Box Mounting Detail. The Contractor shall verify the serving Utility's requirements prior to fabrication and installation of the service equipment.
16. Verify the meter setback position with the utility and adjust the meter socket backplate to the required position. For cabinets with separate metering, remove the meter socket or install shunts in the meter socket.

⚠ WARNING

Arc Flash and Shock Hazard
Appropriate PPE Required

ARC FLASH PROTECTION		SHOCK PROTECTION	
Arc Flash Boundary (in)	00 In	Shock Hazard When Cover Removed	000 VAC
Incident Energy at 18 inches (cal/cm²)	0.00	Limited Approach	00 In
Assessment Date: 00-00-0000		Restricted Approach	00 In
By:		Glove Class	00
WSDOT Approval Inspector:		Date:	

ARC FLASH AND SHOCK HAZARD LABEL DETAIL
(9)

WILLIAM FLINT JACKSON
STATE OF WASHINGTON
48821
REGISTERED PROFESSIONAL ENGINEER
William Flint Jackson Aug 18, 2021 10:00 PDT

Aug 18, 2021

SERVICE CABINET TYPE D (0 - 200 AMP TYPE 120/240 VOLT SINGLE PHASE)

STANDARD PLAN J-10.21-02

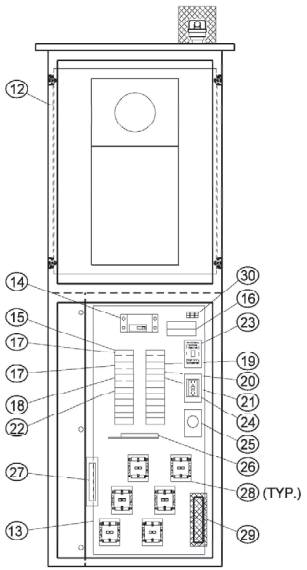
SHEET 1 OF 2 SHEETS

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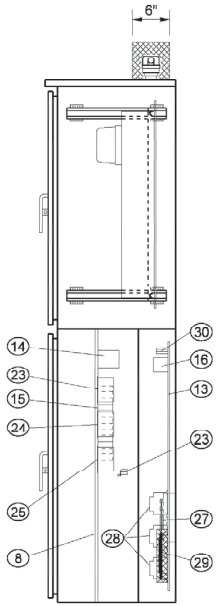
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KEY (CONTINUED)

(12) ALUMINUM BACKPLATE FOR METER SOCKET/BASE
(13) 18" (IN) WIDE BY 40" (IN) TALL ALUMINUM BACKPLATE FOR CUSTOMER SECTION EQUIPMENT
(14) MAIN BREAKER ~ DPST ~ SIZE PER BREAKER SCHEDULE
(15) 24-CIRCUIT PANEL BOARD ~ MINIMUM SIZE WITH SEPARATE MAIN BREAKER
(16) 20 KA TYPE 1 OR TYPE 2 SURGE PROTECTION DEVICE ~ DIN RAIL MOUNT WITH PLUG-IN MODULE(S)
(17) DPST BRANCH BREAKER ~ SEE BREAKER SCHEDULE
(18) SPARE BRANCH BREAKER ~ 20 AMP DPST ~ OMIT IF BREAKER ARRAY IS FULL (SEE BREAKER SCHEDULE)
(19) PHOTOCELL BREAKER ~ SPST 15 AMP
(20) RECEPTACLE BREAKER ~ SPST 20 AMP
(21) HEATER BREAKER ~ SPST 15 AMP
(22) SPST BRANCH BREAKER ~ SEE BREAKER SCHEDULE
(23) SINGLE GANG BOX WITH TEST SWITCH ~ 120/277 VOLT 15 AMP SPDT SNAP ACTION - POSITIVE CLOSE - "T" RATED
(24) SINGLE GANG BOX WITH RECEPTACLE (GROUNDED) ~ 125 VOLT 20 AMP GFCI
(25) SINGLE GANG BOX WITH THERMOSTAT CONTROL ~ 40° F CLOSURE - 3 DIFFERENTIAL
(26) ISOLATED NEUTRAL BUSS ~ 14 LUG COPPER (SEE NOTE 12)
(27) CABINET MAIN BONDING JUMPER ASSEMBLY ~ BUSS SHALL BE 14 LUG TINNED COPPER (SEE NOTE 12) ~ SEE CABINET MAIN BONDING JUMPER ASSEMBLY DETAIL
(28) CONTACTOR (BEHIND DEAD FRONT) ~ SEE BREAKER SCHEDULE
(29) STRIP HEATER (100 WATT NOMINAL) WITH EXPANDED STEEL MESH ENCLOSURE FOR TOUCH PROTECTION
(30) THREE POSITION DIN RAIL MOUNTED TERMINAL BLOCK ~ TERMINAL BLOCK SECTIONS SHALL BE BLACK, WHITE, AND RED AS SHOWN IN CABINET WIRING DIAGRAM.

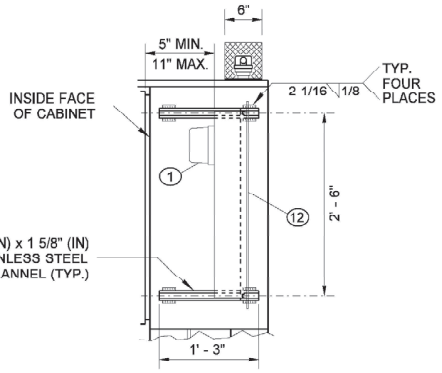


FRONT
(SHOWN WITH DEAD FRONT REMOVED)

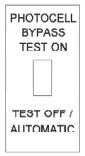


INTERIOR END VIEW
(SUPPORT FRAMES FOR EQUIPMENT NOT SHOWN)

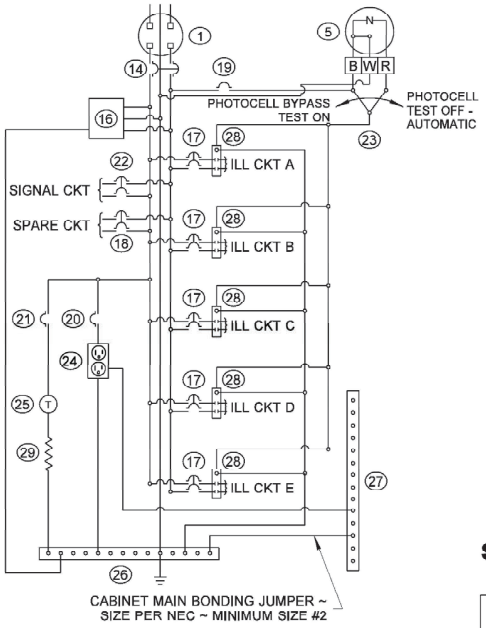
SERVICE CABINET INTERIOR DETAIL



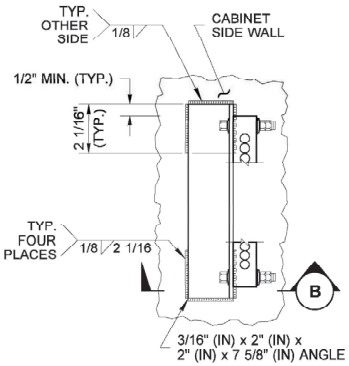
UTILITY SECTION DETAIL



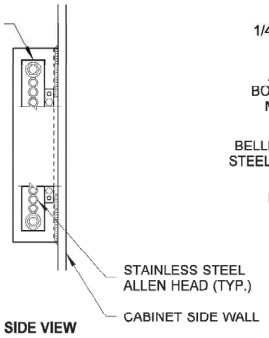
TEST SWITCH LABEL DETAIL
(23)



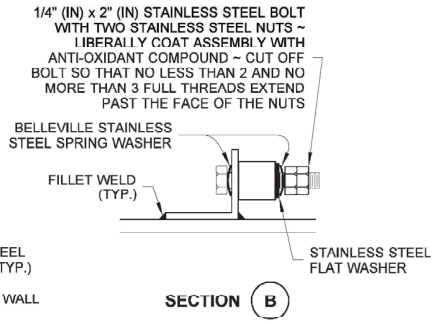
WIRING SCHEMATIC



ELEVATION VIEW



SIDE VIEW



SECTION (B)

CABINET MAIN BONDING JUMPER ASSEMBLY DETAIL



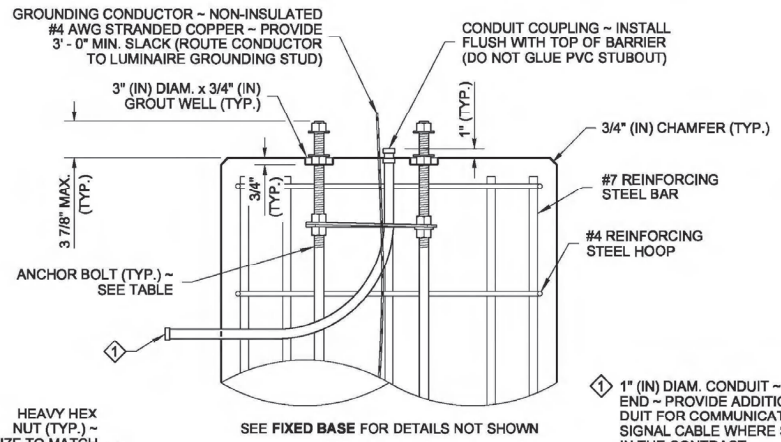
Aug 18, 2021

SERVICE CABINET TYPE D (0 - 200 AMP TYPE 120/240 VOLT SINGLE PHASE)

STANDARD PLAN J-10.21-02

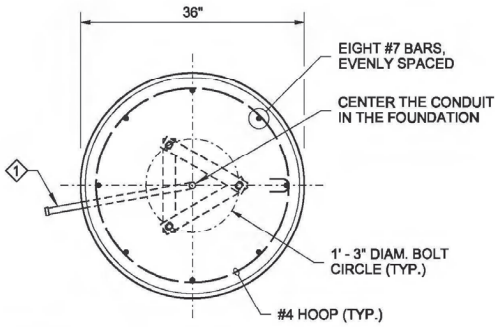
SHEET 2 OF 2 SHEETS

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PARTIAL ELEVATION VIEW

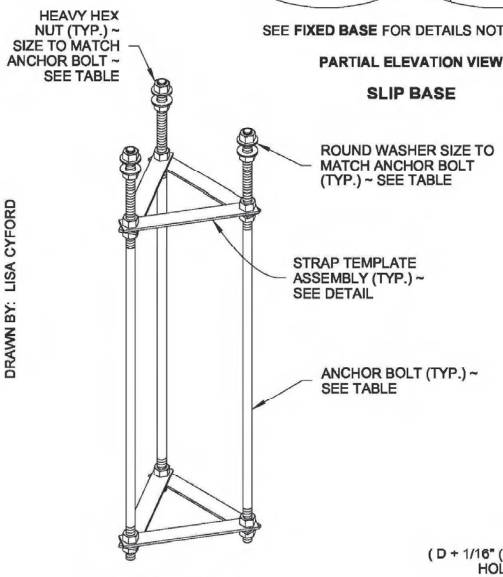
SLIP BASE



TOP VIEW

FIXED BASE

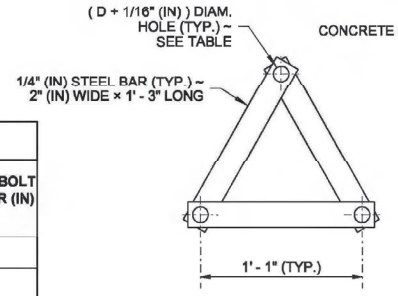
1 1" (IN) DIAM. CONDUIT ~ CAP EACH END ~ PROVIDE ADDITIONAL CONDUIT FOR COMMUNICATION OR SIGNAL CABLE WHERE SHOWN IN THE CONTRACT



ISOMETRIC VIEW

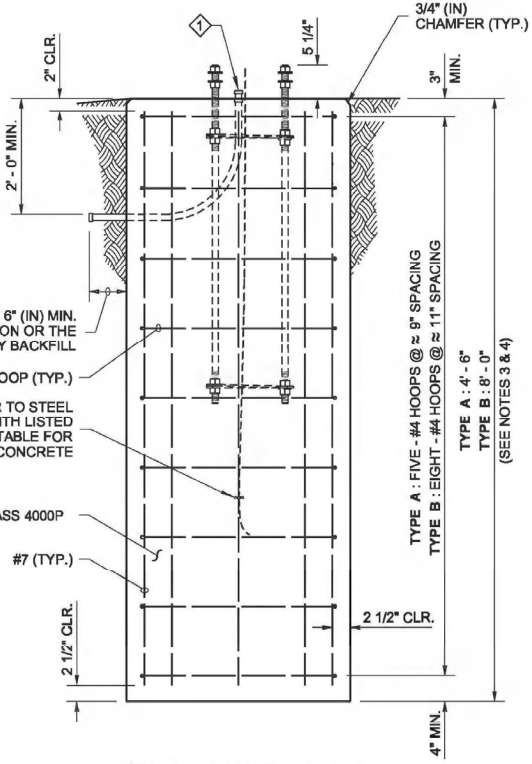
ANCHOR BOLT ASSEMBLY

(SLIP BASE SHOWN)



TOP VIEW

STRAP TEMPLATE ASSEMBLY



SEE **SLIP BASE** FOR DETAILS NOT SHOWN

ELEVATION VIEW

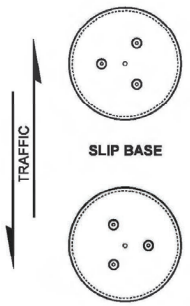
FIXED BASE

ANCHOR BOLT TABLE			
LUMINAIRE HEIGHT (FT) (H1)	MAST ARM TYPE	MAST ARM LENGTH (FT)	ANCHOR BOLT DIAMETER (IN) "D"
20' TO 50'	SINGLE	6' TO 16'	1"
20' TO 50'	DOUBLE	6' TO 8'	1"
20' TO 45'	DOUBLE	10' TO 16'	1"
46' TO 50'	DOUBLE	10' TO 16'	1 1/8"

DRAWN BY: LISA CYFORD

NOTES

1. See **Standard Plan J-28.40** for Luminaire Pole base mounting details.
2. The Strap Templates shall be held in place by nuts, 6" (in) from the top of the foundation and 3" (in) from the bottom of the anchor bolts. Eighteen heavy duty hex nuts and six round washers are required for a slip base assembly. Eighteen heavy duty hex nuts and six plate washers are required for a fixed base assembly.
3. Use Steel Light Standard Foundation **Type A** on level ground or slopes not exceeding 4H : 1V. Use **Type B** for slopes steeper than 4H : 1V, but not exceeding 2H : 1V. Slopes steeper than 2H : 1V shall require a special design.
4. These foundations are designed for a minimum of 2000 PSF **(TYPE A)** or 1500 PSF **(TYPE B)** allowable lateral bearing pressure for the soil. A special foundation shall be required for soil with allowable lateral bearing pressure lower than 1500 PSF.
5. The Luminaire Pole height shall not exceed 50' (ft) (**H1**).
6. Slip bases shall not be installed on 50' (ft) (**H1**) poles with Double Mast Arms, nor on poles weighing more than 1000 lbs.
7. Slip bases are required on poles installed inside the Design Clear Zone, and on poles installed behind traffic barrier that are within the traffic barrier deflection zone.
8. Foundations constructed within Media Filter Drains shall be increased in depth by the depth of the Media Filter Drain.
9. Exposed portions of the foundation shall be formed to create a Class 2 surface finish. All forming shall be removed upon completion of foundation construction.
10. For excavation, concrete placement, and backfill options, see METHOD 1 and METHOD 2 on Sheet 2 of 2.
11. The anchor bolts shall be high-strength steel, manufactured from ASTM F1554 Grade 105, with heavy hex nuts and hardened washers. Galvanize the anchor bolts according to ASTM F2329.
12. The foundation shall be grounded in accordance with the requirements of **Standard Specification 8-20.3(4).**
13. See **Standard Plans C-8b** and **C-85.14** for steel light standards on traffic barrier.



SLIP BASE

FIXED BASE

ANCHOR BOLT LAYOUT



Zeldenrust, Richard
Jun 10 2014 10:37 AM

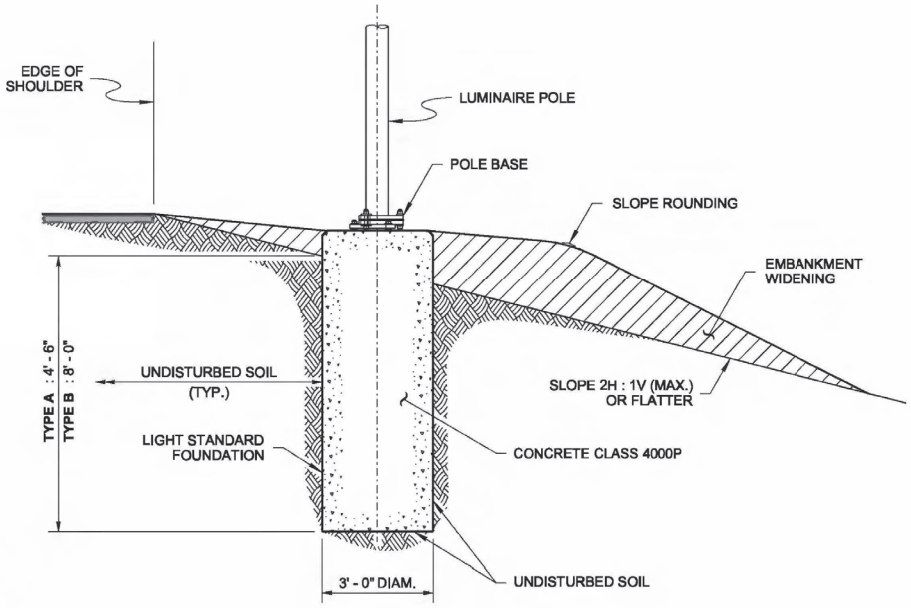
STEEL LIGHT STANDARD FOUNDATION TYPES A & B

STANDARD PLAN J-28.30-03

SHEET 1 OF 2 SHEETS

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Jun 11 2014 1:33 PM
STATE DESIGN ENGINEER

Washington State Department of Transportation



(CASE A SHOWN)

METHOD 1

NO SUBSURFACE FORM

This option is used only when the existing soil in the hole will remain standing and the cement concrete can be placed without causing the soil to collapse. Concrete shall be cast directly against undisturbed soil.

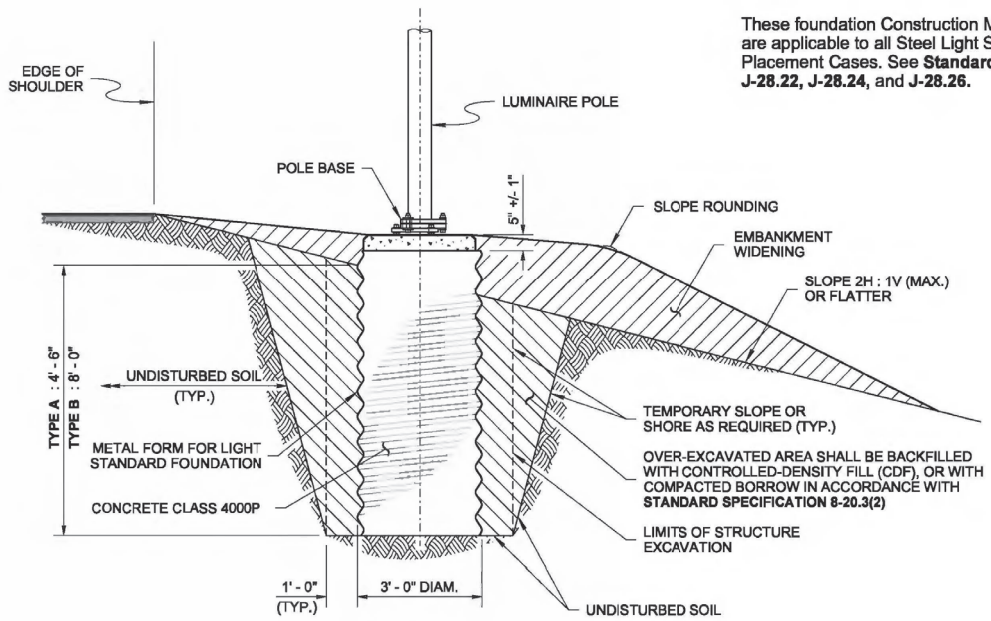
Auger the hole for the foundation. Use a paper or cardboard form to achieve a smooth finish on the final exposed cement concrete. Support the form as necessary to remain plumb.

See **Standard Plans J-28.24** and **J-28.26** for maximum heights of exposed foundation when no embankment widening is to be installed.

Place the concrete foundation.

After concrete has cured, remove the paper or cardboard form portion.

Construct the embankment widening (if required).



(CASE A SHOWN)

METHOD 2

METAL (SUBSURFACE) FORM REQUIRED

When the existing soil will not retain a vertical face, over-excavate the foundation area and install a 36" (in) diameter corrugated metal (pipe) form. The corrugated metal form shall not extend more than 5" (in) +/- 1" (in) below any portion of the foundation that will remain exposed upon final grading. Continue forming to full height using a paper or cardboard form to achieve a smooth finish on final exposed cement concrete. Support the form as necessary to remain plumb.

See **Standard Plans J-28.24** and **J-28.26** for maximum heights of exposed foundation when no embankment widening is to be installed.

Place the concrete foundation.

After concrete has cured, remove the paper or cardboard form portion.

Backfill with controlled-density fill or compacted borrow in accordance with **Standard Specification 8-20.3(2).**

Construct the embankment widening (if required).

NOTE

These foundation Construction Methods are applicable to all Steel Light Standard Placement Cases. See **Standard Plans J-28.22, J-28.24,** and **J-28.26.**

RICHARD P. ZELDENRUST
STATE OF WASHINGTON
25470
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

Zeldenrust, Richard
Jun 10 2014 10:38 AM

STEEL LIGHT STANDARD FOUNDATION TYPES A & B

STANDARD PLAN J-28.30-03

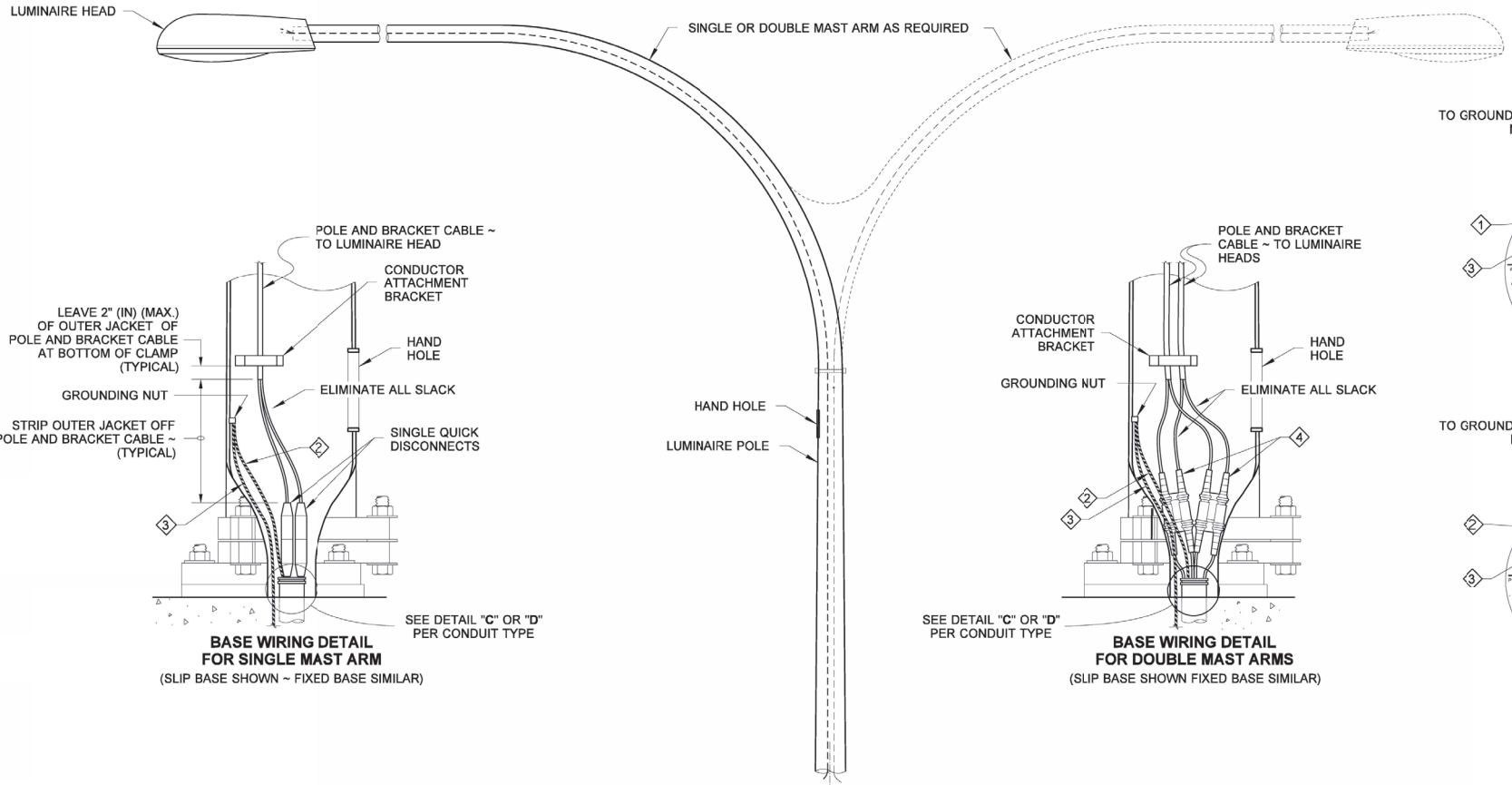
SHEET 2 OF 2 SHEETS

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DRAWN BY: LISA CYFORD

CONSTRUCTION METHODS

DRAWN BY: FERN LIDDELL



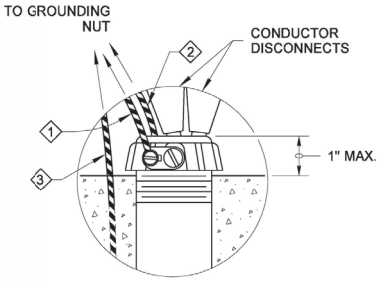
TYPICAL LOCATION OF JUNCTION BOX AND FOUNDATION

BASE WIRING DETAIL FOR SINGLE MAST ARM

(SLIP BASE SHOWN ~ FIXED BASE SIMILAR)

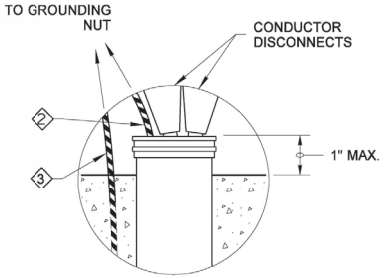
BASE WIRING DETAIL FOR DOUBLE MAST ARMS

(SLIP BASE SHOWN FIXED BASE SIMILAR)



DETAIL "C"

RMC CONDUIT



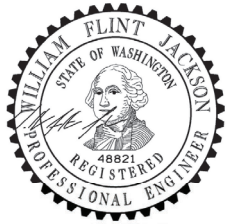
DETAIL "D"

PVC CONDUIT

1. EQUIPMENT BONDING JUMPER ~ FROM RMC CONDUIT
2. EQUIPMENT GROUNDING CONDUCTOR

NOTE: 1 AND 2 MAY BE SAME WIRE

3. EQUIPMENT BONDING JUMPER ~ FROM FOUNDATION
4. DOUBLE QUICK DISCONNECTS ~ PULL DOWN TIGHT TO CONDUIT (SHOWN LEFT UP FOR CLARITY)



Aug 30, 2022

STEEL LIGHT STANDARD WIRING DETAILS

STANDARD PLAN J-28.70-04

SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

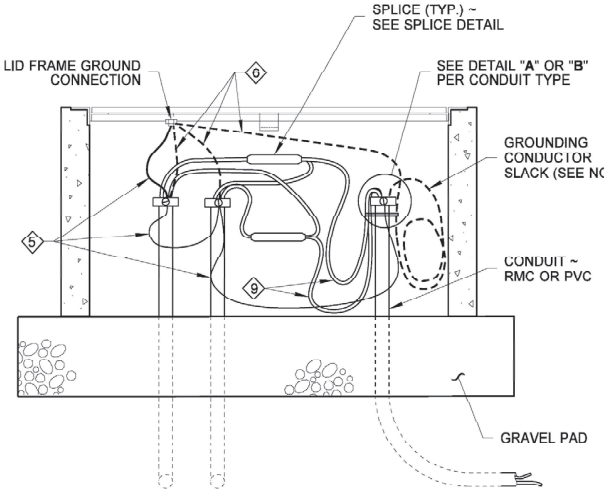
Mark Gaines
Mark Gaines [Aug 30, 2022 11:22 PDT]

Aug 30, 2022

STATE DESIGN ENGINEER

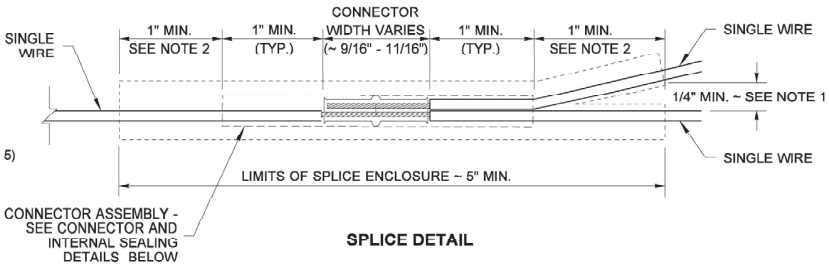
Washington State Department of Transportation

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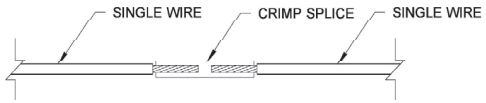
JUNCTION BOX WIRING DETAIL

FOR GROUNDING REQUIREMENTS, SEE **STANDARD PLAN J-60.05**

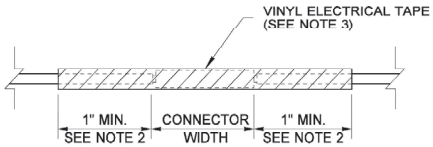


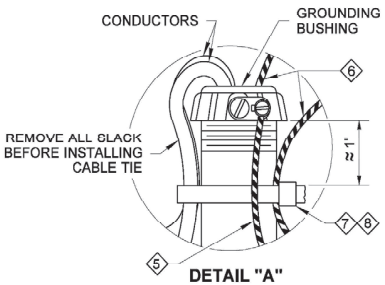
SPLICE DETAIL

STEP 1 - CRIMP CONNECTION



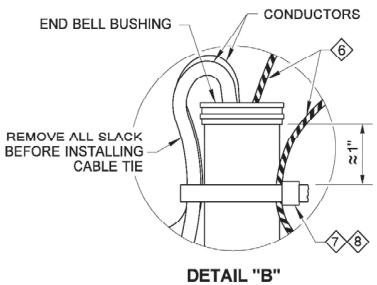
STEP 2 - WRAP CONNECTION





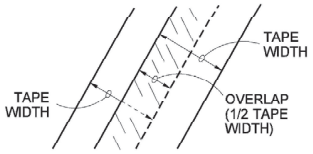
DETAIL "A"

RMC CONDUIT



DETAIL "B"

PVC CONDUIT



TAPE OVERLAP DIAGRAM

WHEN USING WRAPPED VINYL ELECTRICAL TAPE:

- INSTALL TWO LAYERS OF SPIRAL WRAPPED TAPE.
- EACH SPIRAL LAYER SHALL HAVE AN OVERLAP OF 1/2 OF THE TAPE WIDTH (SEE DIAGRAM ABOVE).

5 EQUIPMENT BONDING JUMPER ~ FROM RMC CONDUIT

NOTE: 5 AND 6 MAY BE SAME WIRE

0 EQUIPMENT GROUNDING CONDUCTOR

7 CABLE TIE ~ 120 POUND TENSILE STRENGTH, BLACK

8 APPLICATION FOR FIXED BASE SIMILAR, EXCEPT NO CABLE TIE IS REQUIRED AT JUNCTION BOX

9 24" (IN) MIN. SLACK REQUIRED TO ALLOW QUICK DISCONNECTS TO BE PULLED OUTSIDE HAND HOLE 6" (IN) MIN.

CONNECTOR AND INTERNAL SEALING DETAILS

NOTES

1. Each wire shall be physically separated by at least 1/4" (in) so that sealing material can fill in between the wires; where heat shrink tubing is used for the outer splice enclosure, it shall meet one of the following requirements:

   a. Have separate ports for each conductor ("WYE" or "X" shaped tubing). ~ or ~

   b. Have rubber electrical mastic tape wrapped around each conductor to ensure a weather-proof seal. See Rubber Electrical Mastic Tape Installation Detail, **Standard Plan J-50.05**.

2. Where heat shrink tubing is used, it shall extend a minimum of one inch onto the original wire insulation for each wire in the splice. Rigid splice enclosures shall be centered over the crimped connection.

3. Electrical tape used in splicing applications shall be 3/4" (in) wide, be UL listed under UL 510, and be CSA Certified under C22.2 NO. 197-M1983.

4. Crimp splices shall be installed with an approved crimping tool for the type and size of crimp splice used. Pliers and similar multi-purpose tools may not be used.

5. The equipment grounding conductor connected to the light standard shall include 18 inches of slack on the pole side of the cable tie.



Aug 30, 2022

STEEL LIGHT STANDARD WIRING DETAILS

STANDARD PLAN J-28.70-04

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

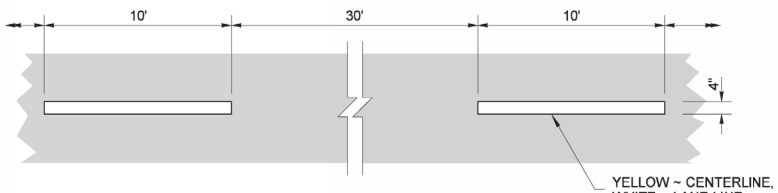
Mark Gaines Aug 30, 2022

Mark Gaines (Aug 30, 2022 11:22 PDT)

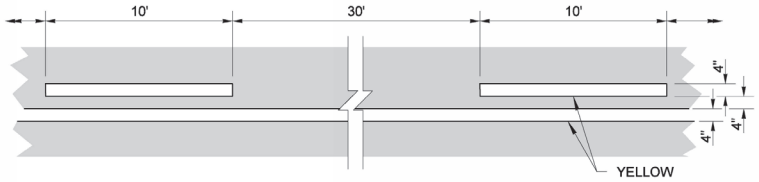
STATE DESIGN ENGINEER

Washington State Department of Transportation

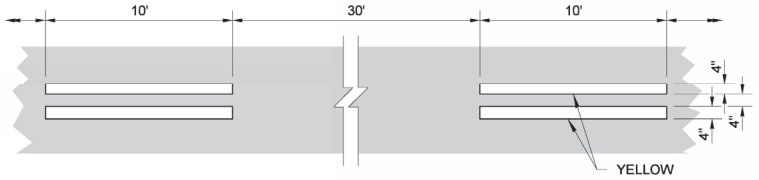
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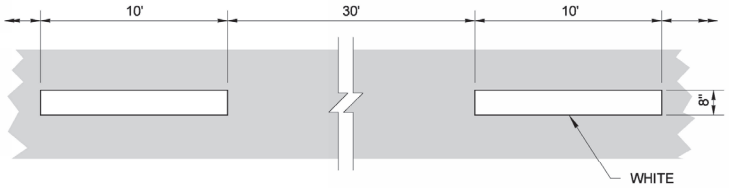
CENTERLINE & LANE LINE



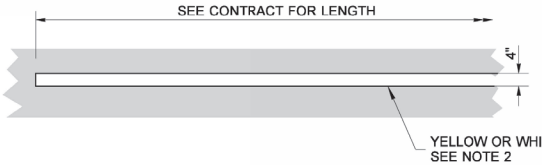
NO-PASS LINE & TWO-WAY LEFT-TURN CENTERLINE



REVERSIBLE LANE LINE



WIDE BROKEN LANE LINE

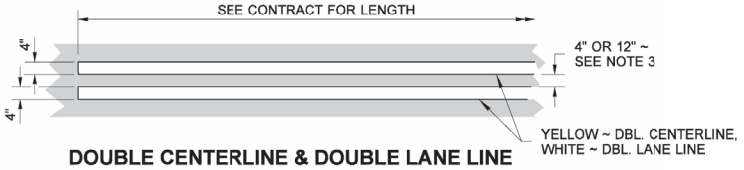


EDGE LINE & SOLID LANE LINE

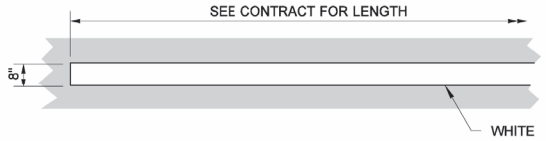
NOTES

1. Dotted Extension Line shall be the same color as the line it is extending.
2. Edge Line shall be white on the right edge of traveled way, and yellow on the left edge of traveled way (on one-way roadways). Solid Lane Line shall be white.
3. The distance between the lines of the Double Centerline shall be 12" everywhere, except 4" for left-turn channelization and narrow roadways with lane widths of 10 feet or less. Local Agencies (on non-state routes) may specify a 4" distance for all locations.

   The distance between the lines of the Double Lane Line shall be 4".

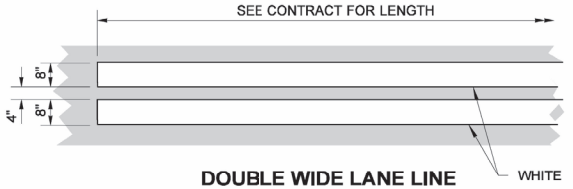


DOUBLE CENTERLINE & DOUBLE LANE LINE

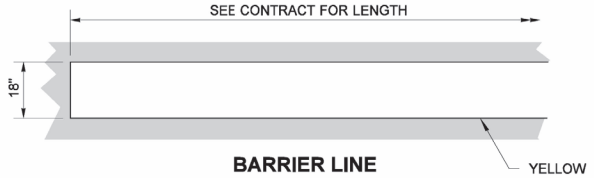


WIDE EDGE LINE & WIDE SOLID LANE LINE

OPTION TO USE AS CIRCULATORY ON ROUNDABOUT APPLICATIONS



DOUBLE WIDE LANE LINE



BARRIER LINE

BRIAN J. WALSH
STATE OF WASHINGTON
36103
REGISTERED
PROFESSIONAL ENGINEER

Brian J Walsh
Brian J Walsh (Aug 1, 2022 22:53 PDT)

Aug 1, 2022

LONGITUDINAL MARKING PATTERNS

STANDARD PLAN M-20.10-04

SHEET 1 OF 4 SHEETS

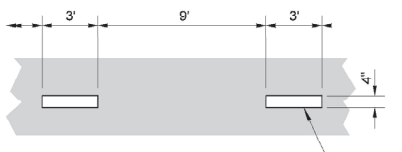
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Mark Gaines
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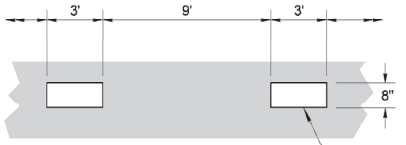
Aug 2, 2022

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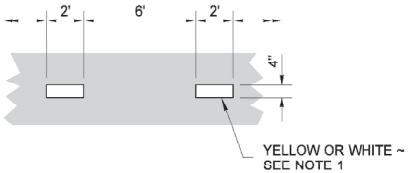
Washington State Department of Transportation



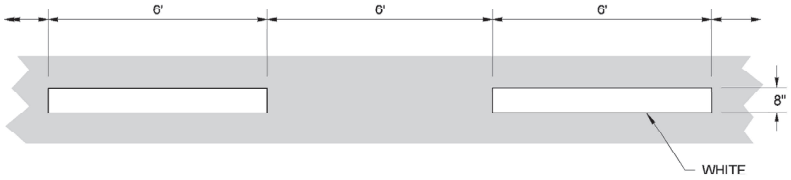
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WIDE DOTTED LANE LINE



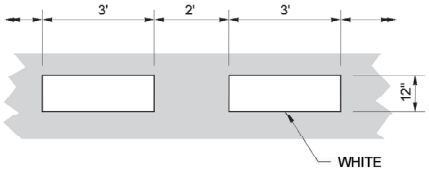
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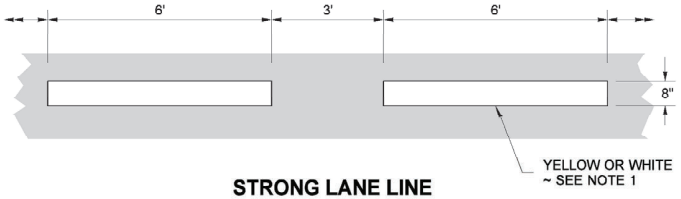
WIDE DOTTED EXTENSION LINE

DRAWN BY: FERN LIDDELL

ROUNDABOUT SPECIFIC LINES

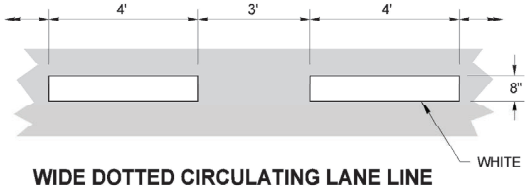


WIDE DOTTED ENTRY LINE

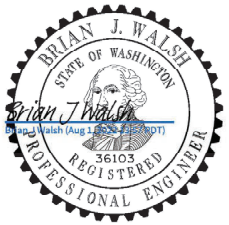


STRONG LANE LINE

OPTION TO USE AS CIRCULATORY ON ROUNDABOUT APPLICATIONS



WIDE DOTTED CIRCULATING LANE LINE



Aug 1, 2022

LONGITUDINAL MARKING PATTERNS

STANDARD PLAN M-20.10-04

SHEET 2 OF 4 SHEETS

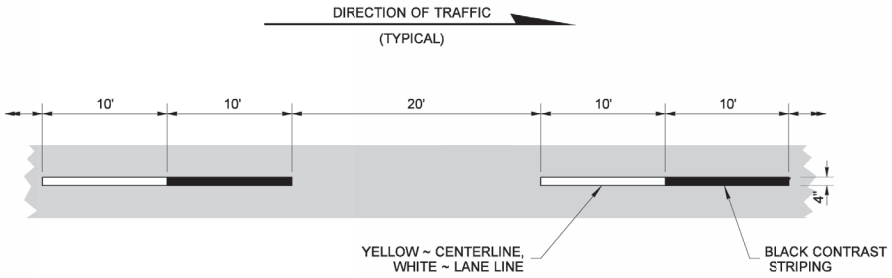
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Mark Gaines (Aug 2, 2022 10:17 PDT) Aug 2, 2022

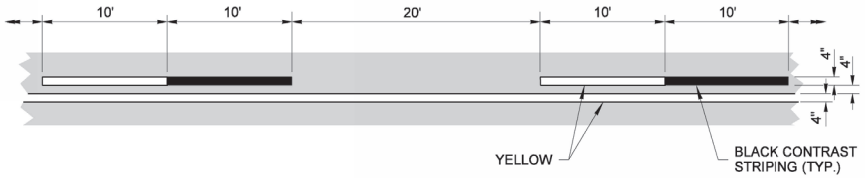
STATE DESIGN ENGINEER

Washington State Department of Transportation

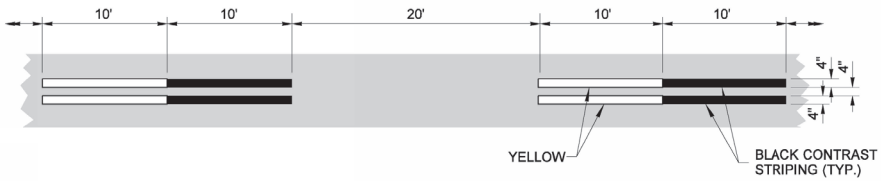
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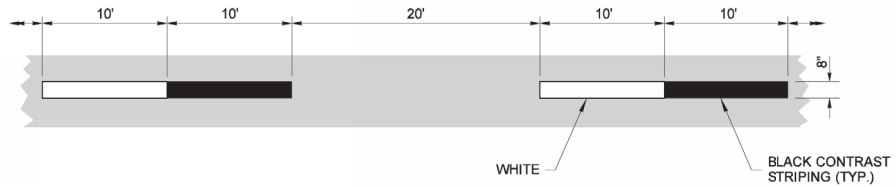
CENTERLINE & LANE LINE



NO-PASS LINE & TWO-WAY LEFT-TURN CENTERLINE



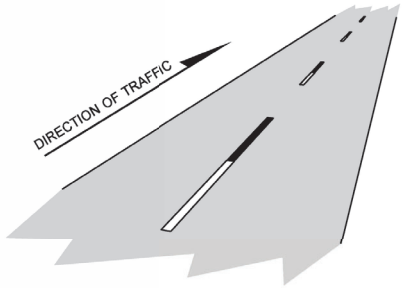
REVERSIBLE LANE LINE



WIDE BROKEN LANE LINE

NOTE

1. Dotted Extension Line shall be the same color as the line it is extending.



ISOMETRIC VIEW

BRIAN J. WALSH
STATE OF WASHINGTON
36103
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PROFESSIONAL ENGINEER

Brian J Walsh
Brian J Walsh (Aug 1, 2022 PDT)

Aug 1, 2022

LONGITUDINAL MARKING PATTERNS

STANDARD PLAN M-20.10-04

SHEET 3 OF 4 SHEETS

APPROVED FOR PUBLICATION

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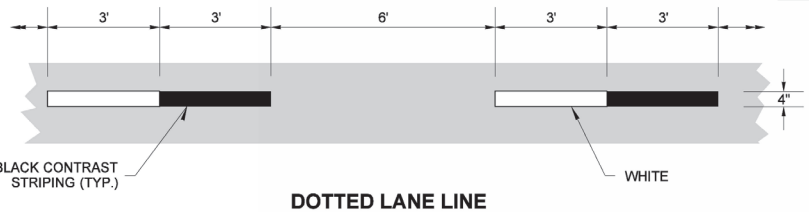
Aug 2, 2022

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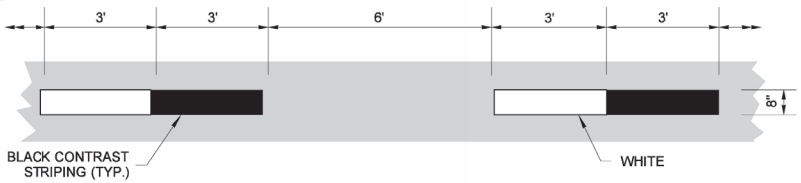
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL

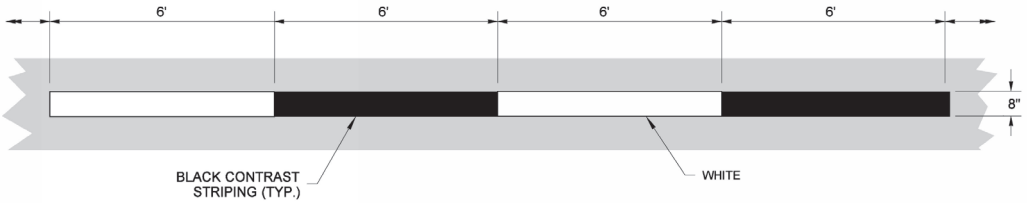
DIRECTION OF TRAFFIC
(TYPICAL)



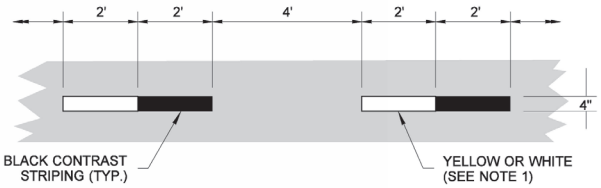
DOTTED LANE LINE



WIDE DOTTED LANE LINE

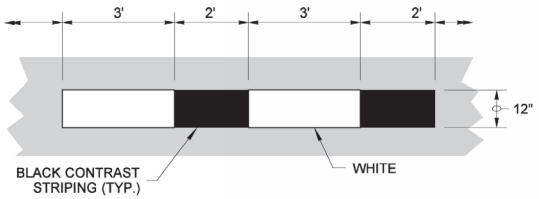


WIDE DOTTED EXTENSION LINE

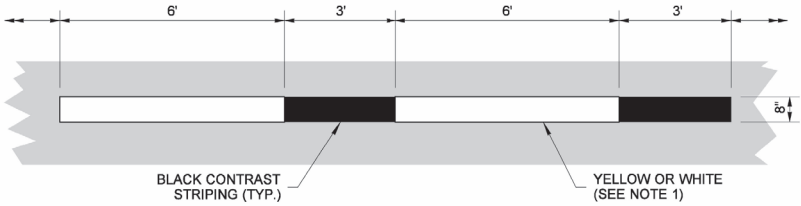


DOTTED EXTENSION LINE

ROUNDABOUT SPECIFIC LINES

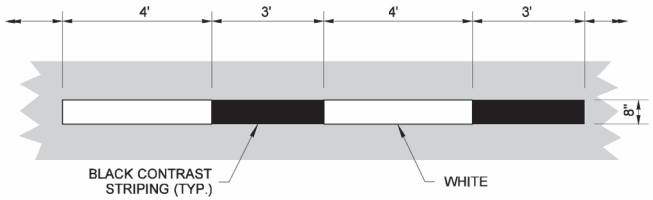


WIDE DOTTED ENTRY LINE



STRONG LANE LINE

OPTION TO USE AS CIRCULATORY ON ROUNDABOUT APPLICATIONS



WIDE DOTTED CIRCULATING LANE LINE



Aug 1, 2022

LONGITUDINAL MARKING PATTERNS

STANDARD PLAN M-20.10-04

SHEET 4 OF 4 SHEETS

APPROVED FOR PUBLICATION

Mark Gaines (Aug 2, 2022 10:17 PDT) Aug 2, 2022

STATE DESIGN ENGINEER

Washington State Department of Transportation

APPENDIX D

PERMITS

US Army Corps of Engineers
Seattle District

NATIONWIDE PERMIT 14
Terms and Conditions

2021 NWPs - Final 41; Effective Date: February 25, 2022

A. Description of Authorized Activities
B. U.S. Army Corps of Engineers (Corps) National General Conditions for All Final 41 NWPs
C. Seattle District Regional General Conditions
D. Seattle District Regional Specific Conditions for this Nationwide Permit (NWP)
E. 401 Water Quality Certification (401 WQC) for this NWP
F. Coastal Zone Management Consistency Response for this NWP

In addition to any special condition that may be required on a case-by-case basis by the District Engineer, the following terms and conditions must be met, as applicable, for a Nationwide Permit (NWP) authorization to be valid in Washington State.

A. DESCRIPTION OF AUTHORIZED ACTIVITIES

14. Linear Transportation Projects. Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, driveways, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge of dredged or fill material cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge of dredged or fill material cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge of dredged or fill material in a special aquatic site, including wetlands. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d).

Note 2: Some discharges of dredged or fill material for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

Note 3: For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b)(4) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

B. CORPS NATIONAL GENERAL CONDITIONS FOR ALL 2021 NWPs - FINAL 41

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has

determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the

Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation

Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the

designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United

States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:
(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.
(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30

day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity’s compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity’s adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

C. SEATTLE DISTRICT REGIONAL GENERAL CONDITIONS: The following conditions apply to the 2021 NWPs - Final 41 NWPs for the Seattle District in Washington State, as applicable.

RGC 1, Project Drawings
Drawings must be submitted with pre-construction notification (PCN). Drawings must provide a clear understanding of the proposed project, and how waters of the United States will be affected. Drawings must be originals and not reduced copies of large-scale plans. Engineering drawings are not required. Existing and proposed site conditions (manmade and landscape features) must be drawn to scale.

RGC 2, Aquatic Resources Requiring Special Protection
A PCN is required for activities resulting in a loss of waters of the United States in wetlands in dunal systems along the Washington coast, mature forested wetlands, bogs and peatlands, aspen-dominated wetlands, alkali wetlands, vernal pools, camas prairie wetlands, estuarine wetlands, and wetlands in coastal lagoons.

RGC 3, New Bank Stabilization in Tidal Waters of Puget Sound
Activities involving new bank stabilization in tidal waters in Water Resource Inventory Areas (WRIAs) 8, 9, 10, 11 and 12 (within the areas identified on Figures 1a through 1e) cannot be authorized by NWP.

RGC 4, Commencement Bay
No permanent losses of wetlands or mudflats within the Commencement Bay Study Area may be authorized by any NWP (see Figure 2).

RGC 5, Bank Stabilization
All projects including new or maintenance bank stabilization activities in waters of the United States where salmonid species are present or could be present, requires PCN to the U.S. Army Corps of Engineers (Corps) (see NWP general condition 32).
For new bank stabilization projects only, the following must be submitted to the Corps:

a. The cause of the erosion and the distance of any existing structures from the area(s) being stabilized.
b. The type and length of existing bank stabilization within 300 feet of the proposed project.
c. A description of current conditions and expected post-project conditions in the waterbody.
d. A statement describing how the project incorporates elements avoiding and minimizing adverse environmental effects to the aquatic environment and nearshore riparian area, including vegetation impacts in the waterbody.

In addition to a. through d., the results from any relevant geotechnical investigations can be submitted with the PCN if it describes current or expected conditions in the waterbody.

RGC 6, Crossings of Waters of the United States
Any project including installing, replacing, or modifying crossings of waters of the United States, such as culverts or bridges, requires submittal of a PCN to the U.S. Army Corps of Engineers (see NWP general condition 32).
If a culvert is proposed to cross waters of the U.S. where salmonid species are present or could be present, the project must apply the stream simulation design method from the Washington Department of Fish and Wildlife located in the *Water Crossing Design Guidelines* (2013), or a design method which provides passage at all life stages at all flows where the salmonid species would naturally seek passage. If the stream simulation design method is not applied for a culvert where salmonid species are present or could be present, the project proponent must provide a rationale in the PCN sufficient to establish one of the following:

a. The existence of extraordinary site conditions.
b. How the proposed design will provide equivalent or better fish passage and fisheries habitat benefits than the stream simulation design method.

Culverts installed under emergency authorization that do not meet the above design criteria will be required to meet the above design criteria to receive an after-the-fact nationwide permit verification.

RGC 7, Stream Loss
A PCN is required for all activities that result in the loss of any linear feet of streams.

RGC 8, Construction Boundaries
Permittees must clearly mark all construction area boundaries within waters of the United States before beginning work on projects that involve grading or placement of fill. Boundary markers and/or construction fencing must be maintained and clearly visible for the duration of construction. Permittees should avoid and minimize removal of native vegetation (including submerged aquatic vegetation) to the maximum extent possible.

RGC 9, ESA Reporting to NMFS
For any nationwide permit that may affect threatened or endangered species;
Incidents where any individuals of fish species, marine mammals and/or sea turtles listed by National Oceanic and Atmospheric Administration Fisheries, National Marine Fisheries Service (NMFS) under the Endangered Species Act appear to be injured or killed as a result of discharges of dredged or fill material into waters of the U.S. or structures or work in navigable waters of the U.S. authorized by this Nationwide Permit verification shall be reported to NMFS, Office of Protected Resources at (301) 713-1401 and the Regulatory Office of the Seattle District of the U.S. Army Corps of Engineers at (206) 764-3495. The finder should leave the animal alone, make note of any circumstances likely causing the death or injury, note the location and number of individuals involved and, if possible, take photographs. Adult animals should not be disturbed unless circumstances arise where they are obviously injured or killed by discharge exposure or some unnatural cause. The finder may be asked to carry out instructions provided by the NMFS to collect specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.

D. SEATTLE DISTRICT REGIONAL SPECIFIC CONDITIONS FOR THIS NWP:

NWP 14 Specific Regional Conditions:
1. A pre-construction notification must be submitted to the district engineer (see NWP general condition 32) for linear transportation project crossings in tidal waters.

E. 401 WATER QUALITY CERTIFICATION: Depending on the geographic region of the work authorized by this verification, the appropriate 401 certifying authority has made the following determinations:

Washington Department of Ecology (Ecology) (Projects in all areas except as described for the other certifying agencies listed below): General and Specific WQC Conditions

A. State General Conditions for all Nationwide Permits

In addition to all of the U.S. Army Corps of Engineers' (Corps) national and Seattle District'sregional permit conditions, the following state general Water Quality Certification (WQC) conditions **apply to all NWPs whether granted or granted with conditions** in Washington where Ecology is the certifying authority.

Due to the lack of site specific information on the discharge types, quantities, and specific locations, as well as the condition of receiving waters and the quantity of waters (including wetlands) that may be lost, Ecology may need to review the project if one of the following stategeneral conditions is triggered.

This case-by-case review may be required, and additional information regarding the project and associated discharges may be needed, to verify that the proposed project would comply with state water quality requirements and if an individual WQC is required or if the project meets this programmatic WQC.

1. **In-water construction activities**. Ecology WQC review is required for projects or activities authorized under NWPs where the project proponent has indicated on the Joint Aquatic Resource Permit Application (JARPA) question 9e that the project or activity will not meet State water quality standards, or has provided information indicating that the project or activity will cause, or may be likely to cause or contributeto an exceedance of a State water quality standard (Chapter 173-201A WAC) or sediment management standard (Chapter 173-204 WAC).

Note: In-water activities include any activity within a jurisdictional wetland and/orwaters.

2. **Projects or Activities Discharging to Impaired Waters**. Ecology WQC review is required for projects or activities that will occur in a 303(d) listed segment of a waterbody or upstream of a listed segment and may result in further exceedances of the specific listedparameter to determine if the project meets this programmatic WQC or will require individual WQC.

To determine if your project or activity is in a 303(d) listed segment of a waterbody, visitEcology's Water Quality Assessment webpage for maps and search tools.

3. **Aquatic resources requiring special protection**. Certain aquatic resources are unique and difficult-to-replace components of the aquatic environment in Washington. Activities that would affect these resources must be avoided to the greatest extent practicable. Compensating for adverse impacts to high value aquatic resources is typically difficult, prohibitively expensive, and may not be possible in some landscapesettings.

Ecology WQC review is required for projects or activities in areas identified below to determine if the project meets this programmatic WQC or will require individual WQC.

a. Activities in or affecting the following aquatic resources:

i. Wetlands with special characteristics (as defined in the Washington State Wetland Rating Systems for western and eastern Washington, Ecology Publications #14-06-029 and #14-06-030):

- Estuarine wetlands.
- Wetlands of High Conservation Value.
- Bogs.
- Old-growth forested wetlands and mature forested wetlands.
- Wetlands in coastal lagoons.
- Wetlands in dunal systems along the Washington coast.
- Vernal pools.
- Alkali wetlands.

ii. Fens, aspen-dominated wetlands, camas prairie wetlands.

iii. Category I wetlands.

iv. Category II wetlands with a habitat score ≥ 8 points.

b. Activities in or resulting in a loss of eelgrass (Zostera marina) beds.

This state general condition does not apply to the following NWPs:
NWP 20 – Response Operations for Oil and Hazardous Substances
NWP 32 – Completed Enforcement Actions
NWP 48 – Commercial Shellfish Mariculture Activities

4. Loss of More than 300 Linear Feet of Streambed. For any project that results in the lossof more than 300 linear feet of streambed Ecology WQC review is required to determineif the project meets this programmatic WQC or will require individual WQC.

5. Temporary Fills. For any project or activity with temporary fill in wetlands or other waters for more than six months Ecology WQC review is required to determine if theproject meets this programmatic WQC or will require individual WQC.

6. Mitigation. Project proponents are required to show that they have followed the mitigation sequence and have first avoided and minimized impacts to aquatic resourceswherever practicable. For projects requiring Ecology WQC review or an individual WQC with unavoidable impacts to aquatics resources, a mitigation plan must be provided.

a. Wetland mitigation plans submitted for Ecology review and approval shall be based on the most current guidance provided in Wetland Mitigation in Washington State, Parts 1 and 2 (available on Ecology's website) and shall, at aminimum, include the following:

i. A description of the measures taken to avoid and minimize impacts to wetlands and other waters of the U.S.

ii. The nature of the proposed impacts (i.e., acreage of wetlands and functions lost or degraded).

iii. The rationale for the mitigation site that was selected.

iv. The goals and objectives of the compensatory mitigation project.

v. How the mitigation project will be accomplished, including construction sequencing, best management practices to protect water quality, proposed performance standards for measuring success and the proposed buffer widths.

vi. How it will be maintained and monitored to assess progress toward goals and objectives. Monitoring will generally be required for a minimum of five years. For forested and scrub-shrub wetlands, 10 years of monitoring will often be necessary.

vii. How the compensatory mitigation site will be legally protected for the long term.

Refer to Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Ecology Publication #06-06-011b) and Selecting Wetland Mitigation Sites Using a Watershed Approach (Ecology Publications #09-06-032 (Western Washington) and #10-06-007 (Eastern Washington)) for guidance on selecting suitable mitigation sites and developing mitigation plans.

Ecology encourages the use of alternative mitigation approaches, includingcredit/debit methodology, advance mitigation, and other programmatic approaches such as mitigation banks and in-lieu fee programs. If you are interested in proposing use of an alternative mitigation approach, consult with the appropriate Ecology regional staff person. Information on alternative mitigation approaches is available on Ecology's website.

b. Mitigation for other aquatic resource impacts will be determined on a case-by-case basis.

7. **Stormwater Pollution Prevention**. All projects involving land disturbance or impervious surfaces must implement stormwater pollution prevention or control measures to avoiddischarge of pollutants in stormwater runoff to waters.

a. For land disturbances during construction, the applicant must obtain and implement permits (e.g., Construction Stormwater General Permit) where required and follow Ecology's current stormwater manual.

b. Following construction, prevention or treatment of on-going stormwater runofffrom impervious surfaces shall be provided.

Ecology's Stormwater Management and Design Manuals and stormwater permitinformation are available on Ecology's website.

8. **Application**. For projects or activities that will require Ecology WQC review, or anindividual WQC, project proponents must provide Ecology with a JARPA or the equivalent information, along with the documentation provided to the Corps, as described in national general condition 32, Pre-Construction Notification (PCN), including, where applicable:

a. A description of the project, including site plans, project purpose, direct and indirect adverse environmental effects the project discharge(s) would cause, best management practices (BMPs), and proposed means to monitor the discharge(s).

b. List of all federal, state or local agency authorizations required to be used for anypart of the proposed project or any related activity.

c. Drawings indicating the OHWM, delineation of special aquatic sites, and other waters of

the state. Wetland delineations must be prepared in accordance with thecurrent method required by the Corps and shall include Ecology's Wetland Rating form. Wetland Rating forms are subject to review and verification by Ecology staff.

Guidance for determining the OHWM is available on Ecology's website.

d. A statement describing how the mitigation requirement will be satisfied. A conceptual or detailed mitigation or restoration plan may be submitted. See stategeneral condition 5.

e. Other applicable requirements of Corps NWP general condition 32, Corps regional conditions, or notification conditions of the applicable NWP.

Ecology **grants with conditions Water Quality Certification** (WQC) for this NWP provided that Ecology individual WQC review is not required per the state general conditions (see above) and the following conditions:

1. Ecology WQC review is required if the project or activity is in a known contaminatedor cleanup site to determine if an individual WQC is required or the project meets the programmatic WQC for this NWP.

2. Ecology individual WQC is required for projects or activities authorized under thisNWP if:
    a. The project or activity impacts more than 1/3 acre of waters; or

    b. This NWP is authorized in conjunction with any other NWP.

Environmental Protection Agency (EPA) (on Tribal Lands where Tribes Do Not Have Treatment in a Similar Manner as a State and Lands with Exclusive Federal Jurisdiction in Washington):

On behalf of the 28 tribes that do not have treatment in a similar manner as a state and for exclusive federal jurisdiction lands located within the state of Washington, EPA Region 10 has determined that CWA Section 401 WQC for the following proposed NWPs is granted with conditions. EPA Region 10 has determined that any discharge authorized under the following proposed NWPs will comply with water quality requirements, as defined at 40 C.F.R. § 121.1(n), subject to the following conditions pursuant to CWA Section 401(d).

General Conditions:

EPA General Condition 1 – Aquatic Resources of Special Concern

Activities resulting in a point source discharge in the following types of aquatic resources of special concern shall request an individual project-specific CWA Section 401 WQC: mature forested wetlands; bogs, fens and other peatlands; vernal pools; aspen-dominated wetlands; alkali wetlands; camas prairie wetlands; wetlands in dunal systems along the Oregon or Washington Coast; riffle-pool complexes of streams; marine or estuarine mud-flats; salt marshes; marine waters with native eelgrass or kelp beds; or marine nearshore forage fish habitat. To identify whether a project would occur in any of these aquatic resources of special concern, project proponents shall use existing and available information to identify the location and type of resources, including using the U.S. Fish and Wildlife Service's online digital National Wetland Inventory maps, identifying project location on topographical maps, and/or providing on-site determinations as required by the Corps. When a project requires a Pre-Construction Notification (PCN) to the Corps, project proponents shall work with the Corps to identify whether the project is in any of these specific aquatic resources of special concern.

EPA General Condition 2 – Soil Erosion and Sediment Controls

Turbidity shall not exceed background turbidity by more than 50 Nephelometric Turbidity Units (NTU) above background instantaneously or more than 25 NTU above background for more than ten consecutive days.[8] Projects or activities that are expected to exceed these levels require an individual project-specific CWA Section 401 WQC.

The turbidity standard shall be met at the following distances from the discharge:

Wetted Stream Width at Discharge Point	**Approximate Downstream Point to Sample to Determine Compliance**
Up to 30 feet	50 feet
>30 to 100 feet	100 feet
>100 feet to 200 feet	200 feet
>200 feet	300 feet
Lake, Pond, Reservoir	Lesser of 100 feet or maximum surface distance

For Marine Water	**Point of Compliance for Temporary Area of Mixing**
Estuaries or Marine Waters	Radius of 150 feet from the activity causing the turbidity exceedance

Measures to prevent and/or reduce turbidity shall be implemented and monitored prior to, during, and after construction. Turbidity monitoring shall be done at the point of compliance within 24 hours of a precipitation event of 0.25 inches or greater. During monitoring and maintenance, if turbidity limits are exceeded or if measures are identified as ineffective, then additional measures shall be taken to come into compliance and EPA shall be notified within 48 hours of the exceedance or measure failure.

EPA General Condition 3 - Compliance with Stormwater Pollution Prevention and the National Pollutant Discharge Elimination System Permit Provisions

For land disturbances during construction that 1) disturb one or more acres of land, or 2) will disturb less than one acre of land but are part of a common plan of development or sale that will ultimately disturb one or more acres of land, the permittee shall obtain and implement Construction Stormwater General Permit requirements,[9] including:

1. The permittee shall develop a Stormwater Pollution Prevention Plan (SWPPP)[10] and submit it to EPA Region 10 and appropriate Corps District; and
2. Following construction, prevention or treatment of ongoing stormwater runoff from impervious surfaces that includes soil infiltration shall be implemented.

EPA General Condition 4 – Projects or Activities Discharging to Impaired Waters

Projects or activities are not authorized under the NWPs if the project will involve point source discharges into an active channel (e.g., flowing or open waters) of a water of the U.S. listed as impaired under CWA Section 303(d) and/or if the waterbody has an approved Total Maximum Daily Load (TMDL) and the discharge may result in further exceedance of a specific parameter (e.g., total suspended solids, dissolved oxygen, temperature) for which the waterbody is listed or has an approved TMDL. The current lists of impaired waters of the U.S. under CWA Section 303(d) and waters of the U.S. for which a TMDL has been approved are available on EPA Region 10's web site at: https://www.epa.gov/tmdl/impaired-waters-and-tmdls-region-10.

EPA General Condition 5 – Notice to EPA

All project proponents shall provide notice to EPA Region 10 prior to commencing construction activities authorized by a NWP. This will provide EPA Region 10 with the opportunity to inspect the activity for the purposes of determining whether any discharge from the proposed project will violate this CWA Section 401 WQC. Where the Corps requires a PCN for an applicable NWP, the project proponent shall also provide the PCN to EPA Region 10. EPA Region 10 will provide written notification to the project proponent if the proposed project will violate the water quality certification of the NWP.

EPA General Condition 6 – Unsuitable Materials

The project proponent shall not use wood products treated with leachable chemical components (e.g., copper, arsenic, zinc, creosote, chromium, chloride, fluoride, pentachlorophenol), which result in a discharge to waters of the U.S., unless the wood products meet the following criteria:

1. Wood preservatives and their application shall be in compliance with EPA label requirements and criteria of approved EPA Registration Documents under the Federal Insecticide, Fungicide, and Rodenticide Act;
2. Use of chemically treated wood products shall follow the Western Wood Preservatives Institute (WWPI) guidelines and BMPs to minimize the preservative migrating from treated wood into the aquatic environment;
3. For new or replacement wood structures, the wood shall be sealed with non-toxic products such as water-based silica or soy-based water repellants or sealers to prevent or limit leaching. Acceptable alternatives to chemically treated wood include untreated wood, steel (painted, unpainted or coated with epoxy petroleum compound or plastic), concrete and plastic lumber; and
4. All removal of chemically treated wood products (including pilings) shall follow the most recent "EPA Region 10 Best Management Practices for Piling Removal and Placement in Washington State."

EPA NWP Specific Conditions:

NWP 14 is conditionally certified, subject to the general conditions listed above, <u>except</u> that an individual project-specific WQC is required for projects authorized under one or more NWP by the Corps that result(s) in:

1. Greater than 1/10 acre of impacts to waters of the U.S.; or
2. Greater than 300 linear feet of impacts to waters of the U.S.

Specific Tribes with Certifying Authority (Projects in Specific Tribal Areas):
WQC was issued by the Swinomish Indian Tribal Community. WQC was waived by the Confederated Tribes of the Chehalis Reservation and Colville Indian Reservation, Kalispel Tribe of Indians, Port Gamble S'Klallam Tribe, Quinault Indian Nation, and the Spokane Tribe of Indians. WQC was denied by the Lummi Nation, Makah Tribe, Puyallup Tribe of Indians, and the Tulalip Tribes; therefore, individual WQC is required from these tribes.

F. COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY RESPONSE FOR THIS NWP:

Ecology's determination is that they concur with conditions that this NWP is consistent with CZMA.

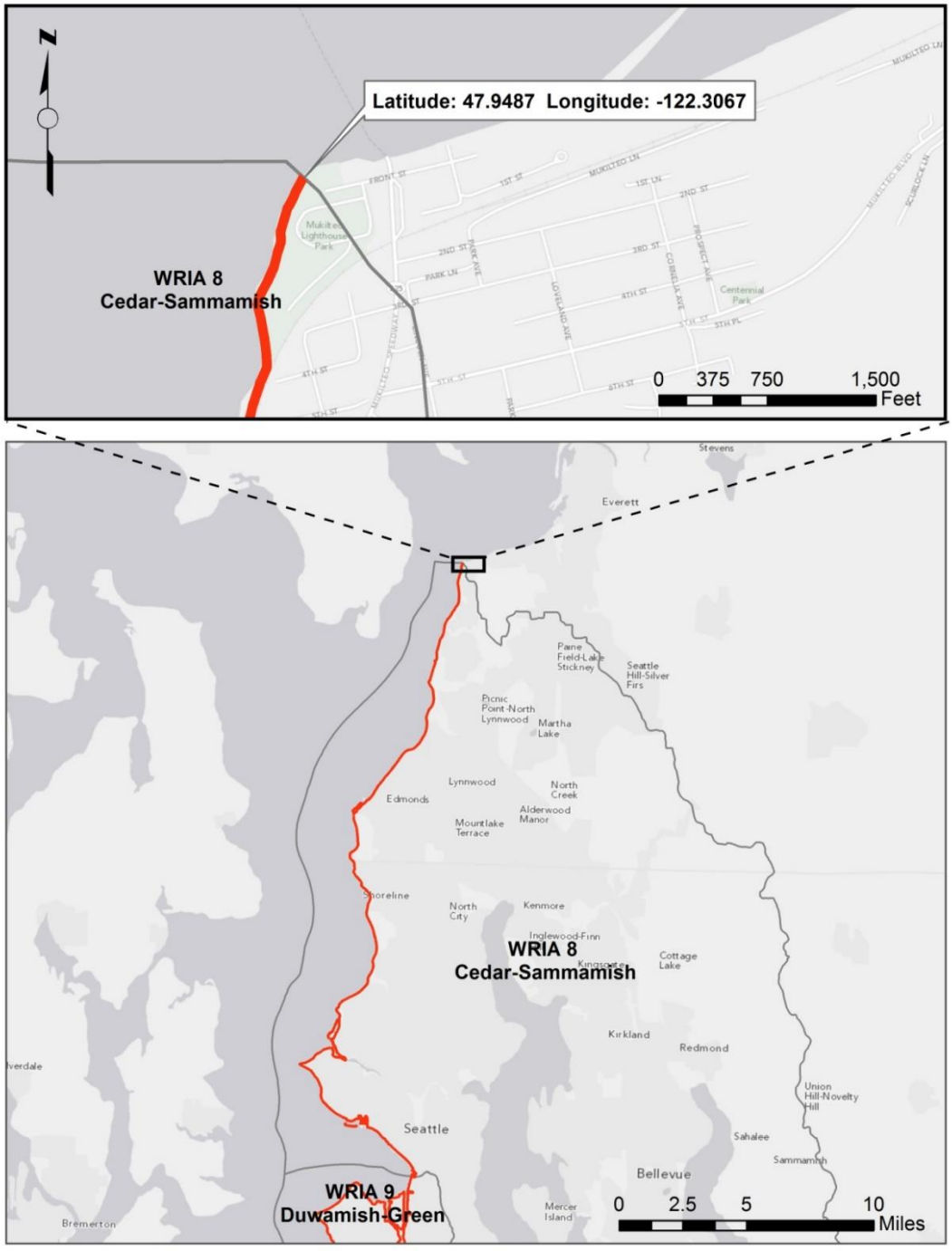
CZM Federal Consistency Response – Concur with Conditions.

1. A CZM Federal Consistency Decision is required for projects or activities under this NWP if a State 401 Water Quality Certification is required.

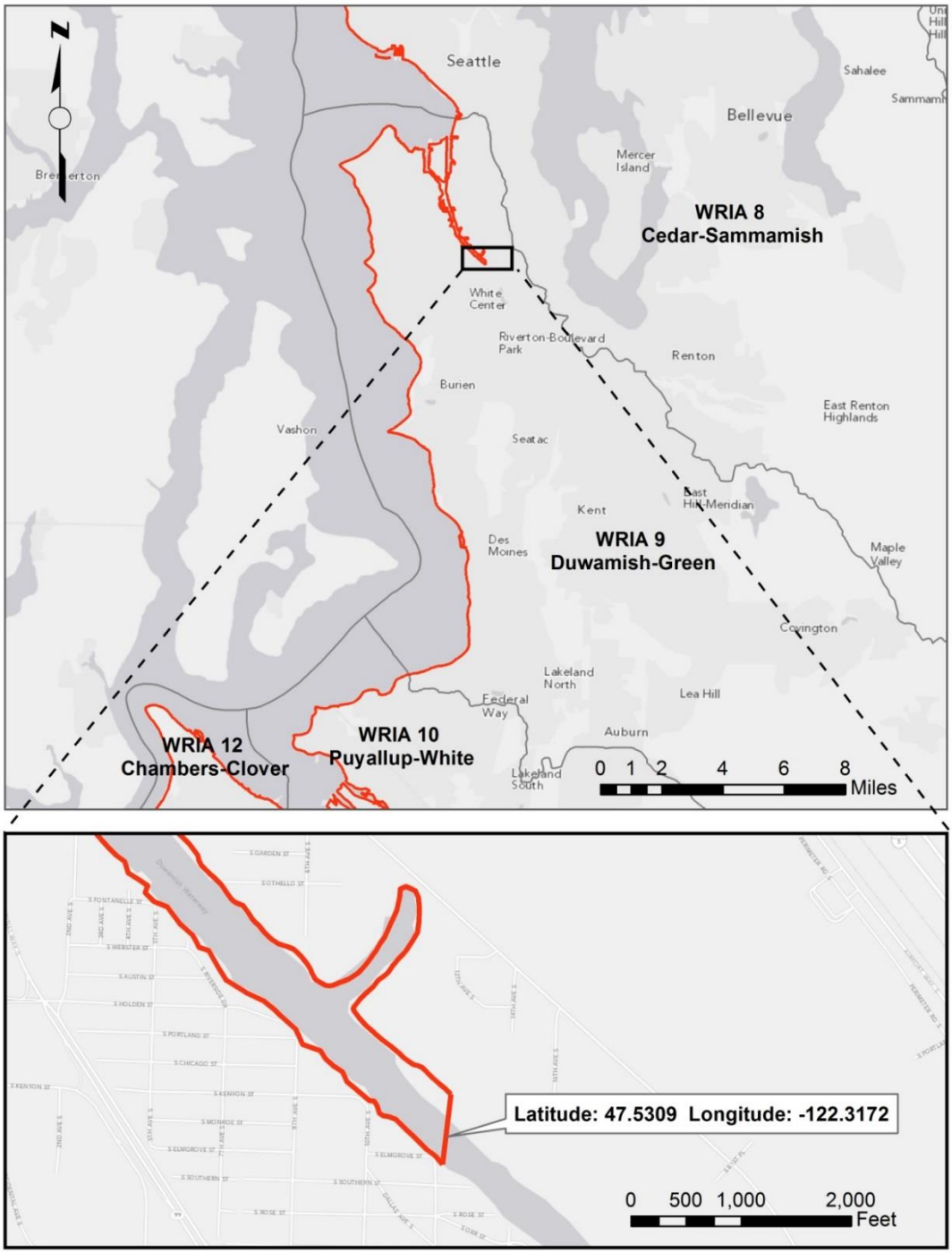
2. A CZM Federal Consistency Decision is required for projects or activities under this NWP if they are pre-empting local or state permit requirements necessary to demonstrate compliance with

the CZMP's enforceable policies.

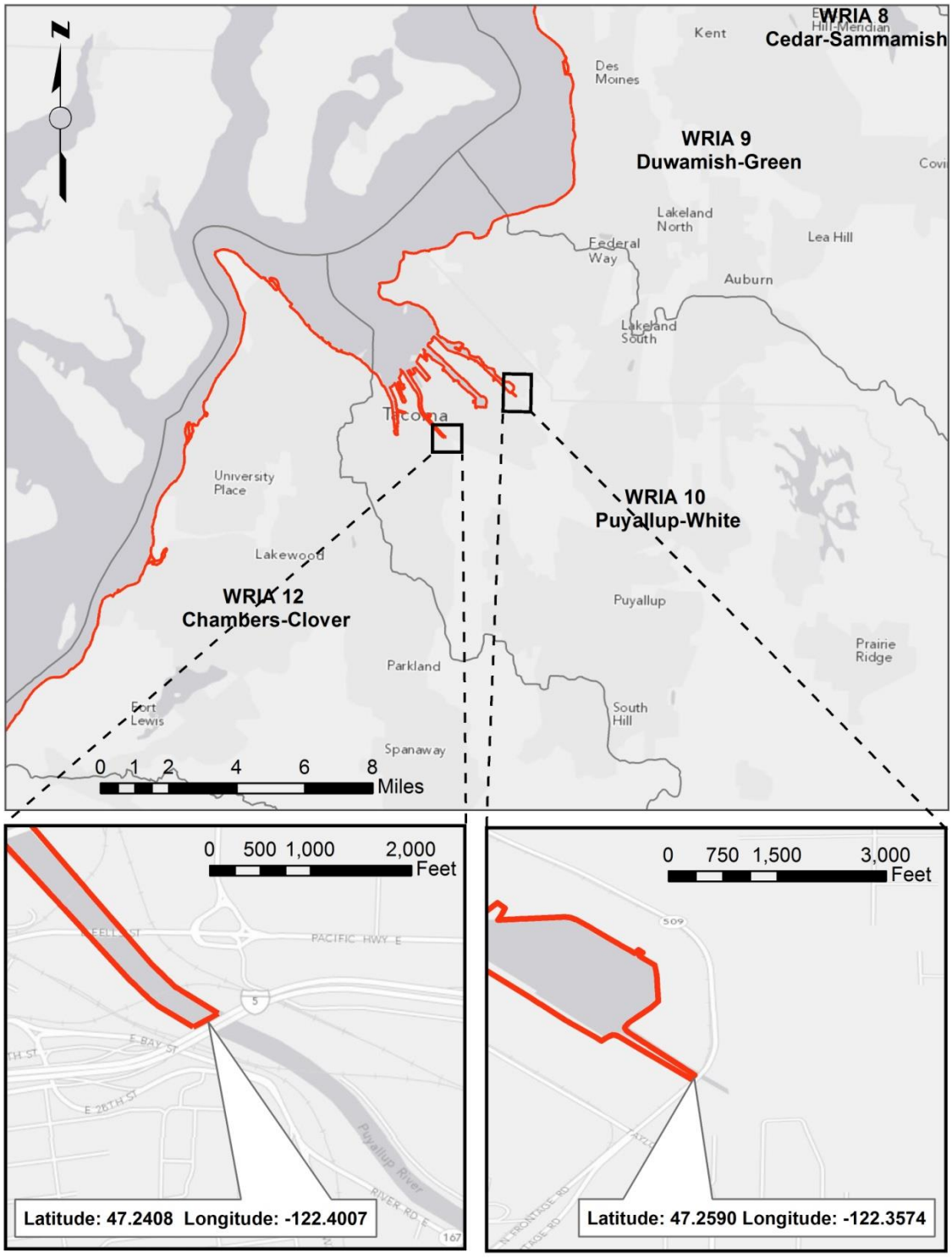
Seattle District Regional General Conditions - Figures
Figure 1: RGC 3 - WRIAs 8, 9, 10, 11, and 12
a. WRIA 8



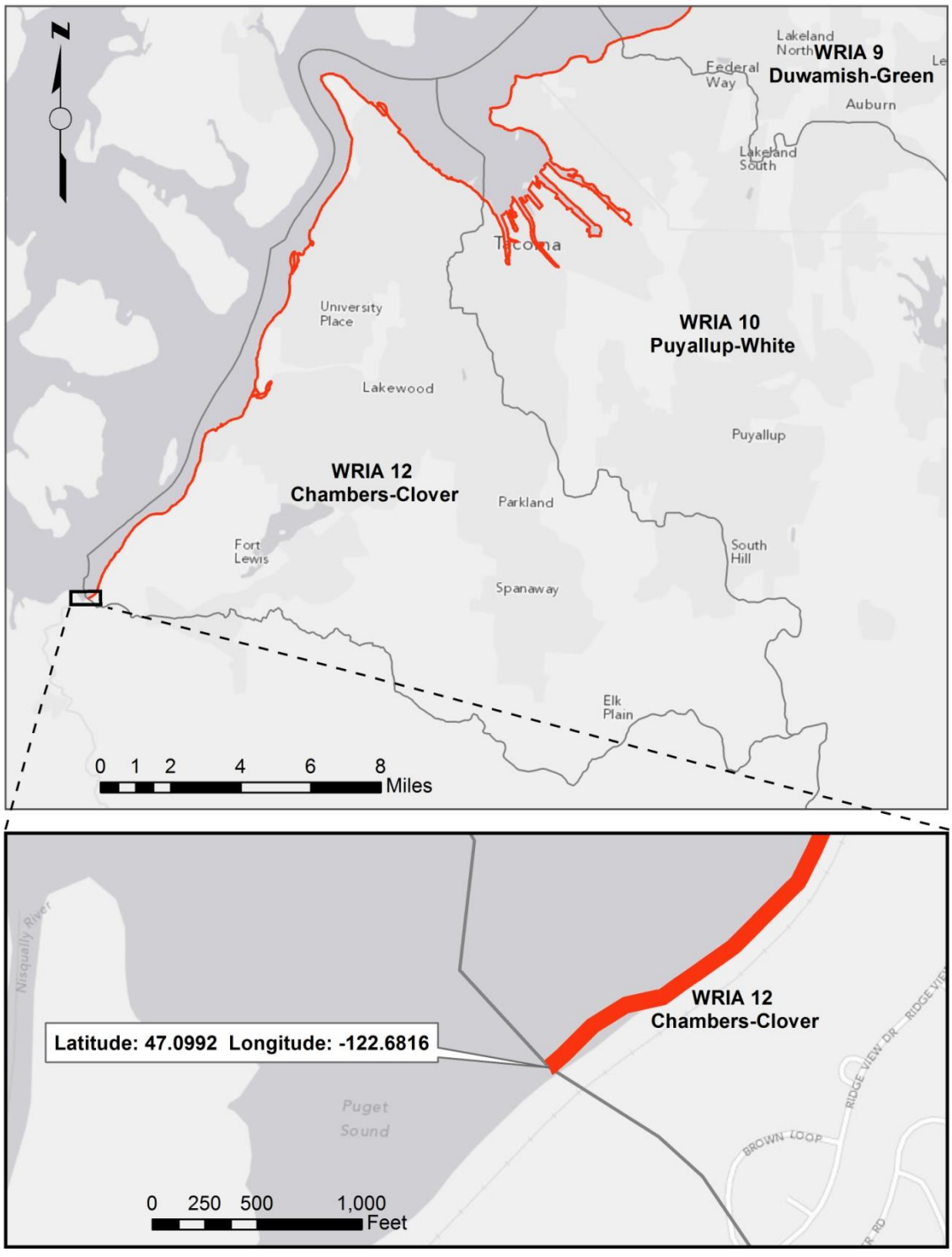
b. WRIA 9


N
Seattle
Bellevue
Sahalee
Mercer Island
Bremerton
WRIA 8
Cedar-Sammamish
White Center
Riverton-Boulevard Park
Renton
Burien
East Renton Highlands
Vashon
Seatac
Kent
East Hill-Meridian
Des Moines
WRIA 9
Duwamish-Green
Maple Valley
Covington
Lakeland North
Lea Hill
Federal Way
Auburn
WRIA 12
Chambers-Clover
WRIA 10
Puyallup-White
Lakeland South
0 1 2 4 6 8
Miles
Latitude: 47.5309 Longitude: -122.3172
0 500 1,000 2,000
Feet

c. WRIA 10


WRIA 8
Cedar-Sammamish
WRIA 9
Duwamish-Green
WRIA 10
Puyallup-White
WRIA 12
Chambers-Clover
Kent
Des Moines
Lakeland North
Federal Way
Lea Hill
Auburn
Lakeland South
Tacoma
University Place
Lakewood
Puyallup
Parkland
Prairie Ridge
South Hill
Spanaway
Fort Lewis
0 1 2 4 6 8 Miles
0 500 1,000 2,000 Feet
PACIFIC HWY E
E BAY ST
E 26TH ST
Puyallup River
RIVER RD E
Latitude: 47.2408 Longitude: -122.4007
0 750 1,500 3,000 Feet
Latitude: 47.2590 Longitude: -122.3574

d. WRIA 12


N
Lakeland North
WRIA 9
Duwamish-Green
Federal Way
Auburn
Lakeland South
Tacoma
University Place
WRIA 10
Puyallup-White
Lakewood
Puyallup
WRIA 12
Chambers-Clover
Parkland
Fort Lewis
South Hill
Spanaway
Elk Plain
0 1 2 4 6 8
Miles
Nisqually River
WRIA 12
Chambers-Clover
Latitude: 47.0992 Longitude: -122.6816
Puget Sound
BROWN LOOP
RIDGE VIEW DR
0 250 500 1,000
Feet

e. WRIA 11

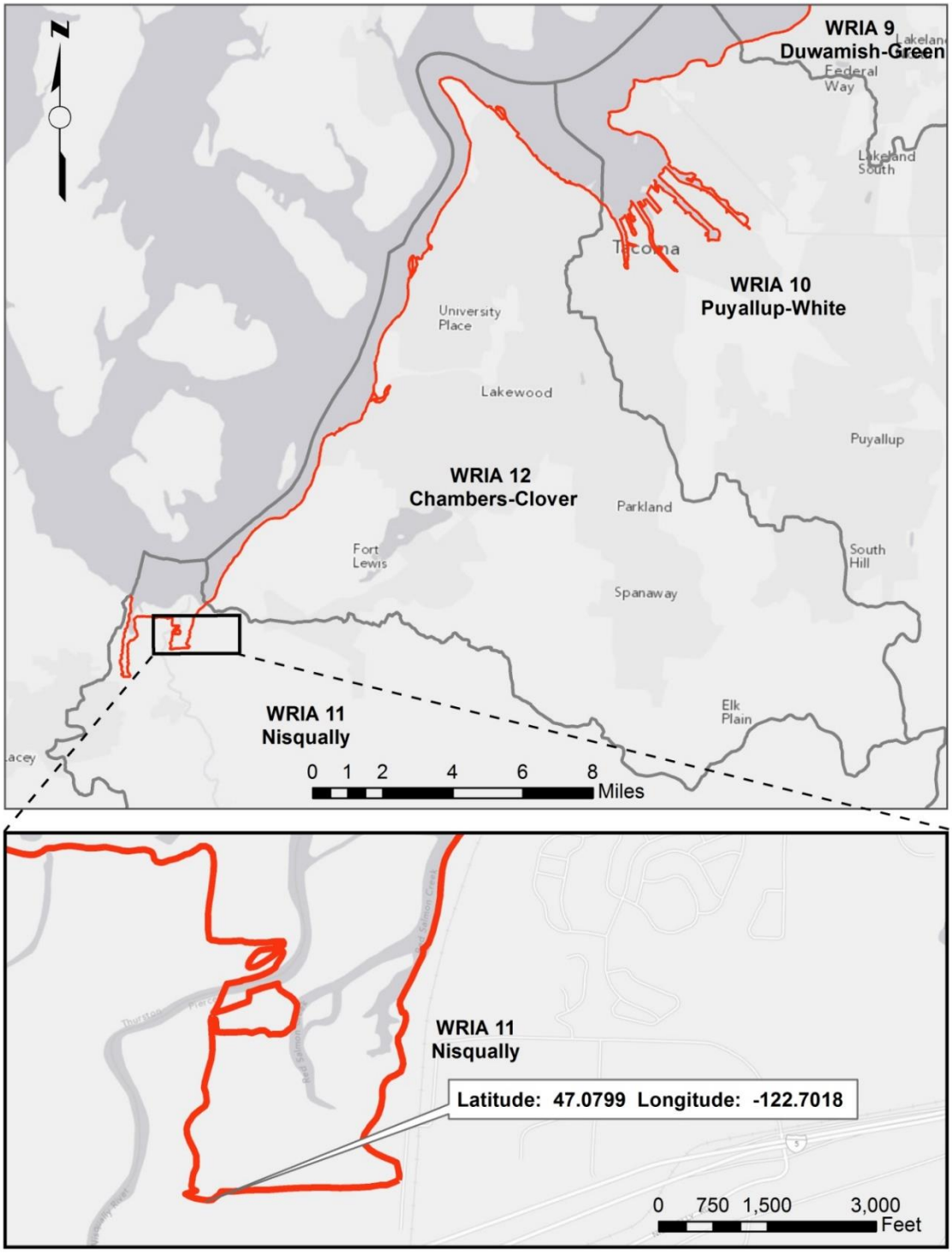
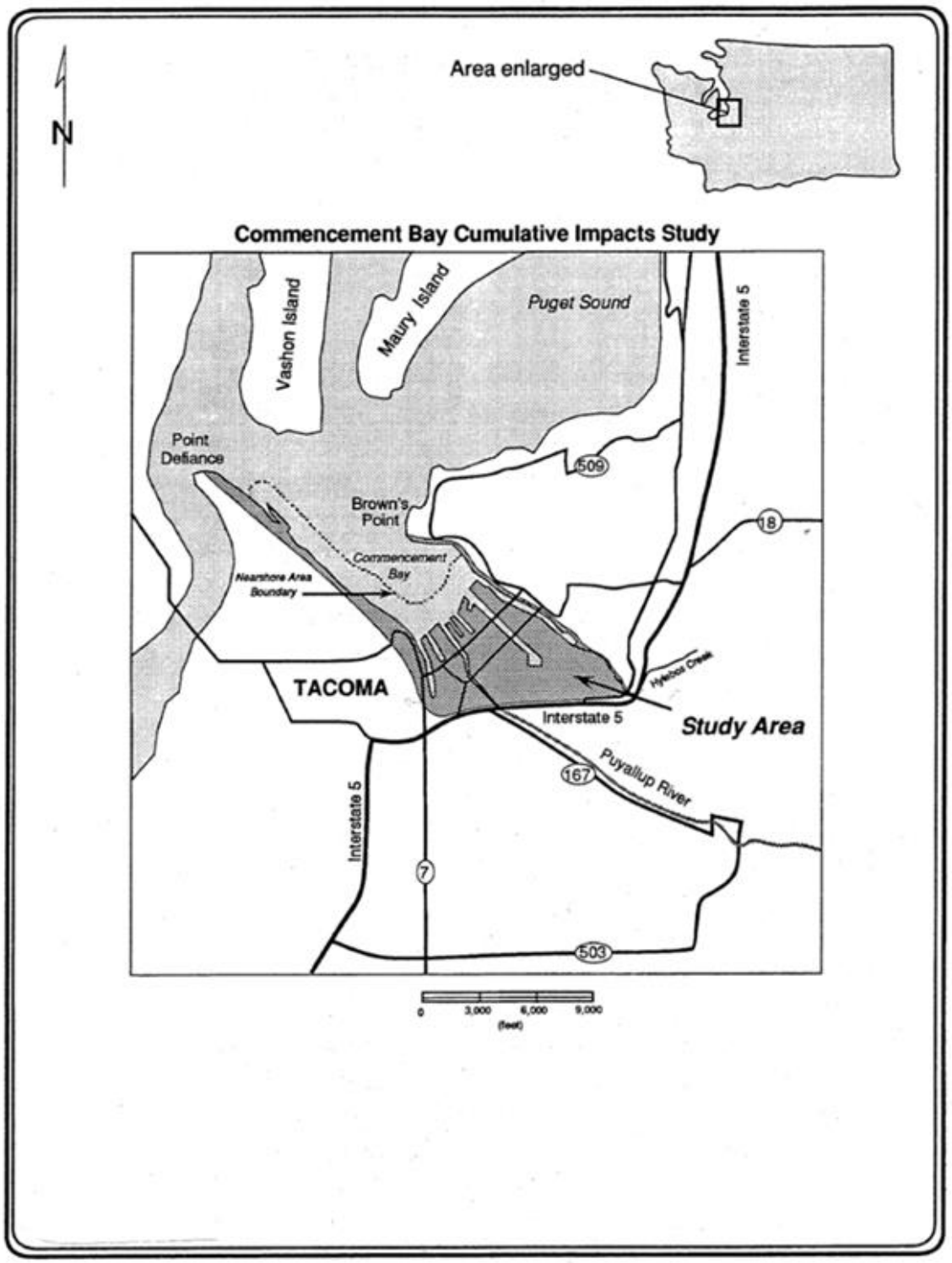

N
WRIA 9
Duwamish-Green
Federal Way
Lakeland South
Tacoma
WRIA 10
Puyallup-White
University Place
Lakewood
Puyallup
WRIA 12
Chambers-Clover
Parkland
Fort Lewis
South Hill
Spanaway
WRIA 11
Nisqually
Elk Plain
Lacey
0 1 2 4 6 8
Miles
WRIA 11
Nisqually
Latitude: 47.0799 Longitude: -122.7018
0 750 1,500 3,000
Feet

Figure 2. RGC 4 - Commencement Bay Study Area



HYDRAULIC PROJECT APPROVAL

Washington Department of
Fish & Wildlife
PO Box 43234
Olympia, WA 98504-3234
(360) 902-2200

Issued Date: March 26, 2024
Project End Date: July 31, 2028

Permit Number: 2024-4-142+01
FPA/Public Notice Number: N/A
Application ID: 33877

PERMITTEE	AUTHORIZED AGENT OR CONTRACTOR
City of Duvall	GeoEngineers, Inc.
ATTENTION: Benjamin Ressler	ATTENTION: David Conlin
PO Box 1300	1101 Fawcett Ave, Ste 200
Duvall, WA 98019	Tacoma, WA 98402-2012

Project Name: Coe-Clemons Creek at 3rd Avenue NE Culvert Replacement

Project Description: The City of Duvall (City) proposes to replace an existing pipe culvert conveying Coe-Clemons creek under 3rd Ave NE with a new pre-cast concrete box culvert to meet the current fish passage design standards. There project will be designed to be forward compatible with future improvements to 3rd Ave NE and the road section reconstructed over the culvert will include a curb, planter strip, and new sidewalk.

PROVISIONS

TIMING - PLANS - INVASIVE SPECIES CONTROL

1. TIMING LIMITATION: Work below the ordinary high water line must only occur between August 1 and August 31.

2. APPROVED PLANS: You must accomplish the work per plans and specifications submitted with the application and approved by the Washington Department of Fish and Wildlife, entitled PmtDwg_CoeClemons Cr Culvert, dated 02/12/2024, and Basis of Design Report entitled,CoeClemons_Creek_90Percent BOD_Draft, received on 02/13/2024 except as modified by this Hydraulic Project Approval. You must have a copy of these plans available on site during all phases of the project construction.

3. INVASIVE SPECIES CONTROL: Follow Method 1 for low risk locations (i.e. clean/drain/dry). Thoroughly remove visible dirt and debris from all equipment and gear (including drive mechanisms, wheels, tires, tracks, buckets, and undercarriage) before arriving and leaving the job site to prevent the transport and introduction of invasive species. For contaminated or high risk sites please refer to the Method 2 Decontamination protocol. Properly dispose of any water and chemicals used to clean gear and equipment. You can find this and additional information in the Washington Department of Fish and Wildlife's "Invasive Species Management Protocols", available online at https://wdfw.wa.gov/species-habitats/invasive/prevention.

NOTIFICATION REQUIREMENTS

4. NOTIFICATION: You, your agent, or contractor must contact the Washington Department of Fish and Wildlife by e-mail at HPAapplications@dfw.wa.gov; mail to Post Office Box 43234, Olympia, Washington 98504-3234; or fax to (360) 902-2946 at least three business days before starting work. The notification must include the permittee's name, project location, starting date, and the Hydraulic Project Approval permit number.

5. PHOTOGRAPHS: You, your agent, or contractor must take photographs of the job site before the work begins and after the work is completed. You must upload the photographs to the post-permit requirement page in the Aquatic Protection Permitting System (APPS) or mail them to Washington Department of Fish and Wildlife at Post Office Box 43234, Olympia, Washington 98504-3234 within 30-days after the work is completed.

6. FISH KILL/ WATER QUALITY PROBLEM NOTIFICATION: If a fish kill occurs or fish are observed in distress at the job site, immediately stop all activities causing harm. Immediately notify the Washington Department of Fish and

Wildlife of the problem. If the likely cause of the fish kill or fish distress is related to water quality, also notify the Washington Military Department Emergency Management Division at 1-800-258-5990. Activities related to the fish kill or fish distress must not resume until the Washington Department of Fish and Wildlife gives approval. The Washington Department of Fish and Wildlife may require additional measures to mitigate impacts.

STAGING, JOB SITE ACCESS, AND EQUIPMENT

7. Establish staging areas (used for equipment storage, vehicle storage, fueling, servicing, and hazardous material storage) in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.

8. Use existing roadways or travel paths.

9. Clearly mark boundaries to establish the limit of work associated with site access and construction.

10. Limit the removal of native bankline vegetation to the minimum amount needed to construct the project.

11. Equipment used for this project may operate waterward of the ordinary high water line, provided the drive mechanisms (wheels, tracks, tires, etc.) do not enter or operate waterward of the ordinary high water line.

12. Check equipment daily for leaks and complete any required repairs in an upland location before using the equipment in or near the water.

13. If wet or muddy conditions exist, in or near a riparian zone or wetland area, use equipment that reduces ground pressure.

14. Use environmentally acceptable lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols in equipment operated in or near the water.

15. This Hydraulic Project Approval does not authorize equipment crossings of the stream.

CONSTRUCTION-RELATED SEDIMENT, EROSION AND POLLUTION CONTAINMENT

16. Work in the dry watercourse (when no natural flow is occurring in the channel, or when flow is diverted around the job site).

17. Protect all disturbed areas from erosion. Maintain erosion and sediment control until all work and cleanup of the job site is complete.

18. All erosion control materials that will remain onsite must be composed of 100% biodegradable materials.

19. Stop all hydraulic project activities except those needed to control erosion and siltation, if flow conditions arise that will result in erosion or siltation of waters of the state.

20. Prevent project contaminants, such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials, from entering or leaching into waters of the state.

21. Route construction water (wastewater) from the project to an upland area above the limits of anticipated floodwater. Remove fine sediment and other contaminants before discharging the construction water to waters of the state.

22. Deposit waste material from the project, such as construction debris, silt, excess dirt, or overburden, in an upland area above the limits of anticipated floodwater unless the material is approved by the Washington Department of Fish and Wildlife for reuse in the project.

23. Deposit all trash from the project at an appropriate upland disposal location.

IN-WATER WORK AREA ISOLATION USING A TEMPORARY BYPASS

24. Isolate fish from the work area by using either a total or partial bypass to reroute the stream through a temporary channel or pipe.

25. Sequence the work to minimize the duration of dewatering.

26. Design the temporary bypass to minimize the length of the dewatered stream channel.

27. During all phases of bypass installation and decommissioning, maintain flows downstream of the project site to ensure survival of all downstream fish.

28. Install a cofferdam or similar device at the upstream and downstream end of the bypass to prevent backwater from entering the work area.

29. Return diverted water to the channel immediately downstream of the work area. Dissipate flow energy from the diversion to prevent scour or erosion of the channel and bank.

30. If the bypass is a pumped diversion, once started it must run continuously until it is no longer necessary to bypass flows. This requires back-up pumps on-site and twenty-four-hour monitoring for overnight operation.

31. If the diversion inlet is a pump diversion in a fish-bearing stream, the pump intake structure must have a fish screen installed, operated, and maintained in accordance with RCW 77.57.010 and 77.57.070. Screen the pump intake with one of the following:
a) Perforated plate: 0.094 inch (maximum opening diameter);
b) Profile bar: 0.069 inch (maximum width opening); or
c) Woven wire: 0.087 inch (maximum opening in the narrow direction).
The minimum open area for all types of fish screens is twenty-seven percent. The screened intake facility must have enough surface area to ensure that the velocity through the screen is less than 0.4 feet per second. Maintain fish screens to prevent injury or entrapment of fish.

32. Remove fish screens on dewatering pumps in the isolated work area only after all fish are safe and excluded from the work area.

33. Isolate pump hose intakes with block nets so that fish cannot get near the intake.

FISH LIFE REMOVAL

34. All persons participating in capture and removal must have training, knowledge, and skills in the safe handling of fish life.

35. If electrofishing is conducted, a person with electrofishing training must be on-site to conduct or direct all electrofishing activities.

36. Place block nets upstream and downstream of the in-water work area before capturing and removing fish life.

37. Capture and safely move fish life from the work area to the nearest suitable free-flowing water.

CULVERT

38. Install and maintain the culvert to ensure unimpeded fish passage.

39. Establish the culvert invert elevation with reference point(s) or benchmark(s) created before to starting work on this project. Clearly mark and preserve the reference point(s) for post-project compliance. Before backfilling, confirm the invert elevation, as stated on the plans, relative to the reference points with at least a construction-grade leveling device (such as an optical auto-level or laser level).

40. The authorized culvert is a Roughened Channel design.

41. The length of the culvert must not exceed 72 feet.

42. Embed the top of footings of bottomless culverts sufficiently below potential scour depth to prevent exposure of the footing surface and undermining.

43. The streambed must include a sinuous low-flow channel expected under common conditions in the reach and a high-flow bench on both sides of the culvert.

44. The owner(s) must maintain the culvert to ensure it provides continued, unimpeded fish passage. If the culvert becomes a hindrance to fish passage, the owner must obtain an Hydraulic Project Approval and provide prompt repair.

Washington Department of
Fish & Wildlife
PO Box 43234
Olympia, WA 98504-3234
(360) 902-2200

HYDRAULIC PROJECT APPROVAL

Issued Date: March 26, 2024
Project End Date: July 31, 2028

Permit Number: 2024-4-142+01
FPA/Public Notice Number: N/A
Application ID: 33877

LARGE WOODY MATERIAL

45. When placing, repositioning, or removing large woody material, station equipment on the bank.

46. Do not drag large woody material. Suspend large woody material during placement, repositioning, or removal so it does not damage the bed or banks. A yarding corridor or full suspension is required to protect riparian zone vegetation. Full suspension can be achieved with hand-operated or heavy equipment or aerial log yarding towers.

DEMOBILIZATION AND CLEANUP

47. Completely remove any temporary fill before the end of the in-water timing window if the fill material could erode and deliver sediment-laden water into waters of the state.

48. To minimize sediment delivery to the stream or stream channel, do not return in-stream flows to the work area until all in-channel work is completed and the bed and banks are stabilized.

49. Seed areas disturbed by construction activities with a native seed mix suitable for the site that has at least one quick-establishing plant species.

50. Complete replanting of riparian vegetation during the first dormant season (late fall through late winter) after project completion per the approved plan. Maintain plantings for at least three years to ensure at least eighty percent of the plantings survive. Failure to achieve the eighty percent survival in year three will require you to submit a plan with follow-up measures to achieve requirements or reasons to modify requirements.

51. Upon completion of the project, remove all materials or equipment from the site and dispose of all excess spoils and waste materials in an upland area above the limits of anticipated floodwater.

52. Return water flow slowly to the in-water work area to prevent the downstream release of sediment laden water. If necessary, install silt fencing above the bypass outlet to capture sediment during re-watering of the channel.

53. Remove temporary erosion and sediment control methods after job site is stabilized or within three months of project completion, whichever is sooner.

LOCATION #1:	Site Name: Coe-Clemons Creek at 3rd Avenue NE 3rd Avenue NE and NE Taylor St, Duvall, WA 98019					
WORK START:	June 1, 2024			WORK END:	October 31, 2024	
WRIA		Waterbody:			Tributary to:	
07 - Snohomish		Unknown Stream Number			Unknown	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
W 1/2	13	26 N	06 E	47.734993	-121.980260	King
Location #1 Driving Directions						
From State Route (SR) 203 (Carnation-Duvall Road NE) in downtown Duvall, Washington, head east on NE Stephens Street four blocks to 3rd Avenue NE. Turn right on 3rd Avenue NE and continue approximately five blocks. The stream crossing is just past NE Taylor St						

APPLY TO ALL HYDRAULIC PROJECT APPROVALS

Washington Department of
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FPA/Public Notice Number: N/A
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This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW. Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person (s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in civil action against you, including, but not limited to, a stop work order or notice to comply, and/or a gross misdemeanor criminal charge, possibly punishable by fine and/or imprisonment.

All Hydraulic Project Approvals issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this Hydraulic Project Approval is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.

MINOR MODIFICATIONS TO THIS HPA: You may request approval of minor modifications to the required work timing or to the plans and specifications approved in this HPA unless this is a General HPA. If this is a General HPA you must use the Major Modification process described below. Any approved minor modification will require issuance of a letter documenting the approval. A minor modification to the required work timing means any change to the work start or end dates of the current work season to enable project or work phase completion. Minor modifications will be approved only if spawning or incubating fish are not present within the vicinity of the project. You may request subsequent minor modifications to the required work timing. A minor modification of the plans and specifications means any changes in the materials, characteristics or construction of your project that does not alter the project's impact to fish life or habitat and does not require a change in the provisions of the HPA to mitigate the impacts of the modification. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a minor modification through APPS. A link to APPS is at http://wdfw.wa.gov/licensing/hpa/. If you did not use APPS you must submit a written request that clearly indicates you are seeking a minor modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234, or by email to HPAapplications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.

Issued Date: March 26, 2024
Project End Date: July 31, 2028

Permit Number: 2024-4-142+01
FPA/Public Notice Number: N/A
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MAJOR MODIFICATIONS TO THIS HPA: You may request approval of major modifications to any aspect of your HPA. Any approved change other than a minor modification to your HPA will require issuance of a new HPA. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a major modification through APPS. A link to APPS is at http://wdfw.wa.gov/licensing/hpa/. If you did not use APPS you must submit a written request that clearly indicates you are requesting a major modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send your written request by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234. You may email your request for a major modification to HPAapplications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.

APPEALS INFORMATION

If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), Washington Department of Fish and Wildlife (WDFW) recommends that you first contact the department employee who issued or denied the HPA to discuss your concerns. Such a discussion may resolve your concerns without the need for further appeal action. If you proceed with an appeal, you may request an informal or formal appeal. WDFW encourages you to take advantage of the informal appeal process before initiating a formal appeal. The informal appeal process includes a review by department management of the HPA or denial and often resolves issues faster and with less legal complexity than the formal appeal process. If the informal appeal process does not resolve your concerns, you may advance your appeal to the formal process. You may contact the HPA Appeals Coordinator at (360) 902-2534 for more information.

A. INFORMAL APPEALS: WAC 220-660-460 is the rule describing how to request an informal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee may conduct an informal hearing or review and recommend a decision to the Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

B. FORMAL APPEALS: WAC 220-660-470 is the rule describing how to request a formal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete formal appeal procedures. The following information summarizes that rule.

HYDRAULIC PROJECT APPROVAL

Washington Department of
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PO Box 43234
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Permit Number: 2024-4-142+01
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A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request a formal appeal of that action. You must send your request for a formal appeal to the clerk of the Pollution Control Hearings Boards and serve a copy on WDFW within 30 days from the date you receive notice of the decision. You may serve WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, you may request a formal appeal within 30 days from the date you receive the Director's or designee's written decision in response to the informal appeal.

C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.

Habitat Biologist	Kirk.Lakey@dfw.wa.gov		for Director
Kirk Lakey	360-819-0016		WDFW

Issuance Date: July 1, 2019
Effective Date: August 1, 2019
Expiration Date: July 31, 2024

Western Washington Phase II Municipal Stormwater Permit

National Pollutant Discharge Elimination System and
State Waste Discharge General Permit for discharges from
Small Municipal Separate Storm Sewers
In Western Washington

State of Washington
Department of Ecology
Olympia, WA 98504-7600

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 *et seq.*

Until this Permit expires, is modified, or revoked, Permittees that have properly obtained coverage under this Permit are authorized to discharge to waters of the State in accordance with the special and general conditions which follow.

Heather R. Bartlett
Water Quality Program Manager
Department of Ecology

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SPECIAL CONDITIONS

S1. PERMIT COVERAGE AREA AND PERMITTEES

A. Geographic Area of Permit Coverage

This Permit is applicable to owners or operators of regulated small Municipal Separate Storm Sewer Systems (MS4s) located west of the eastern boundaries of the following counties: Whatcom, Skagit, Snohomish, King, Pierce, Lewis, and Skamania.

1. For all cities required to obtain coverage under this Permit, the geographic area of coverage is the entire incorporated area of the city.

2. For all counties required to have coverage under this Permit, the geographic area of coverage is the urbanized areas and urban growth areas associated with permitted cities under the jurisdictional control of the county. The geographic area of coverage also includes any urban growth area contiguous to permitted urbanized areas under the jurisdictional control of the county.

3. For Whatcom County, the geographic area of coverage also includes the unincorporated Birch Bay urban growth area.

4. For Secondary Permittees required to obtain coverage under this Permit, the minimum geographic area of coverage is all areas identified under S1.A.1 and S1.A.2. At the time of permit coverage, the Washington State Department of Ecology (Ecology) may establish a geographic area of coverage specific to an individual Secondary Permittee.

5. All regulated small MS4s owned or operated by the Permittees named in S1.D.2.a(i), and (ii), and S1.D.2.b and located in another city or county area requiring coverage under this Permit, or the *Phase I Municipal Stormwater Permit* or the *Eastern Washington Phase II Municipal Stormwater Permit,* are also covered under this Permit.

B. Regulated Small Municipal Separate Storm Sewer Systems (MS4s)

All operators of regulated small MS4s are required to apply for and obtain coverage under this Permit or be permitted under a separate individual permit, unless waived or exempted in accordance with condition S1.C.

1. A regulated small MS4:

a. Is a "Small MS4" as defined in the *Definitions and Acronyms* section at the end of this Permit; and

b. Is located within, or partially located within, an urbanized area as defined by the latest decennial census conducted by the U.S. Census Bureau, or designated by Ecology pursuant to 40 CFR 123.35(b) or 40 CFR 122.26(f); and

c. Discharges stormwater from the MS4 to a surface water of Washington State; and

d. Is not eligible for a waiver or exemption under S1.C, below.

2. All other operators of MS4s, including special purpose districts, which meet the criteria for a regulated small MS4 shall obtain coverage under this Permit. Other operators of small MS4s may include, but are not limited to: flood control, or diking and drainage districts; schools, including universities; and correctional facilities that own or operate a small MS4 serving non-agricultural land uses.

3. Any other operators of small MS4s may be required by Ecology to obtain coverage under this Permit or an alternative NPDES permit if Ecology determines the small MS4 is a significant source of pollution to surface waters of the State. Notification of Ecology's determination that permit coverage is required will be through the issuance of an Administrative Order issued in accordance with RCW 90.48.

4. The owner or operator of a regulated small MS4 may obtain coverage under this Permit as a Permittee, Co-Permittee, or Secondary Permittee as defined in S1.D.1, below.

5. Pursuant to 40 CFR 122.26(f), any person or organization may petition Ecology to require that additional small MS4s obtain coverage under this Permit. The process for petitioning Ecology is:

    a. The person or organization shall submit a complete petition in writing to Ecology. A complete petition shall address each of the relevant factors for petitions outlined on Ecology's website.

    b. In making its determination on the petition, Ecology may request additional information from either the petitioner or the entity that is the subject of the petition.

    c. Ecology will make a final determination on a complete petition within 180 days of receipt of the petition and inform both the petitioner and the MS4 of the decision, in writing.

    d. If Ecology's final determination is that the candidate MS4 will be regulated, Ecology will issue an order to the operator of the MS4 requiring them to obtain coverage under this Permit. The order will specify:

        i. The geographic area of permit coverage for the MS4.

        ii. Any modified dates or deadlines for developing and implementing this Permit, as appropriate to the MS4, and for submitting their first annual report.

        iii. A deadline for the operator of the MS4 to submit a complete Notice of Intent (NOI, provided on Ecology's website) to Ecology.

C. Owners and operators of an otherwise regulated small MS4 are ***not*** required to obtain coverage under this Permit if:

1. The small MS4 is operated by:

    a. A federal entity, including any department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal government of the United States.

    b. Federally recognized Indian Tribes located within Indian Country, including all trust or restricted lands within the 1873 Survey Area of the Puyallup Tribe of Indians.

    c. The Washington State Department of Transportation.

Or

2. The portions of the small MS4 located within the census defined urbanized area(s) serve a total population of less than 1000 people and a, b, and c, below ***all*** apply:

   a. The small MS4 is not contributing substantially to the pollutant loadings of a physically interconnected MS4 that is regulated by the NPDES stormwater program.

   b. The discharge of pollutants from the small MS4 has not been identified as a cause of impairment of any water body to which the MS4 discharges.

   c. In areas where an EPA approved TMDL has been completed, stormwater controls on the MS4 have not been identified as necessary to meet wasteload allocations established in the TMDL that address the pollutant(s) of concern.

   In determining the total population served, both resident and commuter populations shall be included. For example:

   - For publicly operated school complexes including universities and colleges, the total population served would include the sum of the average annual student enrollment plus staff.
   - For flood control, diking, and drainage districts, the total population served would include residential population and any non-residents regularly employed in the areas served by the small MS4.

D. Obtaining coverage under this Permit.

All operators of regulated small MS4s are required to apply for and obtain coverage in accordance with this Section, unless waived or exempted, in accordance with Section S1.C.

1. Unless otherwise noted, the term "Permittee" shall include a city, town, or county Permittee, New Permittee, Co-Permittee, Secondary Permittee, and New Secondary Permittee as defined below:

   a. "Permittee" is a city, town, or county owning or operating a regulated small MS4 applying and receiving a permit as a single entity.

   b. "New Permittee" is a city, town, or county that is subject to the *Western Washington Phase II Municipal Stormwater General Permit* and was not subject to the Permit prior to August 1, 2019.

   c. "Co-Permittee" is any owner or operator of a regulated small MS4 that is applying in a cooperative agreement with at least one other applicant for coverage under this Permit. Co-Permittees own or operate a regulated small MS4 located within or in proximity to another regulated small MS4.

   d. A "Secondary Permittee" is an operator of a regulated small MS4 that is not a city, town, or county. Secondary Permittees include special purpose districts and other MS4s that meet the criteria for a regulated small MS4 in S1.B, above.

   e. "New Secondary Permittee" is a Secondary Permittee that is covered under a Municipal Stormwater General Permit and was not covered by the Permit prior to August 1, 2019.

2. Operators of regulated small MS4s have submitted, or shall submit, to Ecology either a Notice of Intent (NOI) for Coverage under National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater General Permit or a Duty to Reapply - NOI provided on Ecology's website.

   a. The following Permittees and Secondary Permittees submitted a *Duty to Reapply - NOI* to Ecology prior to February 1, 2018:

      i. **Cities and towns:** Aberdeen, Algona, Anacortes, Arlington, Auburn, Bainbridge Island, Battle Ground, Bellevue, Bellingham, Black Diamond, Bonney Lake, Bothell, Bremerton, Brier, Buckley, Burien, Burlington, Camas, Centralia, Clyde Hill, Covington, Des Moines, DuPont, Duvall, Edgewood, Edmonds, Enumclaw, Everett, Federal Way, Ferndale, Fife, Fircrest, Gig Harbor, Granite Falls, Issaquah, Kelso, Kenmore, Kent, Kirkland, Lacey, Lake Forest Park, Lake Stevens, Lakewood, Longview, Lynden, Lynnwood, Maple Valley, Marysville, Medina, Mercer Island, Mill Creek, Milton, Monroe, Mountlake Terrace, Mount Vernon, Mukilteo, Newcastle, Normandy Park, Oak Harbor, Olympia, Orting, Pacific, Port Orchard, Port Angeles, Poulsbo, Puyallup, Redmond, Renton, Sammamish, SeaTac, Sedro-Woolley, Shoreline, Snohomish, Snoqualmie, Steilacoom, Sumner, Tukwila, Tumwater, University Place, Vancouver, Washougal, and Woodinville.

      ii. **Counties:** Cowlitz, Kitsap, Thurston, Skagit, and Whatcom.

      iii. **Secondary Permittees:** Bainbridge Island School District #303, Bellingham School District, Bellingham Technical College, Cascadia College, Central Kitsap School District, Centralia College, Clark College, Consolidated Diking Improvement District #1 of Cowlitz County, Edmonds Community College, Evergreen College, Highline Community College, Kelso School District, Kent School District, Longview School District, Lower Columbia College, Port of Anacortes, Port of Bellingham, Port of Olympia, Port of Skagit County, Port of Vancouver, Skagit County Drainage District #19, Skagit Valley College, University of Washington Bothell, Washington State University Vancouver, Washington State Department of Enterprise Services (Capitol Campus), Washington Department of Corrections, Western Washington University, and Whatcom Community College.

   b. Operators of regulated small MS4s have submitted or shall submit to Ecology a "Notice of Intent (NOI) for Coverage under National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater General Permit" provided on Ecology's website before the effective date of this Permit, with the following exceptions:

      i. Operators of regulated small MS4s located in the City of Shelton, and the Clallam County urban growth area surrounding Port Angeles shall submit a NOI or application to Ecology no later than 30 days after the effective date of this Permit.

      ii. Operators of regulated small MS4s listed in S1.D.2.a do not need to submit a new application to be covered under this Permit.

   c. For operators of regulated small MS4s listed in S1.D.2.a, coverage under this Permit is automatic and begins on the effective date of this Permit, unless the operator chooses to opt out of this General Permit. Any operator of a regulated small MS4 that

is opting out of this Permit shall submit an application for an individual MS4 permit in accordance with 40 CFR 122.33(b)(2)(ii) no later than the effective date of this Permit.

d. Operators of regulated small MS4s which want to be covered under this Permit as Co-Permittees shall each submit a NOI to Ecology.

e. Operators of regulated small MS4s which are relying on another entity to satisfy all of their permit obligations shall submit a NOI to Ecology.

f. Operators of small MS4s designated by Ecology pursuant to S1.B.3 of this Permit shall submit a NOI to Ecology within 120 days of receiving notification from Ecology that permit coverage is required.

3. Application Requirements

a. For NOIs submitted after the issuance date of this Permit, the applicant shall include a certification that the public notification requirements of WAC 173-226-130(5) have been satisfied. Ecology will notify applicants in writing of their status concerning coverage under this Permit within 90 days of Ecology's receipt of a complete NOI.

b. Each Permittee applying as a Co-Permittee shall submit a NOI provided on Ecology's website. The NOI shall clearly identify the areas of the MS4 for which the Co-Permittee is responsible.

c. Permittees relying on another entity or entities to satisfy one or more of their permit obligations shall notify Ecology in writing. The notification shall include a summary of the permit obligations that will be carried out by another entity. The summary shall identify the other entity or entities and shall be signed by the other entity or entities. During the term of the Permit, Permittees may terminate or amend shared responsibility arrangements by notifying Ecology, provided this does not alter implementation deadlines.

d. Secondary Permittees required to obtain coverage under this Permit, and the *Phase I Municipal Stormwater Permit* or the *Eastern Washington Phase II Municipal Stormwater Permit,* may obtain coverage by submitting a single NOI.

S2. AUTHORIZED DISCHARGES

A. This Permit authorizes the discharge of stormwater to surface waters and to groundwaters of the State from MS4s owned or operated by each Permittee covered under this Permit, in the geographic area covered pursuant to S1.A. These discharges are subject to the following limitations:

1. Discharges to groundwaters of the State through facilities regulated under the Underground Injection Control (UIC) program, Chapter 173-218 WAC, are not authorized under this Permit.

2. Discharges to groundwaters not subject to regulation under the federal Clean Water Act are authorized in this Permit only under state authorities, Chapter 90.48 RCW, the Water Pollution Control Act.

B. This Permit authorizes discharges of non-stormwater flows to surface waters and to groundwaters of the State from MS4s owned or operated by each Permittee covered under this Permit, in the geographic area covered pursuant to S1.A, only under one or more of the following conditions:

1. The discharge is authorized by a separate NPDES or State Waste Discharge permit.
2. The discharge is from emergency firefighting activities.
3. The discharge is from another illicit or non-stormwater discharge that is managed by the Permittee as provided in Special Condition S5.C.5 or S6.D.3.

These discharges are also subject to the limitations in S2.A.1 and S2.A.2, above.

C. This Permit does not relieve entities that cause illicit discharges, including spills of oil or hazardous substances, from responsibilities and liabilities under state and federal laws and regulations pertaining to those discharges.

D. Discharges from MS4s constructed after the effective date of this Permit shall receive all applicable state and local permits and use authorizations, including compliance with Chapter 43.21C RCW (the State Environmental Policy Act).

E. This Permit does not authorize discharges of stormwater to waters within Indian Country as defined in 18 U.S.C. §1151, or to waters subject to water quality standards of Indian Tribes, including portions of the Puyallup River and other waters on trust or restricted lands within the 1873 Survey Area of the Puyallup Tribe of Indians Reservation, except where authority has been specifically delegated to Ecology by the U.S. Environmental Protection Agency. The exclusion of such discharges from this Permit does not waive any rights the State may have with respect to the regulation of the discharges.

S3. RESPONSIBILITIES OF PERMITTEES

A. Each Permittee covered under this Permit is responsible for compliance with the terms of this Permit for the regulated small MS4s that they own or operate. Compliance with (1) or (2) below is required as applicable to each Permittee, whether the Permittee has applied for coverage as a Permittee, Co-Permittee, or Secondary Permittee.

1. All city, town, and county Permittees are required to comply with all conditions of this Permit, including any appendices referenced therein, except for Special Condition S6 – *Stormwater Management Program for Secondary Permittees*.
2. All Secondary Permittees are required to comply with all conditions of this Permit, including any appendices referenced therein, except for Section S5 – *Stormwater Management Program for Cities, Towns, and Counties* and S8 – *Monitoring and Assessment.*

B. Permittees may rely on another entity to satisfy one or more of the requirements of this Permit. Permittees that are relying on another entity to satisfy one or more of their permit obligations remain responsible for permit compliance if the other entity fails to implement permit conditions. Permittees may rely on another entity provided all the requirements of 40 CFR 122.35(a) are satisfied, including but not limited to:

1. The other entity, in fact, implements the Permit requirements.

2. The other entity agrees to take on responsibility for implementation of the Permit requirement(s) as indicated on the NOI.

S4. COMPLIANCE WITH STANDARDS

A. In accordance with RCW 90.48.520, the discharge of toxicants to waters of the State of Washington which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria is prohibited. The required response to such discharges is defined in Section S4.F, below.

B. This Permit does not authorize a discharge which would be a violation of Washington State Surface Water Quality Standards (Chapter 173-201A WAC), Groundwater Quality Standards (Chapter 173-200 WAC), Sediment Management Standards (Chapter 173-204 WAC), or human health-based criteria in the National Toxics Rule (40 CFR 131.45). The required response to such discharges is defined in Section S4.F, below.

C. The Permittee shall reduce the discharge of pollutants to the Maximum Extent Practicable (MEP).

D. The Permittee shall use All Known, Available, and Reasonable methods of prevention, control and Treatment (AKART) to prevent and control pollution of waters of the State of Washington.

E. In order to meet the goals of the Clean Water Act, and comply with S4.A, S4.B, S4.C, and S4.D, each Permittee shall comply with all of the applicable requirements of this Permit as identified in S3 – *Responsibilities of Permittees*.

F. A Permittee remains in compliance with S4 despite any discharges prohibited by S4.A or S4.B, when the Permittee undertakes the following response toward long-term water quality improvement:

1. A Permittee shall notify Ecology in writing within 30 days of becoming aware, based on credible site-specific information that a discharge from the MS4 owned or operated by the Permittee is causing or contributing to a known or likely violation of Water Quality Standards in the receiving water. Written notification provided under this subsection shall, at a minimum, identify the source of the site-specific information, describe the nature and extent of the known or likely violation in the receiving water, and explain the reasons why the MS4 discharge is believed to be causing or contributing to the problem. For ongoing or continuing violations, a single written notification to Ecology will fulfill this requirement.

2. In the event that Ecology determines, based on a notification provided under S4.F.1 or through any other means, that a discharge from an MS4 owned or operated by the Permittee is causing or contributing to a violation of Water Quality Standards in a receiving water, Ecology will notify the Permittee in writing that an adaptive management response, outlined in S4.F.3, below, is required, unless:

a. Ecology also determines that the violation of Water Quality Standards is already being addressed by a Total Maximum Daily Load (TMDL) or other enforceable water quality cleanup plan; or

b. Ecology concludes the MS4 contribution to the violation will be eliminated through implementation of other permit requirements.

3. Adaptive Management Response

a. Within 60 days of receiving a notification under S4.F.2, or by an alternative date established by Ecology, the Permittee shall review its Stormwater Management Program (SWMP) and submit a report to Ecology. The report shall include:

i. A description of the operational and/or structural BMPs that are currently being implemented to prevent or reduce any pollutants that are causing or contributing to the violation of Water Quality Standards, including a qualitative assessment of the effectiveness of each Best Management Practice (BMP).

ii. A description of potential additional operational and/or structural BMPs that will or may be implemented in order to apply AKART on a site-specific basis to prevent or reduce any pollutants that are causing or contributing to the violation of Water Quality Standards.

iii. A description of the potential monitoring or other assessment and evaluation efforts that will or may be implemented to monitor, assess, or evaluate the effectiveness of the additional BMPs.

iv. A schedule for implementing the additional BMPs including, as appropriate: funding, training, purchasing, construction, monitoring, and other assessment and evaluation components of implementation.

b. Ecology will, in writing, acknowledge receipt of the report within a reasonable time and notify the Permittee when it expects to complete its review of the report. Ecology will either approve the additional BMPs and implementation schedule or require the Permittee to modify the report as needed to meet AKART on a site-specific basis. If modifications are required, Ecology will specify a reasonable time frame in which the Permittee shall submit and Ecology will review the revised report.

c. The Permittee shall implement the additional BMPs, pursuant to the schedule approved by Ecology, beginning immediately upon receipt of written notification of approval.

d. The Permittee shall include with each subsequent annual report a summary of the status of implementation and the results of any monitoring, assessment or evaluation efforts conducted during the reporting period. If, based on the information provided under this subsection, Ecology determines that modification of the BMPs or implementation schedule is necessary to meet AKART on a site-specific basis, the Permittee shall make such modifications as Ecology directs. In the event there are ongoing violations of water quality standards despite the implementation of the BMP approach of this Section, the Permittee may be subject to compliance schedules to

eliminate the violation under WAC 173-201A-510(4) and WAC 173-226-180 or other enforcement orders as Ecology deems appropriate during the term of this Permit.

e. A TMDL or other enforceable water quality cleanup plan that has been approved and is being implemented to address the MS4's contribution to the Water Quality Standards violation supersedes and terminates the S4.F.3 implementation plan.

f. Provided the Permittee is implementing the approved adaptive management response under this Section, the Permittee remains in compliance with Special Condition S4, despite any on-going violations of Water Quality Standards identified under S4.A or B, above.

g. The adaptive management process provided under Section S4.F is not intended to create a shield for the Permittee from any liability it may face under 42 U.S.C. 9601 *et seq*. or Chapter 70.105D RCW.

G. Ecology may modify or revoke and reissue this General Permit in accordance with G14 – *General Permit Modification and Revocation*, if Ecology becomes aware of additional control measures, management practices, or other actions beyond what is required in this Permit that are necessary to:

1. Reduce the discharge of pollutants to the MEP,

2. Comply with the state AKART requirements, or

3. Control the discharge of toxicants to waters of the State of Washington.

S5. STORMWATER MANAGEMENT PROGRAM FOR CITIES, TOWNS, AND COUNTIES

A. Each Permittee shall develop and implement a Stormwater Management Program (SWMP). A SWMP is a set of actions and activities comprising the components listed in S5 and any additional actions necessary, to meet the requirements of applicable TMDLs pursuant to S7 – *Compliance with Total Maximum Daily Load Requirements* and S8 – *Monitoring and Assessment*. This Section applies to all cities, towns, and counties covered under this Permit (termed as "Permittee," including cities, towns, and counties that are Co-Permittees).

New Permittees subject to this Permit, as described in S1.D.1.b, shall fully meet the requirements in S5 as modified in footnotes below, or as specified in an alternate schedule as a condition of coverage by Ecology. Permittees obtaining coverage after the issuance date of this Permit shall fully meet the requirements in S5 as specified in an alternate schedule as a condition of coverage by Ecology.

1. At a minimum, the Permittee's SWMP shall be implemented throughout the geographic area subject to this Permit as described in S1.A.[1]

2. Each Permittee shall prepare written documentation of the SWMP, called the SWMP Plan. The SWMP Plan shall be organized according to the program components in S5.C or a

[1] New Permittees shall fully develop and implement the SWMP in accordance with the schedules contained in this Section no later than February 2, 2024.

format approved by Ecology, and shall be updated at least annually for submittal with the Permittee's annual reports to Ecology (see S9 – *Reporting Requirements*). The SWMP Plan shall be written to inform the public of the planned SWMP activities for the upcoming calendar year, and shall include a description of:

a. Planned activities for each of the program components included in S5.C.

b. Any additional planned actions to meet the requirements of applicable TMDLs pursuant to S7– *Compliance with Total Maximum Daily Load Requirements*.

c. Any additional planned actions to meet the requirements of S8 – *Monitoring and Assessment.*

3. The SWMP shall include an ongoing program for gathering, tracking, maintaining, and using information to evaluate SWMP development, implementation, and permit compliance and to set priorities.

a. Each Permittee shall track the cost or estimated cost of development and implementation of each component of the SWMP.[2] This information shall be provided to Ecology upon request.

b. Each Permittee shall track the number of inspections, follow-up actions as a result of inspections, official enforcement actions and types of public education activities as required by the respective program component. This information shall be included in the annual report.

4. Permittees shall continue implementation of existing stormwater management programs until they begin implementation of the updated stormwater management program in accordance with the terms of this Permit, including implementation schedules.

5. Coordination among Permittees

a. Coordination among entities covered under municipal stormwater NPDES permits may be necessary to comply with certain conditions of the SWMP. The SWMP shall include, when needed, coordination mechanisms among entities covered under a municipal stormwater NPDES permit to encourage coordinated stormwater-related policies, programs and projects within adjoining or shared areas, including:

i. Coordination mechanisms clarifying roles and responsibilities for the control of pollutants between physically interconnected MS4s covered by a municipal stormwater permit.

ii. Coordinating stormwater management activities for shared water bodies, or watersheds among Permittees to avoid conflicting plans, policies, and regulations.

b. The SWMP shall include coordination mechanisms among departments within each jurisdiction to eliminate barriers to compliance with the terms of this Permit. Permittees shall include a written description of internal coordination mechanisms in the Annual Report due no later than March 31, 2021.

[2] New Permittees shall begin implementing the requirements of S5.A.3.a, no later than August 1, 2021.

B. The SWMP shall be designed to reduce the discharge of pollutants from regulated small MS4s to the MEP, meet state AKART requirements, and protect water quality.

C. The SWMP shall include the components listed below. To the extent allowable under state or federal law, all components are mandatory for city, town, or county Permittees covered under this Permit.

1. Stormwater planning

Each Permittee shall implement a Stormwater Planning program to inform and assist in the development of policies and strategies as water quality management tools to protect receiving waters.

The minimum performance measures are:

a. By August 1, 2020, each Permittee shall convene an inter-disciplinary team to inform and assist in the development, progress, and influence of this program.

b. Coordination with long-range plan updates.

i. Each Permittee shall describe how stormwater management needs and protection/improvement of receiving water health are (or are not) informing the planning update processes and influencing policies and implementation strategies in their jurisdiction. The report shall describe the water quality and watershed protection policies, strategies, codes, and other measures intended to protect and improve local receiving water health through planning, or taking into account stormwater management needs or limitations.

(a) On or before March 31, 2021, the Permittee shall respond to the series of Stormwater Planning Annual Report questions to describe how anticipated stormwater impacts on water quality were addressed, if at all, during the 2013-2019 permit term in updates to the Comprehensive Plan (or equivalent) and in other locally initiated or state-mandated, long-range land use plans that are used to accommodate growth or transportation.

(b) On or before January 1, 2023, the Permittee shall submit a report responding to the same questions included in (a), above, to describe how water quality is being addressed, if at all, during this permit term in updates to the Comprehensive Plan (or equivalent) and in other locally initiated or state-mandated, long-range land use plans that are used to accommodate growth or transportation.

c. Low impact development code-related requirements.

i. Permittees shall continue to require LID Principles and LID BMPs when updating, revising, and developing new local development-related codes, rules, standards, or other enforceable documents, as needed.

The intent shall be to make LID the preferred and commonly-used approach to site development. The local development-related codes, rules, standards, or other enforceable documents shall be designed to minimize impervious surfaces, native vegetation loss, and stormwater runoff in all types of development situations, where feasible.

(a) Annually, each Permittee shall assess and document any newly identified administrative or regulatory barriers to implementation of LID Principles or LID BMPs since local codes were updated in accordance with the 2013 Permit, and the measures developed to address the barriers. If applicable, the report shall describe mechanisms adopted to encourage or require implementation of LID principles or LID BMPs.

ii. By December 31, 2023, New Permittees shall review, revise, and make effective their local development-related codes, rules, standards, or other enforceable documents to incorporate and require LID principles and LID BMPs. New Permittees shall conduct a similar review and revision process, and consider the range of issues, outlined in the following document: Integrating LID into Local Codes: A Guidebook for Local Governments (Puget Sound Partnership, 2012).

New Permittees shall submit a summary of the results of the review and revision process with the annual report due no later than March 31, 2024. This summary shall be in the required format described in Appendix 5 and include, at a minimum, a list of the participants (job title, brief job description, and department represented), the codes, rules, standards, and other enforceable documents reviewed, and the revisions made to those documents which incorporate and require LID principles and LID BMPs. The summary shall include existing requirements for LID principles and LID BMPs in development-related codes. The summary must be organized as follows:

(a) Measures to minimize impervious surfaces.

(b) Measures to minimize loss of native vegetation.

(c) Other measures to minimize stormwater runoff.

d. Stormwater Management Action Planning[3] (SMAP). Permittees shall conduct a similar process and consider the range of issues outlined in the *Stormwater Management Action Planning Guidance* (Ecology, 2019; Publication 19-10-010). Permittees may rely on another jurisdiction to meet all or part of SMAP requirements at a watershed-scale, provided a SMAP is completed for at least one priority catchment located within the Permittee's jurisdiction.

i. *Receiving Water Assessment*. Permittees shall document and assess existing information related to their local receiving waters and contributing area conditions to identify which receiving waters are most likely to benefit from stormwater management planning.

By March 31, 2022, Permittees shall submit a watershed inventory and include a brief description of the relative conditions of the receiving waters and the contributing areas. The watershed inventory shall be submitted as a table with each receiving water name, its total watershed area, the percent of the total watershed area that is in the Permittee's jurisdiction, and the findings of the stormwater management influence assessment for each basin. Indicate which

[3] New Permittees are exempt from S5.C.1.d. for this permit term.

receiving waters will be included in the S5.C.1.d.ii prioritization process. Include a map of the delineated basins with references to the watershed inventory table.

(a) Identify which basins are expected to have a relatively low Stormwater Management Influence for SMAP. See the guidance document for definition and description of this assessment.

Basins having relatively low expected Stormwater Management Influence for SMAP do not need to be included in S5.C.1.d.ii-iii.

ii. *Receiving Water Prioritization*. Informed by the assessment of receiving water conditions in (i), above, and other local and regional information, Permittees shall develop and implement a prioritization method and process to determine which receiving waters will receive the most benefit from implementation of stormwater facility retrofits, tailored implementation of SWMP actions, and other land/development management actions (different than the existing new and redevelopment requirements). The retrofits and actions shall be designed to: 1) conserve, protect, or restore receiving waters through stormwater and land management strategies that act as water quality management tools, 2) reduce pollutant loading, and 3) address hydrologic impacts from existing development as well as planned for and expected future buildout conditions.

No later than June 30, 2022, document the prioritized and ranked list of receiving waters.

(a) The Permittee shall document the priority ranking process used to identify high priority receiving waters. The Permittee may reference existing local watershed management plan(s) as source(s) of information or rationale for the prioritization.

(b) The ranking process shall include the identification of high priority catchment area(s) for focus of the Stormwater Management Action Plan (SMAP) in (iii), below.

iii. Stormwater Management Action Plan (SMAP). No later than March 31, 2023, Permittees shall develop a SMAP for at least one high priority catchment area from (ii), above, that identifies all of the following:

(a) A description of the stormwater facility retrofits needed for the area, including the BMP types and preferred locations.

(b) Land management/development strategies and/or actions identified for water quality management.

(c) Targeted, enhanced, or customized implementation of stormwater management actions related to permit sections within S5, including:

- IDDE field screening,
- Prioritization of Source Control inspections,
- O&M inspections or enhanced maintenance, or
- Public Education and Outreach behavior change programs.

Identified actions shall support other specifically identified stormwater management strategies and actions for the basin overall, or for the catchment area in particular.

(d) If applicable, identification of changes needed to local long-range plans, to address SMAP priorities.

(e) A proposed implementation schedule and budget sources for:

- Short-term actions (*i.e.*, actions to be accomplished within six years), and
- Long-term actions (*i.e.*, actions to be accomplished within seven to 20 years).

(f) A process and schedule to provide future assessment and feedback to improve the planning process and implementation of procedures or projects.

2. Public Education and Outreach

The SWMP shall include an education and outreach program designed to:

- Build general awareness about methods to address and reduce impacts from stormwater runoff.
- Effect behavior change to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts.
- Create stewardship opportunities that encourages community engagement in addressing the impacts from stormwater runoff.

Permittees may choose to meet these requirements individually or as a member of a regional group. Regional collaboration on general awareness or behavior change programs, or both, includes Permittees developing a consistent message, determining best methods for communicating the message, and when appropriate, creating strategies to effect behavior change. If a Permittee chooses to adopt one or more elements of a regional program, the Permittee should participate in the regional group and shall implement the adopted element(s) of the regional program in the local jurisdiction.

The minimum performance measures are:

a. Each Permittee shall implement an education and outreach program for the area served by the MS4. The program design shall be based on local water quality information and target audience characteristics to identify high priority target audiences, subject areas, and/or BMPs. Based on the target audience's demographic, the Permittee shall consider delivering its selected messages in language(s) other than English, as appropriate to the target audience. [4]

i. ***General awareness***. To build general awareness, Permittees shall annually select at a minimum one target audience and one subject area from either (a) or (b):

(a) *Target audiences:* General public (including overburdened communities, or school age children) or businesses (including home-based, or mobile businesses). Subject areas:

[4] New Permittees shall begin implementing the requirements of S5.C.2 no later than August 1, 2021.

- General impacts of stormwater on surface waters, including impacts from impervious surfaces.
- Low impact development (LID) principles and LID BMPs.

(b) *Target audiences:* Engineers, contractors, developers, or land use planners. Subject areas:

- Technical standards for stormwater site and erosion control plans.
- LID principles and LID BMPs.
- Stormwater treatment and flow control BMPs/facilities

(c) Permittees shall provide subject area information to the target audience on an ongoing or strategic schedule.

ii. ***Behavior change***. To affect behavior change, Permittees shall select, at a minimum, one target audience and one BMP.

(a) *Target Audiences:* Residents, landscapers, property managers/owners, developers, school age children, or businesses (including home-based or mobile businesses).

BMPs:

- Use and storage of: pesticides, fertilizers, and/or other household chemicals.
- Use and storage of: automotive chemicals, hazardous cleaning supplies, carwash soaps, and/or other hazardous materials.
- Prevention of illicit discharges.
- Yard care techniques protective of water quality.
- Carpet cleaning.
- Repair and maintenance BMPs for: vehicles, equipment, and/or home/buildings.
- Pet waste management and disposal.
- LID Principles and LID BMPs.
- Stormwater facility maintenance, including LID facilities.
- Dumpster and trash compactor maintenance.
- Litter and debris prevention.
- Sediment and erosion control.
- (Audience specific) Source control BMPs (refer to S5.C.8).
- (Audience specific) Locally-important, municipal stormwater-related subject area.

(b) No later than July 1, 2020, each Permittee shall conduct a new evaluation of the effectiveness of an ongoing behavior change campaign (required under S5.C.1.a.ii and S5.C.1.c of the 2013 Permit). Permittees shall document lessons learned and recommendations for which option to select from S5.C.2.a.ii.(c).

Permittees that select option S5.C.2.a.ii.(c)3, below, may forgo this evaluation if it will not add value to the overall behavior change program.

(c) Based on the recommendation from S5.C.2.a.ii.(b), by February 1, 2021, each Permittee shall follow social marketing practices and methods, similar to community-based social marketing, and develop a campaign that is tailored to the community, including development of a program evaluation plan. Each Permittee shall: [5]

1. Develop a strategy and schedule to more effectively implement the existing campaign; or
2. Develop a strategy and schedule to expand the existing campaign to a new target audience or BMPs; or
3. Develop a strategy and schedule for a new target audience and BMP behavior change campaign.

(d) No later than April 1, 2021, begin to implement the strategy developed in S5.C.2.a.ii.(c).[6]

(e) No later than March 31, 2024, evaluate and report on:

1. The changes in understanding and adoption of targeted behaviors resulting from the implementation of the strategy; and
2. Any planned or recommended changes to the campaign in order to be more effective; describe the strategies and process to achieve the results.

(f) Permittees shall use results of the evaluation to continue to direct effective methods and implementation of the ongoing behavior change program.

iii. Stewardship. Each Permittee shall provide and advertise stewardship opportunities and/or partner with existing organizations (including non-permittees) to encourage residents to participate in activities or events planned and organized within the community, such as: stream teams, storm drain marking, volunteer monitoring, riparian plantings, and education activities.

3. Public Involvement and Participation

Permittees shall provide ongoing opportunities for public involvement and participation through advisory councils, public hearings, watershed committees, participation in developing rate-structures or other similar activities. Each Permittee shall comply with applicable state and local public notice requirements when developing elements of the SWMP and SMAP.

The minimum performance measures are:

a. Permittees shall create opportunities for the public, including overburdened communities, to participate in the decision-making processes involving the development, implementation and update of the Permittee's SMAP and SWMP.[7]

[5] No later than August 1, 2021, new Permittees shall follow social marketing practices and methods, similar to Community-Based Social Marketing, to develop a behavior change program that is tailored to the community.

[6] No later than October 1, 2021, New Permittees shall begin to implement the strategy developed in S5.C.2.a.ii.(c).

[7] New Permittees shall develop and begin to implement requirements according to S5.C.3.a no later than August 1, 2020. New Permittees are exempt from SMAP this permit term.

b. Each Permittee shall post on their website their SWMP Plan and the annual report, required under S9.A, no later than May 31 each year. All other submittals shall be available to the public upon request. To comply with the posting requirement, a Permittee that does not maintain a website may submit the updated SWMP in electronic format to Ecology for posting on Ecology's website.

4. MS4 Mapping and Documentation

The SWMP shall include an ongoing program for mapping and documenting the MS4.[8]

The minimum performance measures are:

a. *Ongoing Mapping*: Each Permittee shall maintain mapping data for the features listed below:

i. Known MS4 outfalls and known MS4 discharge points.

ii. Receiving waters, other than groundwater.

iii. Stormwater treatment and flow control BMPs/facilities owned or operated by the Permittee.

iv. Geographic areas served by the Permittee's MS4 that do not discharge stormwater to surface waters.

v. Tributary conveyances to all known outfalls and discharge points with a 24 inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems. The following features or attributes (or both) shall be mapped:

(a) Tributary conveyance type, material, and size where known.

(b) Associated drainage areas.

(c) Land use.

vi. Connections between the MS4 owned or operated by the Permittee and other municipalities or public entities.

vii. All connections to the MS4 authorized or allowed by the Permittee after February 16, 2007. [9,10]

b. *New Mapping*: Each Permittee shall:

i. No later than January 1, 2020, begin to collect size and material for all known MS4 outfalls during normal course of business (e.g. during field screening, inspection, or maintenance) and update records.

ii. No later than August 1, 2023, complete mapping of all known connections from the MS4 to a privately owned stormwater system.

[8] New Permittees shall meet the requirements to map the MS4 according to S5.C.4. no later than February 2, 2024, except where otherwise noted in this Section.

[9] New Permittees shall meet the requirements of S5.C.4.a.vii after August 1, 2019, for all connections to the MS4 authorized after August 1, 2019.

[10] Permittees do not need to map the following residential connections: individual driveways, sump pumps, or roof downspouts.

c. No later than August 1, 2021, the required format for mapping is electronic (e.g. Geographic Information System, CAD drawings, or other software that can map and store points, lines, polygons, and associated attributes), with fully described mapping standards.

d. To the extent consistent with national security laws and directives, each Permittee shall make available to Ecology, upon request, available maps depicting the information required in S5.C.4.a through c, above.

e. Upon request, and to the extent appropriate, Permittees shall provide mapping information to federally recognized Indian Tribes, municipalities, and other Permittees. This Permit does not preclude Permittees from recovering reasonable costs associated with fulfilling mapping information requests by federally recognized Indian Tribes, municipalities, and other Permittees.

5. Illicit Discharge Detection and Elimination

The SWMP shall include an ongoing program designed to prevent, detect, characterize, trace, and eliminate illicit connections and illicit discharges into the MS4.[11]

The minimum performance measures are:

a. The program shall include procedures for reporting and correcting or removing illicit connections, spills and other illicit discharges when they are suspected or identified. The program shall also include procedures for addressing pollutants entering the MS4 from an interconnected, adjoining MS4.

Illicit connections and illicit discharges must be identified through, but not limited to: field screening, inspections, complaints/reports, construction inspections, maintenance inspections, source control inspections, and/or monitoring information, as appropriate.

b. Permittees shall inform public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste.

c. Each Permittee shall implement an ordinance or other regulatory mechanism to effectively prohibit non-stormwater, illicit discharges into the Permittee's MS4 to the maximum extent allowable under state and federal law.

i. Allowable Discharges: The regulatory mechanism does **not** need to prohibit the following categories of non-stormwater discharges:

(a) Diverted stream flows

(b) Rising groundwaters

(c) Uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(b)(20))

(d) Uncontaminated pumped groundwater

(e) Foundation drains

[11] New Permittees shall meet the requirements of S5.C.5 no later than August 1, 2021 except where otherwise noted in this Section.

(f) Air conditioning condensation

(g) Irrigation water from agricultural sources that is commingled with urban stormwater

(h) Springs

(i) Uncontaminated water from crawl space pumps

(j) Footing drains

(k) Flows from riparian habitats and wetlands

(l) Non-stormwater discharges authorized by another NPDES or state waste discharge permit

(m) Discharges from emergency firefighting activities in accordance with S2 Authorized Discharges

ii. Conditionally Allowable Discharges: The regulatory mechanism may allow the following categories of non-stormwater discharges only if the stated conditions are met:

(a) Discharges from potable water sources, including but not limited to water line flushing, hyperchlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges shall be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted, if necessary, and volumetrically and velocity controlled to prevent re-suspension of sediments in the MS4.

(b) Discharges from lawn watering and other irrigation runoff. These discharges shall be minimized through, at a minimum, public education activities and water conservation efforts.

(c) Dechlorinated swimming pool, spa and hot tub discharges. The discharges shall be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted and reoxygenized if necessary, volumetrically and velocity controlled to prevent re-suspension of sediments in the MS4. Discharges shall be thermally controlled to prevent an increase in temperature of the receiving water. Swimming pool cleaning wastewater and filter backwash shall not be discharged to the MS4.

(d) Street and sidewalk wash water, water used to control dust, and routine external building washdown that does not use detergents. The Permittee shall reduce these discharges through, at a minimum, public education activities and/or water conservation efforts. To avoid washing pollutants into the MS4, Permittees shall minimize the amount of street wash and dust control water used.

(e) Other non-stormwater discharges. The discharges shall be in compliance with the requirements of a pollution prevention plan reviewed by the Permittee, which addresses control of such discharges.

iii. The Permittee shall further address any category of discharges in (i) or (ii), above, if the discharges are identified as significant sources of pollutants to waters of the State.

iv. The ordinance or other regulatory mechanism shall include escalating enforcement procedures and actions.

d. Each Permittee shall implement an ongoing program designed to detect and identify non-stormwater discharges and illicit connections into the Permittee's MS4.[12] The program shall include the following components:

i. Procedures for conducting investigations of the Permittee's MS4, including field screening and methods for identifying potential sources. These procedures may also include source control inspections.

The Permittee shall implement a field screening methodology appropriate to the characteristics of the MS4 and water quality concerns. Screening for illicit connections may be conducted using *Illicit Connection and Illicit Discharge Field Screening and Source Tracing Guidance Manual* (Herrera Environmental Consultants, Inc.; May 2013), or another methodology of comparable or improved effectiveness. The Permittee shall document the field screening methodology in the Annual Report.

(a) All Permittees shall complete field screening for an average of 12% of the MS4 each year.[13] Permittees shall annually track total percentage of the MS4 screened beginning August 1, 2019.

ii. A publicly listed and publicized hotline or other telephone number for public reporting of spills and other illicit discharges.

iii. An ongoing training program for all municipal field staff, who, as part of their normal job responsibilities, might come into contact with or otherwise observe an illicit discharge and/or illicit connection to the MS4, on the identification of an illicit discharge and/or connection, and on the proper procedures for reporting and responding to the illicit discharge and/or connection. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staffing. Permittees shall document and maintain records of the trainings provided and the staff trained.[14]

e. Each Permittee shall implement an ongoing program designed to address illicit discharges, including spills and illicit connections, into the Permittee's MS4.[15] The program shall include:

i. Procedures for characterizing the nature of, and potential public or environmental threat posed by, any illicit discharges found by or reported to the Permittee. Procedures shall address the evaluation of whether the discharge must be immediately contained and steps to be taken for containment of the discharge.

[12] New Permittees shall fully implement the requirements of S5.C.5.d no later than August 1, 2023.

[13] New Permittees shall complete S5.C.5.d.i requirements for field screening covering at least 12% of the MS4 within the Permittee's coverage area no later than December 31, 2023, and on average 12% each year thereafter.

[14] New Permittees shall develop and begin implementing the ongoing training program described in S5.C.5.d.iii no later than February 2, 2021.

[15] New Permittees shall fully develop and implement the requirements of S5.C.5.e no later than August 1, 2023.

ii. Procedures for tracing the source of an illicit discharge; including visual inspections, and when necessary, opening manholes, using mobile cameras, collecting and analyzing water samples, and/or other detailed inspection procedures.

iii. Procedures for eliminating the discharge, including notification of appropriate authorities (including owners or operators of interconnected MS4s); notification of the property owner; technical assistance; follow-up inspections; and use of the compliance strategy developed pursuant to S5.C.5.c.iv, including escalating enforcement and legal actions if the discharge is not eliminated.

iv. Compliance with the provisions in (i), (ii), and (iii), above, shall be achieved by meeting the following timelines:

(a) Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment, consistent with General Condition G3.

(b) Investigate (or refer to the appropriate agency with the authority to act) within 7 days, on average, any complaints, reports, or monitoring information that indicates a potential illicit discharge.

(c) Initiate an investigation within 21 days of any report or discovery of a suspected illicit connection to determine the source of the connection, the nature and volume of discharge through the connection, and the party responsible for the connection.

(d) Upon confirmation of an illicit connection, use the compliance strategy in a documented effort to eliminate the illicit connection within 6 months. All known illicit connections to the MS4 shall be eliminated.

f. Permittees shall train staff who are responsible for identification, investigation, termination, cleanup, and reporting of illicit discharges, including spills, and illicit connections, to conduct these activities. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements or staffing. Permittees shall document and maintain records of the training provided and the staff trained.[16]

g. Recordkeeping: Each Permittee shall track and maintain records of the activities conducted to meet the requirements of this Section. In the Annual Report, each Permittee shall submit data for the illicit discharges, spills and illicit connections including those that were found by, reported to, or investigated by the Permittee during the previous calendar year. The data shall include the information specified in Appendix 12 and WQWebIDDE. Each Permittee may either use their own system or WQWebIDDE for recording this data. Final submittals shall follow the instructions, timelines, and format as described in Appendix 12.

[16] New Permittees shall meet the requirements of S5.C.5.f no later than February 2, 2021.

6. Controlling Runoff from New Development, Redevelopment, and Construction Sites

Each Permittee shall implement and enforce a program to reduce pollutants in stormwater runoff to a regulated small MS4 from new development, redevelopment and construction site activities. The program shall apply to private and public development, including transportation projects.[17]

The minimum performance measures are:

a. Implement an ordinance or other enforceable mechanism that addresses runoff from new development, redevelopment, and construction site projects.

Each Permittee shall adopt and make effective a local program, no later than June 30, 2022, that meets the requirements of S5.C.6.b(i) through (iii), below, and shall apply to all applications[18] submitted:

i. On or after July 1, 2022.

ii. Prior to January 1, 2017, that have not started construction[19] by January 1, 2022.[20]

iii. Prior to July 1, 2022, that have not started construction by July 1, 2027.

b. The ordinance or other enforceable mechanism shall include, at a minimum:

i. The Minimum Requirements, thresholds, and definitions in Appendix 1, or the 2013 Appendix 1 amended to include the changes identified in Appendix 10, or Phase I program approved by Ecology and amended to include Appendix 10, for new development, redevelopment, and construction sites. Adjustment and variance criteria equivalent to those in Appendix 1 shall be included. More stringent requirements may be used, and/or certain requirements may be tailored to local circumstances through the use of Ecology-approved basin plans or other similar water quality and quantity planning efforts. Such local requirements and thresholds shall provide equal protection of receiving waters and equal levels of pollutant control to those provided in Appendix 1.

ii. The local requirements shall include the following requirements, limitations, and criteria that, when used to implement the minimum requirements in Appendix 1 (or program approved by Ecology under the 2019 Phase I Permit) will protect

[17] For continuing Permittees, this means continuing to implement existing programs developed under previous permits until updates are made to meet the schedules defined. *New Permittees shall meet the requirements of S5.C.6 no later than December 31, 2022, except where otherwise specified in this Section.*

[18] In this context, "application" means, at a minimum a complete project description, site plan, and, if applicable, SEPA checklist. Permittees may establish additional elements of a completed application.

[19] In this context "started construction" means the site work associated with, and directly related to the approved project has begun. For example: grading the project site to final grade or utility installation. Simply clearing the project site does not constitute the start of construction. Permittees may establish additional requirements related to the start of construction.

[20] For Permittees in **Lewis and Cowlitz counties**: Prior to July 1, 2017, that have not started construction by June 30, 2022. **For Lynden, Snoqualmie**: Prior to January 1, 2018, that have not started construction by January 1, 2023. **For Aberdeen**: Prior to July 1, 2018, that have not started construction by June 30, 2023. **Shelton and Clallam County** shall adopt and make effective a local program that meets the requirements of S5.C.6.b(i) through (iii) no later than December 31, 2022. The local program shall apply to all applications submitted on or after January 1, 2023, and shall apply to applications submitted prior to January 1, 2023, which have not started construction by January 1, 2028.

water quality, reduce the discharge of pollutants to the MEP, and satisfy the State requirement under Chapter 90.48 RCW to apply AKART prior to discharge:

(a) Site planning requirements

(b) BMP selection criteria

(c) BMP design criteria

(d) BMP infeasibility criteria

(e) LID competing needs criteria

(f) BMP limitations

Permittees shall document how the criteria and requirements will protect water quality, reduce the discharge of pollutants to the MEP, and satisfy State AKART requirements.

Permittees who choose to use the requirements, limitations, and criteria, above, in the *Stormwater Management Manual for Western Washington*, or a Phase I program approved by Ecology, may cite this choice as their sole documentation to meet this requirement.

iii. The legal authority, through the approval process for new development and redevelopment, to inspect and enforce maintenance standards for private stormwater facilities approved under the provisions of this Section that discharge to the Permittee's MS4.

c. The program shall include a permitting process with site plan review, inspection and enforcement capability to meet the standards listed in (i) through (iv) below, for both private and public projects, using qualified personnel (as defined in *Definitions and Acronyms*). At a minimum, this program shall be applied to all sites that meet the minimum thresholds adopted pursuant to S5.C.6.b.i, above.

i. Review of all stormwater site plans for proposed development activities.

ii. Inspect, prior to clearing and construction, all permitted development sites that have a high potential for sediment transport as determined through plan review based on definitions and requirements in Appendix 7 – *Determining Construction Site Sediment Damage Potential*. As an alternative to evaluating each site according to Appendix 7, Permittees may choose to inspect all construction sites that meet the minimum thresholds adopted pursuant to S5.C.6.b.i, above.

iii. Inspect all permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls. Enforce as necessary based on the inspection.

iv. Each Permittee shall manage maintenance activities to inspect all stormwater treatment and flow control BMPs/facilities, and catch basins, in new residential developments every six months, until 90% of the lots are constructed (or when construction has stopped and the site is fully stabilized), to identify maintenance needs and enforce compliance with maintenance standards as needed.

v. Inspect all permitted development sites upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent

stormwater facilities. Verify that a maintenance plan is completed and responsibility for maintenance is assigned for stormwater treatment and flow control BMPs/facilities. Enforce as necessary based on the inspection.

vi. Compliance with the inspection requirements in (ii) through (v), above, shall be determined by the presence and records of an established inspection program designed to inspect all sites. Compliance during this permit term shall be determined by achieving at least 80% of required inspections. The inspections may be combined with other inspections provided they are performed using qualified personnel.

vii. The program shall include a procedure for keeping records of inspections and enforcement actions by staff, including inspection reports, warning letters, notices of violations, and other enforcement records. Records of maintenance inspections and maintenance activities shall be maintained.

viii. An enforcement strategy shall be implemented to respond to issues of non-compliance.

d. The program shall make available, as applicable, the link to the electronic *Construction Stormwater General Permit* Notice of Intent (NOI) form for construction activity and, as applicable, a link to the electronic *Industrial Stormwater General Permit* NOI form for industrial activity to representatives of proposed new development and redevelopment. Permittees shall continue to enforce local ordinances controlling runoff from sites that are also covered by stormwater permits issued by Ecology.[21]

e. Each Permittee shall ensure that all staff whose primary job duties are implementing the program to control stormwater runoff from new development, redevelopment, and construction sites, including permitting, plan review, construction site inspections, and enforcement, are trained to conduct these activities. Follow-up training must be provided as needed to address changes in procedures, techniques or staffing. Permittees shall document and maintain records of the training provided and the staff trained.[22]

7. Operations and Maintenance

Each Permittee shall implement and document a program to regulate maintenance activities and to conduct maintenance activities by the Permittee to prevent or reduce stormwater impacts.[23]

The minimum performance measures are:

a. Each Permittee shall implement maintenance standards that are as protective, or more protective, of facility function than those specified in the *Stormwater Management Manual for Western Washington* or a Phase I program approved by Ecology. For facilities which do not have maintenance standards, the Permittee shall

[21] New Permittees shall meet the requirements of S5.C.6.d beginning no later than August 1, 2019.

[22] New Permittees shall meet the requirements of S5.C.6.e no later than December 31, 2022.

[23] New Permittees shall develop and implement the requirements of S5.C.7 no later than December 31, 2022 except where otherwise noted in this Section.

develop a maintenance standard. No later than June 30, 2022, Permittees shall update their maintenance standards as necessary to meet the requirements of this Section.

i. The purpose of the maintenance standard is to determine if maintenance is required. The maintenance standard is not a measure of the facility's required condition at all times between inspections. Exceeding the maintenance standard between inspections and/or maintenance is not a permit violation.

ii. Unless there are circumstances beyond the Permittee's control, when an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed:

- Within 1 year for typical maintenance of facilities, except catch basins.
- Within 6 months for catch basins.
- Within 2 years for maintenance that requires capital construction of less than $25,000.

Circumstances beyond the Permittee's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work. For each exceedance of the required timeframe, the Permittee shall document the circumstances and how they were beyond their control.

b. Maintenance of stormwater facilities regulated by the Permittee

i. The program shall include provisions to verify adequate long-term O&M of stormwater treatment and flow control BMPs/facilities that are permitted and constructed pursuant to S.5.C.6.c and shall be maintained in accordance with S5.C.7.a.

The provisions shall include**:**

(a) Implementation of an ordinance or other enforceable mechanism that:

- Clearly identifies the party responsible for maintenance in accordance with maintenance standards established under S5.C.7.a.
- Requires inspection of facilities in accordance with the requirements in (b), below.
- Establishes enforcement procedures.

(b) Annual inspections of all stormwater treatment and flow control BMPs/facilities that discharge to the MS4 and were permitted by the Permittee according to S5.C.6.c, including those permitted in accordance with requirements adopted pursuant to the 2007-2019 Ecology municipal stormwater permits, unless there are maintenance records to justify a different frequency.

Permittees may reduce the inspection frequency based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the Permittee may substitute written statements to document a specific less frequent inspection schedule. Written statements shall be based on actual inspection and

maintenance experience and shall be certified in accordance with G19 – *Certification and Signature*.

ii. Compliance with the inspection requirements in (b), above, shall be determined by the presence and records of an established inspection program designed to inspect all facilities, and achieving at least 80% of required inspections.

iii. The program shall include a procedure for keeping records of inspections and enforcement actions by staff, including inspection reports, warning letters, notices of violations, and other enforcement records. Records of maintenance inspections and maintenance activities shall be maintained.

c. Maintenance of stormwater facilities owned or operated by the Permittee.

i. Each Permittee shall implement a program to annually inspect all municipally owned or operated stormwater treatment and flow control BMPs/facilities, and taking appropriate maintenance actions in accordance with the adopted maintenance standards.

Permittees may reduce the inspection frequency based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the Permittee may substitute written statements to document a specific less frequent inspection schedule. Written statements shall be based on actual inspection and maintenance experience and shall be certified in accordance with G19 – *Certification and Signature.*

ii. Each Permittee shall spot check potentially damaged stormwater treatment and flow control BMPs/facilities after major storm events (24 hour storm event with a 10 year or greater recurrence interval). If spot checks indicate widespread damage/maintenance needs, inspect all stormwater treatment and flow control BMPs/facilities that may be affected. Conduct repairs or take appropriate maintenance action in accordance with maintenance standards established above, based on the results of the inspections.

iii. Each Permittee shall inspect all catch basins and inlets owned or operated by the Permittee every two years.[24] Clean catch basins if the inspection indicates cleaning is needed to comply with maintenance standards established in the *Stormwater Management Manual for Western Washington*. Decant water shall be disposed of in accordance with Appendix 6 – *Street Waste Disposal*.

The following alternatives to the standard approach of inspecting all catch basins every two years may be applied to all or portions of the system:

(a) The catch basin inspection schedule of every two years may be changed as appropriate to meet the maintenance standards based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records for catch basins, the Permittee may substitute written statements to document a specific, less frequent inspection schedule. Written statements shall be based on actual inspection

[24] New Permittees shall inspect and, if needed, clean all catch basins and inlets owned or operated by the Permittee in accordance with the requirements of S5.C.7.c once during the permit term, to be completed no later than February 2, 2024.

and maintenance experiences and shall be certified in accordance with G19 – *Certification and Signature*.

(b) Inspections every two years may be conducted on a "circuit basis" whereby 25% of catch basins and inlets within each circuit are inspected to identify maintenance needs. Include an inspection of the catch basin immediately upstream of any MS4 outfall, discharge point, or connections to public or private storm systems, if applicable. Clean all catch basins within a given circuit for which the inspection indicates cleaning is needed to comply with maintenance standards established under S5.C.7.a, above.

(c) The Permittee may clean all pipes, ditches, and catch basins and inlets within a circuit once during the permit term. Circuits selected for this alternative must drain to a single point.

iv. Compliance with the inspection requirements in S5.C.7.c.i-iii, above, shall be determined by the presence of an established inspection program achieving at least 95% of required inspections.

d. Implement practices, policies, and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the Permittee, and road maintenance activities under the functional control of the Permittee. No later than December 31, 2022, document the practices, policies, and procedures. Lands owned or maintained by the Permittee include, but are not limited to: streets, parking lots, roads, highways, buildings, parks, open space, road right-of-ways, maintenance yards, and stormwater treatment and flow control BMPs/facilities.

The following activities shall be addressed**:**

i. Pipe cleaning

ii. Cleaning of culverts that convey stormwater in ditch systems

iii. Ditch maintenance

iv. Street cleaning

v. Road repair and resurfacing, including pavement grinding

vi. Snow and ice control

vii. Utility installation

viii. Pavement striping maintenance

ix. Maintaining roadside areas, including vegetation management

x. Dust control

xi. Application of fertilizers, pesticides, and herbicides according to the instructions for their use, including reducing nutrients and pesticides using alternatives that minimize environmental impacts

xii. Sediment and erosion control

xiii. Landscape maintenance and vegetation disposal

xiv. Trash and pet waste management

xv. Building exterior cleaning and maintenance

e. Implement an ongoing training program for employees of the Permittee whose primary construction, operations, or maintenance job functions may impact stormwater quality. The training program shall address the importance of protecting water quality, operation and maintenance standards, inspection procedures, relevant SWPPPs, selecting appropriate BMPs, ways to perform their job activities to prevent or minimize impacts to water quality, and procedures for reporting water quality concerns. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staffing. Permittees shall document and maintain records of training provided. The staff training records to be kept include dates, activities or course descriptions, and names and positions of staff in attendance.

f. Implement a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee in areas subject to this Permit that are not required to have coverage under the *Industrial Stormwater General Permit* or another NPDES permit that authorizes stormwater discharges associated with the activity. As necessary, update SWPPPs no later than December 31, 2022, to include the following information. At a minimum, the SWPPP shall include:

i. A detailed description of the operational and structural BMPs in use at the facility and a schedule for implementation of additional BMPs when needed. BMPs selected must be consistent with the *Stormwater Management Manual for Western Washington*, or a Phase I program approved by Ecology. The SWPPP must be updated as needed to maintain relevancy with the facility.

ii. At minimum, annual inspections of the facility, including visual observations of discharges, to evaluate the effectiveness of the BMPs, identify maintenance needs, and determine if additional or different BMPs are needed. The results of these inspections must be documented in an inspection report or check list.

iii. An inventory of the materials and equipment stored on-site, and the activities conducted at the facility which may be exposed to precipitation or runoff and could result in stormwater pollution.

iv. A site map showing the facility's stormwater drainage, discharge points, and areas of potential pollutant exposure.

v. A plan for preventing and responding to spills at the facility which could result in an illicit discharge.

g. Maintain records of the activities conducted to meet the requirements of this Section.

8. Source Control Program for Existing Development

a. The Permittee shall implement a program to prevent and reduce pollutants in runoff from areas that discharge to the MS4. The program shall include:

i. Application of operational source control BMPs, and if necessary, structural source control BMPs or treatment BMPs/facilities, or both, to pollution generating sources associated with existing land uses and activities.

ii. Inspections of pollutant generating sources at publicly and privately owned institutional, commercial and industrial sites to enforce implementation of required BMPs to control pollution discharging into the MS4.

iii. Application and enforcement of local ordinances at sites, identified pursuant to S5.C.8.b.ii, including sites with discharges authorized by a separate NPDES permit. Permittees that are in compliance with the terms of this Permit will not be held liable by Ecology for water quality standard violations or receiving water impacts caused by industries and other Permittees covered, or which should be covered under an NPDES permit issued by Ecology.

iv. Practices to reduce polluted runoff from the application of pesticides, herbicides, and fertilizers from the sites identified in the inventory.

b. **Minimum performance measures:**

i. No later than August 1, 2022, Permittees shall adopt and make effective an ordinance(s), or other enforceable documents, requiring the application of source control BMPs for pollutant generating sources associated with existing land uses and activities (see Appendix 8 to identify pollutant generating sources).

The requirements of this subsection are met by using the source control BMPs in the SWMMWW, or a Phase I Program approved by Ecology. In cases where the manual(s) lack guidance for a specific source of pollutants, the Permittee shall work with the owner/operator to implement or adapt BMPs based on the best professional judgement of the Permittee.

Applicable operational source control BMPs shall be required for all pollutant generating sources. Structural source control BMPs, or treatment BMPs/facilities, or both, shall be required for pollutant generating sources if operational source control BMPs do not prevent illicit discharges or violations of surface water, groundwater, or sediment management standards because of inadequate stormwater controls. Implementation of source control requirements may be done through education and technical assistance programs, provided that formal enforcement authority is available to the Permittee and is used as determined necessary by the Permittee, in accordance with S5.C.8.b.iv, below.

ii. No later than August 1, 2022, the Permittees shall establish an inventory that identifies publicly and privately owned institutional, commercial, and industrial sites which have the potential to generate pollutants to the MS4. The inventory shall include:

(a) Businesses and/or sites identified based on the presence of activities that are pollutant generating (refer to Appendix 8).

(b) Other pollutant generating sources, based on complaint response, such as: home-based businesses and multi-family sites.

iii. No later than January 1, 2023, Permittees shall implement an inspection program for sites identified pursuant to S5.C.8.b.ii, above.

(a) All identified sites with a business address shall be provided information about activities that may generate pollutants and the source control

requirements applicable to those activities. This information shall be provided by mail, telephone, electronic communications, or in person. This information may be provided all at one time or spread out over the permit term to allow for tailoring and distribution of the information during site inspections.

(b) The Permittee shall annually complete the number of inspections equal to 20% of the businesses and/or sites listed in their source control inventory to assess BMP effectiveness and compliance with source control requirements. The Permittee may count follow-up compliance inspections at the same site toward the 20% inspection rate. The Permittee may select which sites to inspect each year and is not required to inspect 100% of sites over a 5-year period. Sites may be prioritized for inspection based on their land use category, potential for pollution generation, proximity to receiving waters, or to address an identified pollution problem within a specific geographic area or sub-basin.

(c) Each Permittee shall inspect 100% of sites identified through credible complaints.

(d) Permittees may count inspections conducted based on complaints, or when the property owner denies entry, to the 20% inspection rate.

iv. No later than January 1, 2023, each Permittee shall implement a progressive enforcement policy that requires sites to comply with stormwater requirements within a reasonable time period as specified below:

(a) If the Permittee determines, through inspections or otherwise, that a site has failed to adequately implement required BMPs, the Permittee shall take appropriate follow-up action(s), which may include phone calls, reminder letters, emails, or follow-up inspections.

(b) When a Permittee determines that a site has failed to adequately implement BMPs after a follow-up inspection(s), the Permittee shall take enforcement action as established through authority in its municipal codes or ordinances, or through the judicial system.

(c) Each Permittee shall maintain records, including documentation of each site visit, inspection reports, warning letters, notices of violations, and other enforcement records, demonstrating an effort to bring sites into compliance. Each Permittee shall also maintain records of sites that are not inspected because the property owner denies entry.

(d) A Permittee may refer non-emergency violations of local ordinances to Ecology, provided, the Permittee also makes a documented effort of progressive enforcement. At a minimum, a Permittee's enforcement effort shall include documentation of inspections and warning letters or notices of violation.

v. Permittees shall train staff who are responsible for implementing the source control program to conduct these activities. The ongoing training program shall cover the legal authority for source control, source control BMPs and their proper application, inspection protocols, lessons learned, typical cases, and enforcement

procedures. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staff. Permittees shall document and maintain records of the training provided and the staff trained.

S6. STORMWATER MANAGEMENT PROGRAM FOR SECONDARY PERMITTEES

A. This Section applies to all Secondary Permittees and all New Secondary Permittees, whether coverage under this Permit is obtained individually or as a Co-Permittee with a city, town, county, or another Secondary Permittee.

New Secondary Permittees subject to this Permit shall fully meet the requirements of this Section as modified in the footnotes in S6.D below, or as established as a condition of coverage by Ecology.

1. To the extent allowable under state, federal or local law, all components are mandatory for each Secondary Permittee covered under this Permit, whether covered as an individual Permittee or as a Co-Permittee.

2. Each Secondary Permittee shall develop and implement a Stormwater Management Program (SWMP). A SWMP is a set of actions and activities comprising the components listed in S6 and any additional actions necessary to meet the requirements of applicable TMDLs pursuant to S7 – *Compliance with Total Maximum Daily Load Requirements*. The SWMP shall be designed to reduce the discharge of pollutants from regulated small MS4s to the MEP and protect water quality.

3. Unless an alternate implementation schedule is established by Ecology as a condition of permit coverage, the SWMP shall be developed and implemented in accordance with the schedules contained in this Section and shall be fully developed and implemented no later than four and one-half years from the initial permit coverage date. Secondary Permittees that are already implementing some or all of the required SWMP components shall continue implementation of those components.

4. Secondary Permittees may implement parts of their SWMP in accordance with the schedule for cities, towns, and counties in S5, provided they have signed a memorandum of understanding or other agreement to jointly implement the activity or activities with one or more jurisdictions listed in S1.D.2.a or S1.D.2.b, and submitted a copy of the agreement to Ecology.

5. Each Secondary Permittee shall prepare written documentation of the SWMP, called the SWMP Plan. The SWMP Plan shall include a description of program activities for the upcoming calendar year.

B. Coordination

Secondary Permittees shall coordinate stormwater-related policies, programs and projects within a watershed and interconnected MS4s. Where relevant and appropriate, the SWMP shall coordinate among departments of the Secondary Permittee to ensure compliance with the terms of this Permit.

C. Legal Authority

To the extent allowable under state law and federal law, each Secondary Permittee shall be able to demonstrate that they can operate pursuant to legal authority which authorizes or enables the Secondary Permittee to control discharges to and from MS4s owned or operated by the Secondary Permittee.

This legal authority may be a combination of statutes, ordinances, permits, contracts, orders, interagency agreements, or similar instruments.

D. Stormwater Management Program for Secondary Permittees

The SWMP for Secondary Permittees shall include the following components:

1. **Public Education and Outreach**
   Each Secondary Permittee shall implement the following stormwater education strategies:

   a. Storm drain inlets owned or operated by the Secondary Permittee that are located in maintenance yards, in parking lots, along sidewalks, and at pedestrian access points shall be clearly labeled with a message similar to "Dump no waste – Drains to waterbody."[25]

      As identified during visual inspection and regular maintenance of storm drain inlets per the requirements of S6.D.3.d and S6.D.6.a.i below, or as otherwise reported to the Secondary Permittee, any inlet having a label that is no longer clearly visible and/or easily readable shall be re-labeled within 90 days.

   b. Each year beginning no later than three years from the initial date of permit coverage, public ports, colleges, and universities shall distribute educational information to tenants and residents on the impact of stormwater discharges on receiving waters, and steps that can be taken to reduce pollutants in stormwater runoff. Distribution may be by hard copy or electronic means. Appropriate topics may include:

      i. How stormwater runoff affects local water bodies.

      ii. Proper use and application of pesticides and fertilizers.

      iii. Benefits of using well-adapted vegetation.

      iv. Alternative equipment washing practices, including cars and trucks that minimize pollutants in stormwater.

      v. Benefits of proper vehicle maintenance and alternative transportation choices; proper handling and disposal of vehicle wastes, including the location of hazardous waste collection facilities in the area.

      vi. Hazards associated with illicit connections and illicit discharges.

      vii. Benefits of litter control of pet waste.

[25] New Secondary Permittees shall label all inlets as described in S6.D.1.a no later than four years from the initial date of permit coverage.

2. Public Involvement and Participation

Each year, no later than May 31, each Secondary Permittee shall:

a. Make the annual report available on the Permittee's website.

b. Make available on the Permittee's website, the latest updated version of the SWMP Plan.

c. A Secondary Permittee that does not maintain a website may submit the updated SWMP Plan and annual report in electronic format to Ecology for posting on Ecology's website.

3. Illicit Discharge Detection and Elimination

Each Secondary Permittee shall:

a. From the initial date of permit coverage, comply with all relevant ordinances, rules, and regulations of the local jurisdiction(s) in which the Secondary Permittee is located that govern non-stormwater discharges.

b. Implement appropriate policies prohibiting illicit discharges,[26] and an enforcement plan to ensure compliance with illicit discharge policies.[27] These policies shall address, at a minimum: illicit connections, non-stormwater discharges, including spills of hazardous materials, and improper disposal of pet waste and litter.

i. Allowable discharges: The policies do not need to prohibit the following categories of non-stormwater discharges:

(a) Diverted stream flows

(b) Rising groundwaters

(c) Uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(b)(20))

(d) Uncontaminated pumped groundwater

(e) Foundation drains.

(f) Air conditioning condensation

(g) Irrigation water from agricultural sources that is commingled with urban stormwater

(h) Springs

(i) Uncontaminated water from crawl space pumps

(j) Footing drains

(k) Flows from riparian habitats and wetlands

(l) Discharges from emergency firefighting activities in accordance with S2 – *Authorized Discharges*

(m) Non-stormwater discharges authorized by another NPDES or state waste discharge permit

[26] New Secondary Permittees shall develop and implement appropriate policies prohibiting illicit discharges, and identify possible enforcement mechanisms as described in S6.D.3.b no later than one year from the initial date of permit coverage.

[27] New Secondary Permittees shall develop and implement an enforcement plan as described in S6.D.3.b no later than 18 months from the initial date of permit coverage.

ii. Conditionally allowable discharges: The policies may allow the following categories of non-stormwater discharges only if the stated conditions are met and such discharges are allowed by local codes:

(a) Discharges from potable water sources, including but not limited to water line flushing, hyperchlorinated water line flushing,

(b) Fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges shall be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the MS4.

(c) Discharges from lawn watering and other irrigation runoff. These discharges shall be minimized through, at a minimum, public education activities and water conservation efforts conducted by the Secondary Permittee and/or the local jurisdiction.

(d) Dechlorinated swimming pool, spa and hot tub discharges. The discharges shall be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted and reoxygenated if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the MS4. Discharges shall be thermally controlled to prevent an increase in temperature of the receiving water. Swimming pool cleaning wastewater and filter backwash shall not be discharged to the MS4.

(e) Street and sidewalk wash water, water used to control dust, and routine external building washdown that does not use detergents. The Secondary Permittee shall reduce these discharges through, at a minimum, public education activities and/or water conservation efforts conducted by the Secondary Permittee and/or the local jurisdiction. To avoid washing pollutants into the MS4, the Secondary Permittee shall minimize the amount of street wash and dust control water used.

(f) Other non-stormwater discharges shall be in compliance with the requirements of a pollution prevention plan reviewed by the Permittee which addresses control of such discharges.

iii. The Secondary Permittee shall address any category of discharges in (i) or (ii), above, if the discharge is identified as a significant source of pollutants to waters of the State.

c. Maintain a storm sewer system map showing the locations of all known MS4 outfalls and discharge points, labeling the receiving waters (other than groundwater) and delineating the areas contributing runoff to each outfall and discharge point. Make the map (or completed portions of the map) available on request to Ecology and to the extent appropriate, to other Permittees. The preferred format for mapping is an electronic format with fully described mapping standards. [28]

d. Conduct field inspections and visually inspect for illicit discharges at all known MS4 outfalls and discharge points. Visually inspect at least one third (on average) of all known outfalls and discharge points each year beginning no later than two years from

[28] New Secondary Permittees shall meet the requirements of S6.D.3.c no later than four and one-half years from the initial date of permit coverage.

the initial date of permit coverage. Implement procedures to identify and remove any illicit discharges. Keep records of inspections and follow-up activities.

e. Implement a spill response plan that includes coordination with a qualified spill responder.[29]

f. No later than two years from initial date of permit coverage, provide staff training or coordinate with existing training efforts to educate staff on proper BMPs for preventing illicit discharges, including spills. Train all Secondary Permittee staff who, as part of their normal job responsibilities, have a role in preventing such illicit discharges.

4. Construction Site Stormwater Runoff Control

From the initial date of permit coverage, each Secondary Permittee shall:

a. Comply with all relevant ordinances, rules, and regulations of the local jurisdiction(s) in which the Secondary Permittee is located that govern construction phase stormwater pollution prevention measures.

b. Ensure that all construction projects under the functional control of the Secondary Permittee which require a construction stormwater permit obtain coverage under the *NPDES Construction Stormwater General Permit* or an individual NPDES permit prior to discharging construction related stormwater.

c. Coordinate with the local jurisdiction regarding projects owned or operated by other entities which discharge into the Secondary Permittee's MS4, to assist the local jurisdiction with achieving compliance with all relevant ordinances, rules, and regulations of the local jurisdiction(s).

d. Provide training or coordinate with existing training efforts to educate relevant staff in erosion and sediment control BMPs and requirements, or hire trained contractors to perform the work.

e. Coordinate as requested with Ecology or the local jurisdiction to provide access for inspection of construction sites or other land disturbances which are under the functional control of the Secondary Permittee during land disturbing activities and/or construction period.

5. Post-Construction Stormwater Management for New Development and Redevelopment

From the initial date of permit coverage, each Secondary Permittee shall:

a. Comply with all relevant ordinances, rules and regulations of the local jurisdiction(s) in which the Secondary Permittee is located that govern post-construction stormwater pollution prevention measures.

b. Coordinate with the local jurisdiction regarding projects owned or operated by other entities which discharge into the Secondary Permittee's MS4, to assist the local jurisdiction with achieving compliance with all relevant ordinances, rules and regulations of the local jurisdiction(s).

[29] New Secondary Permittees shall develop and implement a spill response plan as described in S6.D.3.e no later than four and one-half years from the initial date of permit coverage.

6. Pollution Prevention and Good Housekeeping for Municipal Operations
Each Secondary Permittee shall:

a. Implement a municipal operation and maintenance (O&M) plan to minimize stormwater pollution from activities conducted by the Secondary Permittee. The O&M Plan shall include appropriate pollution prevention and good housekeeping procedures for all of the following operations, activities, and/or types of facilities that are present within the Secondary Permittee's boundaries and under the functional control of the Secondary Permittee.[30]

i. *Stormwater collection and conveyance systems*, including catch basins, stormwater pipes, open channels, culverts, and stormwater treatment and flow control BMPs/facilities. The O&M Plan shall address, at a minimum: scheduled inspections and maintenance activities, including cleaning and proper disposal of waste removed from the system. Secondary Permittees shall properly maintain stormwater collection and conveyance systems owned or operated by the Secondary Permittee and annually inspect and maintain all stormwater facilities to ensure facility function.

Secondary Permittees shall establish maintenance standards that are as protective or more protective of facility function than those specified in *Stormwater Management Manual for Western Washington*. Secondary Permittees shall review their maintenance standards to ensure they are consistent with the requirements of this Section.

Secondary Permittees shall conduct spot checks of potentially damaged permanent stormwater treatment and flow control BMPs/facilities following major storm events (24-hour storm event with a 10-year or greater recurrence interval).

ii. *Roads, highways, and parking lots*. The O&M Plan shall address, but is not limited to: deicing, anti-icing, and snow removal practices; snow disposal areas; material (e.g., salt, sand, or other chemical) storage areas; all-season BMPs to reduce road and parking lot debris and other pollutants from entering the MS4.

iii. *Vehicle fleets*. The O&M Plan shall address, but is not limited to: storage, washing, and maintenance of Secondary Permittee vehicle fleets; and fueling facilities. Secondary Permittees shall conduct all vehicle and equipment washing and maintenance in a self-contained covered building or in designated wash and/or maintenance areas.

iv. *External building maintenance*. The O&M Plan shall address, building exterior cleaning and maintenance including cleaning, washing, painting; and maintenance and management of dumpsters; and other maintenance activities.

v. *Parks and open space*. The O&M Plan shall address, but is not limited to: proper application of fertilizer, pesticides, and herbicides; sediment and erosion control; BMPs for landscape maintenance and vegetation disposal; and trash and pet waste management.

[30] New Secondary Permittees shall develop and implement the operation and maintenance plan described in S6.D.6.a no later than three years from initial date of permit coverage.

vi. *Material storage facilities and heavy equipment maintenance or storage yards*. Secondary Permittees shall develop and implement a Stormwater Pollution Prevention Plan to protect water quality at each of these facilities owned or operated by the Secondary Permittee and not covered under the *Industrial Stormwater General Permit* or under another NPDES permit that authorizes stormwater discharges associated with the activity.

vii. *Other facilities* that would reasonably be expected to discharge contaminated runoff. The O&M Plan shall address proper stormwater pollution prevention practices for each facility.

b. From the initial date of permit coverage, Secondary Permittees shall also have permit coverage for all facilities operated by the Secondary Permittee that are required to be covered under the *Industrial Stormwater General Permit* or another NPDES permit that authorizes discharges associated with the activity.

c. The O&M Plan shall include sufficient documentation and records as necessary to demonstrate compliance with the O&M Plan requirements in S6.D.6.a(i) through (vii), above.

d. No later than three years from the initial date of permit coverage, Secondary Permittees shall implement a program designed to train all employees whose primary construction, operations, or maintenance job functions may impact stormwater quality. The training shall address:

i. The importance of protecting water quality.

ii. The requirements of this Permit.

iii. Operation and maintenance requirements.

iv. Inspection procedures.

v. Ways to perform their job activities to prevent or minimize impacts to water quality.

vi. Procedures for reporting water quality concerns, including potential illicit discharges (including spills).

S7. COMPLIANCE WITH TOTAL MAXIMUM DAILY LOAD REQUIREMENTS

The following requirements apply if an applicable TMDL is approved for stormwater discharges from MS4s owned or operated by the Permittee. Applicable TMDLs are TMDLs which have been approved by EPA on or before the issuance date of this Permit or prior to the date that Ecology issues coverage under this Permit, whichever is later.

A. For applicable TMDLs listed in Appendix 2, affected Permittees shall comply with the specific requirements identified in Appendix 2. Each Permittee shall keep records of all actions required by this Permit that are relevant to applicable TMDLs within their jurisdiction. The status of the TMDL implementation shall be included as part of the annual report submitted to Ecology. Each annual report shall include a summary of relevant SWMP and Appendix 2 activities conducted in the TMDL area to address the applicable TMDL parameter(s).

B. For applicable TMDLs not listed in Appendix 2, compliance with this Permit shall constitute compliance with those TMDLs.

C. For TMDLs that are approved by EPA after this Permit is issued, Ecology may establish TMDL related permit requirements through future permit modification if Ecology determines implementation of actions, monitoring, or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and other targets, are not occurring and shall be implemented during the term of this Permit or when this Permit is reissued. Permittees are encouraged to participate in development of TMDLs within their jurisdiction and to begin implementation.

S8. MONITORING AND ASSESSMENT

A. Regional Status and Trends Monitoring

1. All Permittees that chose S8.B Status and Trends Monitoring Option #1 in the *Phase II Western Washington Municipal Stormwater Permit,* August 1, 2013 – July 31, 2018 (extended to July 31, 2019), shall make a one-time payment into the collective fund to implement regional small streams and marine nearshore areas status and trends monitoring in Puget Sound. This payment is due on or before December 1, 2019. Submit payment according to Section S8.D, below.

2. All City and County Permittees covered under the *Phase II Western Washington Municipal Stormwater Permit,* August 1, 2013 – July 31, 2018 (extended to July 31, 2019), except the Cities of Aberdeen and Centralia, shall notify Ecology in writing which of the following two options for regional status and trends monitoring (S8.A.2.a or S8.A.2.b) the Permittee chooses to carry out during this permit term. The written notification with G19 signature is due to Ecology no later than December 1, 2019.

a. Make annual payments into a collective fund to implement regional receiving water status and trends monitoring of either: small streams and marine nearshore areas in Puget Sound; or, urban streams in Clark and Cowlitz Counties in the Lower Columbia River basin, depending on the Permittee's location. The annual payments into the collective fund are due on or before August 15 each year beginning in 2020. Submit payments according to Section S8.D, below.

Or

b. Conduct stormwater discharge monitoring per the requirements in S8.C.

Either option will fully satisfy the Permittee's obligations under this Section (S8.A.2). Each Permittee shall select a single option for this permit term.

B. Stormwater Management Program (SWMP) Effectiveness and Source Identification Studies

1. All Permittees that chose S8.C Effectiveness Studies Option #1 in the *Phase II Western Washington Municipal Stormwater Permit,* August 1, 2013 – July 31, 2018 (extended to July 31, 2019), shall make a one-time payment into the collective fund to implement effectiveness studies and source identification studies. The payment is due on or before December 1, 2019. Submit payment according to Section S8.D, below.

2. All City and County Permittees covered under the *Phase II Western Washington Municipal Stormwater Permit,* August 1, 2013 – July 31, 2018 (extended to July 31, 2019), shall notify Ecology in writing which of the following two options (S8.B.2.a or S8.B.2.b) for effectiveness and source identification studies the Permittee chooses to carry out during this permit term. The written notification with G19 signature is due to Ecology no later than December 1, 2019.

   a. Make annual payments into a collective fund to implement effectiveness and source identification studies. The annual payments into the collective fund are due on or before August 15 each year beginning in 2020. Submit payments according to Section S8.D, below.

      Or

   b. Conduct stormwater discharge monitoring per the requirements in S8.C.

   Either option will fully satisfy the Permittee's obligations under this Section (S8.B.2). Each Permittee shall select a single option for this permit term.

3. All Permittees shall provide information as requested for effectiveness and source identification studies that are under contract with Ecology as active Stormwater Action Monitoring (SAM) projects. These requests will be limited to records of SWMP activities and associated data tracked and/or maintained in accordance with S5 – *Stormwater Management Program for Cities, Towns, and Counties* and/or S9 – *Reporting Requirements*. A maximum of three requests during the permit term from the SAM Coordinator will be transmitted to the Permittee's permit coordinator via Ecology's regional permit manager. The Permittee shall have 90 days to provide the requested information.

C. Stormwater discharge monitoring.

1. This Section applies only to Permittees who choose to conduct stormwater discharge monitoring per S8.A.2.b and/or S8.B.2.b in lieu of participation in the regional status and trends monitoring and/or effectiveness and source identification studies. These Permittees shall conduct monitoring in accordance with Appendix 9 and an Ecology-approved Quality Assurance Project Plan (QAPP) as follows:

   a. Permittees who choose the option to conduct stormwater discharge monitoring for either S8.A.2 or S8.B.2 shall monitor three independent discharge locations.

      Permittees who choose the option to conduct stormwater discharge monitoring for both S8.A.2 and S8.B.2 shall conduct this monitoring at a total of six locations; at least four locations shall be independent (one location may be nested in another basin).

   b. No later than February 1, 2020, each Permittee shall submit to Ecology a draft stormwater discharge monitoring QAPP for review and approval. The QAPP shall be prepared in accordance with the requirements in Appendix 9. The final QAPP shall be submitted to Ecology for approval as soon as possible following finalization, and before August 15, 2020 or within 60 days of receiving Ecology's comments on the draft QAPP (whichever is later).

   c. Flow monitoring shall begin no later than October 1, 2020 or within 30 days of receiving Ecology's approval of the final QAPP (whichever is later). Stormwater discharge monitoring shall be fully implemented no later than October 1, 2021.

d. Data and analyses shall be reported annually in accordance with the Ecology-approved QAPP. Each Permittee shall enter into the Department's Environmental Information Management (EIM) database all water and solids concentration data collected pursuant to Appendix 9.

D. Payments into the collective funds.

1. Each Permittee's S8.A and S8.B payment amounts are listed in Appendix 11 and in the invoices that will be sent to the Permittee approximately three months in advance of each payment due date.

2. Mail payments according to the instructions in the invoice, or via United States Postal Service to:

Department of Ecology Cashiering Unit
P.O. Box 47611
Olympia, WA 98405-7611

S9. REPORTING REQUIREMENTS

A. No later than March 31 of each year beginning in 2020, each Permittee shall submit an annual report. The reporting period for the annual report will be the previous calendar year unless otherwise specified.

Permittees shall submit annual reports electronically using Ecology's Water Quality Permitting Portal (WQWebPortal) available on Ecology's website.

Permittees unable to submit electronically through Ecology's WQWebPortal shall contact Ecology to request a waiver and obtain instructions on how to submit an annual report in an alternative format.

B. Each Permittee is required to keep all records related to this Permit and the SWMP for at least five years.

C. Each Permittee shall make all records related to this Permit and the Permittee's SWMP available to the public at reasonable times during business hours. The Permittee will provide a copy of the most recent annual report to any individual or entity, upon request.

1. A reasonable charge may be assessed by the Permittee for making photocopies of records.

2. The Permittee may require reasonable advance notice of intent to review records related to this Permit.

D. The annual report for cities, towns, and counties

Each annual report shall include the following:

1. A copy of the Permittee's current SWMP Plan, as required by S5.A.2.

2. Submittal of the annual report form as provided by Ecology pursuant to S9.A, describing the status of implementation of the requirements of this Permit during the reporting period.

3. Attachments to the annual report form including summaries, descriptions, reports, and other information as required, or as applicable, to meet the requirements of this Permit during the reporting period, or as a required submittal. Refer to Appendix 3 for annual report questions.[31]
4. If applicable, notice that the MS4 is relying on another governmental entity to satisfy any of the obligations under this Permit.
5. Certification and signature pursuant to G19.D, and notification of any changes to authorization pursuant to G19.C.
6. A notification of any annexations, incorporations or jurisdictional boundary changes resulting in an increase or decrease in the Permittee's geographic area of permit coverage during the reporting period.

E. Annual report for Secondary Permittees

Each annual report shall include the following:

1. Submittal of the annual report form as provided by Ecology pursuant to S9.A, describing the status of implementation of the requirements of this Permit during the reporting period.
2. Attachments to the annual report form including summaries, descriptions, reports, and other information as required, or as applicable, to meet the requirements of this Permit during the reporting period. Refer to Appendix 4 for annual report questions.
3. If applicable, notice that the MS4 is relying on another governmental entity to satisfy any of the obligations under this Permit.
4. Certification and signature pursuant to G19.D, and notification of any changes to authorization pursuant to G19.C.
5. A notification of any jurisdictional boundary changes resulting in an increase or decrease in the Secondary Permittee's geographic area of permit coverage during the reporting period.

[31] New Permittees refer to Appendix 5 for annual report questions.

GENERAL CONDITIONS

G1. DISCHARGE VIOLATIONS

All discharges and activities authorized by this Permit shall be consistent with the terms and conditions of this Permit.

G2. PROPER OPERATION AND MAINTENANCE

The Permittee shall at all times properly operate and maintain all facilities and systems of collection, treatment, and control (and related appurtenances) which are installed or used by the Permittee for pollution control to achieve compliance with the terms and conditions of this Permit.

G3. NOTIFICATION OF DISCHARGE, INCLUDING SPILLS

If a Permittee has knowledge of a discharge, including spills, into or from a MS4 which could constitute a threat to human health, welfare, or the environment, the Permittee shall:

A. Take appropriate action to correct or minimize the threat to human health, welfare and/or the environment.

B. Notify the Ecology regional office and other appropriate spill response authorities immediately but in no case later than within 24 hours of obtaining that knowledge.

C. Immediately report spills or other discharges which might cause bacterial contamination of marine waters, such as discharges resulting from broken sewer lines and failing onsite septic systems, to the Ecology regional office and to the Department of Health, Shellfish Program.

D. Immediately report spills or discharges of oils or hazardous substances to the Ecology regional office and to the Washington Emergency Management Division at 1-800-258-5990.

G4. BYPASS PROHIBITED

The intentional bypass of stormwater from all or any portion of a stormwater treatment BMP whenever the design capacity of the treatment BMP is not exceeded, is prohibited unless the following conditions are met:

A. Bypass is: (1) unavoidable to prevent loss of life, personal injury, or severe property damage; or (2) necessary to perform construction or maintenance-related activities essential to meet the requirements of the Clean Water Act (CWA); and

B. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated stormwater, or maintenance during normal dry periods.

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

G5. RIGHT OF ENTRY

The Permittee shall allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law at reasonable times:

A. To enter upon the Permittee's premises where a discharge is located or where any records shall be kept under the terms and conditions of this Permit.

B. To have access to, and copy at reasonable cost and at reasonable times, any records that shall be kept under the terms of the Permit.

C. To inspect at reasonable times any monitoring equipment or method of monitoring required in the Permit.

D. To inspect at reasonable times any collection, treatment, pollution management, or discharge facilities.

E. To sample at reasonable times any discharge of pollutants.

G6. DUTY TO MITIGATE

The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this Permit which has a reasonable likelihood of adversely affecting human health or the environment.

G7. PROPERTY RIGHTS

This Permit does not convey any property rights of any sort, or any exclusive privilege.

G8. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in the Permit shall be construed as excusing the Permittee from compliance with any other applicable federal, state, or local statutes, ordinances, or regulations.

G9. MONITORING

A. Representative Sampling

Samples and measurements taken to meet the requirements of this Permit shall be representative of the volume and nature of the monitored discharge, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions affecting effluent quality.

B. Records Retention

The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this Permit, for a period of at least five years. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by the Ecology. On request, monitoring data and analysis shall be provided to Ecology.

C. Recording of Results

For each measurement or sample taken, the Permittee shall record the following information: (1) the date, exact place and time of sampling; (2) the individual who

performed the sampling or measurement; (3) the dates the analyses were performed; (4) who performed the analyses; (5) the analytical techniques or methods used; and (6) the results of all analyses.

D. Test Procedures

All sampling and analytical methods used to meet the monitoring requirements in this Permit shall conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136, unless otherwise specified in this Permit or approved in writing by Ecology.

E. Flow Measurement

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of the measurements is consistent with the accepted industry standard for that type of device. Frequency of calibration shall be in conformance with manufacturer's recommendations or at a minimum frequency of at least one calibration per year. Calibration records should be maintained for a minimum of three years.

F. Lab Accreditation

All monitoring data, except for flow, temperature, conductivity, pH, total residual chlorine, and other exceptions approved by Ecology, shall be prepared by a laboratory registered or accredited under the provisions of, Accreditation of Environmental Laboratories, Chapter 173-50 WAC. Soils and hazardous waste data are exempted from this requirement pending accreditation of laboratories for analysis of these media by Ecology. Quick methods of field detection of pollutants including nutrients, surfactants, salinity, and other parameters are exempted from this requirement when the purpose of the sampling is identification and removal of a suspected illicit discharge.

G. Additional Monitoring

Ecology may establish specific monitoring requirements in addition to those contained in this Permit by administrative order or permit modification.

G10. REMOVED SUBSTANCES

With the exception of decant from street waste vehicles, the Permittee shall not allow collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of stormwater to be resuspended or reintroduced to the MS4 or to waters of the State. Decant from street waste vehicles resulting from cleaning stormwater facilities may be reintroduced only when other practical means are not available and only in accordance with the Street Waste Disposal Guidelines in Appendix 6. Solids generated from maintenance of the MS4 may be reclaimed, recycled, or reused when allowed by local codes and ordinances. Soils that are identified as contaminated pursuant to Chapter 173-350 WAC shall be disposed at a qualified solid waste disposal facility (see Appendix 6).

G11. SEVERABILITY

The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Permit shall not be affected thereby.

G12. REVOCATION OF COVERAGE

The director may terminate coverage under this General Permit in accordance with Chapter 43.21B RCW and Chapter 173-226 WAC. Cases where coverage may be terminated include, but are not limited to the following:

A. Violation of any term or condition of this general permit;

B. Obtaining coverage under this general permit by misrepresentation or failure to disclose fully all relevant facts;

C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;

D. A determination that the permitted activity endangers human health or the environment, or contributes significantly to water quality standards violations;

E. Failure or refusal of the Permittee to allow entry as required in Chapter 90.48.090 RCW;

F. Nonpayment of permit fees assessed pursuant to Chapter 90.48.465 RCW;

Revocation of coverage under this general permit may be initiated by Ecology or requested by any interested person.

G13. TRANSFER OF COVERAGE

The director may require any discharger authorized by this General Permit to apply for and obtain an individual permit in accordance with Chapter 43.21B RCW and Chapter 173-226 WAC.

G14. GENERAL PERMIT MODIFICATION AND REVOCATION

This General Permit may be modified, revoked and reissued, or terminated in accordance with the provisions of WAC 173-226-230. Grounds for modification, revocation and reissuance, or termination include, but are not limited to the following:

A. A change occurs in the technology or practices for control or abatement of pollutants applicable to the category of dischargers covered under this General Permit;

B. Effluent limitation guidelines or standards are promulgated pursuant to the CWA or Chapter 90.48 RCW, for the category of dischargers covered under this General Permit;

C. A water quality management plan containing requirements applicable to the category of dischargers covered under this General Permit is approved; or

D. Information is obtained which indicates that cumulative effects on the environment from dischargers covered under this General Permit are unacceptable.

E. Changes in state law that reference this Permit.

G15. REPORTING A CAUSE FOR MODIFICATION OR REVOCATION

A Permittee who knows or has reason to believe that any activity has occurred or will occur which would constitute cause for modification or revocation and reissuance under General Condition G12, G14, or 40 CFR 122.62 must report such plans, or such information, to Ecology so that a decision can be made on whether action to modify, or revoke and reissue this Permit will be

required. Ecology may then require submission of a new or amended application. Submission of such application does not relieve the Permittee of the duty to comply with this Permit until it is modified or reissued.

G16. APPEALS

A. The terms and conditions of this General Permit, as they apply to the appropriate class of dischargers, are subject to appeal within thirty days of issuance of this General Permit, in accordance with Chapter 43.21B RCW, and Chapter 173-226 WAC.

B. The terms and conditions of this General Permit, as they apply to an individual discharger, are appealable in accordance with Chapter 43.21B RCW within thirty days of the effective date of coverage of that discharger. Consideration of an appeal of General Permit coverage of an individual discharger is limited to the General Permit's applicability or nonapplicability to that individual discharger.

C. The appeal of General Permit coverage of an individual discharger does not affect any other dischargers covered under this General Permit. If the terms and conditions of this General Permit are found to be inapplicable to any individual discharger(s), the matter shall be remanded to Ecology for consideration of issuance of an individual permit or permits.

D. Modifications of this Permit are appealable in accordance with Chapter 43.21B RCW and Chapter 173-226 WAC.

G17. PENALTIES

40 CFR 122.41(a)(2) and (3), 40 CFR 122.41(j)(5), and 40 CFR 122.41(k)(2) are hereby incorporated into this Permit by reference.

G18. DUTY TO REAPPLY

The Permittee shall apply for permit renewal at least 180 days prior to the specified expiration date of this Permit.

G19. Certification and Signature

All formal submittals to Ecology shall be signed and certified.

A. All permit applications shall be signed by either a principal executive officer or ranking elected official.

B. All formal submittals required by this Permit shall be signed by a person described, above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described, above, and submitted to Ecology, and

2. The authorization specifies either an individual or a position having responsibility for the overall development and implementation of the stormwater management program. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under condition G19.B.2 is no longer accurate because a different individual or position has responsibility for the overall development and implementation of the stormwater management program, a new authorization satisfying the requirements of condition G19.B.2 must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a formal submittal under this Permit shall make the following certification:

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that Qualified Personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for willful violations."

G20. Non-compliance notification

In the event a Permittee is unable to comply with any of the terms and conditions of this Permit, the Permittee must:

A. Notify Ecology of the failure to comply with the permit terms and conditions in writing within 30 days of becoming aware that the non-compliance has occurred. The written notification must include all of the following:

1. A description of the non-compliance, including dates.
2. Beginning and end dates of the non-compliance, and if the compliance has not been corrected, the anticipated date of correction.
3. Steps taken or planned to reduce, eliminate, or prevent reoccurrence of the non-compliance.

B. Take appropriate action to stop or correct the condition of non-compliance.

G21. UPSETS

Permittees must meet the conditions of 40 CFR 122.41(n) regarding "Upsets." The conditions are as follows:

A. ***Definition.*** "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

B. ***Effect of an upset.*** An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (C) of this condition are met. Any determination made during administrative

review of claims that noncompliance was caused by upset, and before an action for noncompliance, will not constitute final administrative action subject to judicial review.

C. ***Conditions necessary for demonstration of upset.*** A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and that the Permittee can identify the cause(s) of the upset;
2. The permitted facility was at the time being properly operated; and
3. The Permittee submitted notice of the upset as required in 40 CFR 122.41(l)(6)(ii)(B) (24-hour notice of noncompliance).
4. The Permittee complied with any remedial measures required under 40 CFR 122.41(d) (Duty to Mitigate).

D. ***Burden of proof.*** In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

DEFINITIONS AND ACRONYMS

This Section includes definitions for terms used in the body of the Permit and in all the appendices except Appendix 1. Terms defined in Appendix 1 are necessary to implement requirements related to Appendix 1.

40 CFR means Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

AKART means All Known, Available, and Reasonable methods of prevention, control and Treatment. See also State Water Pollution Control Act, Chapter 90.48.010 RCW and Chapter 90.48.520 RCW.

All Known, Available and Reasonable Methods of Prevention, Control and Treatment (AKART) refers to the State Water Pollution Control Act, Chapter 90.48.010 RCW and Chapter 90.48.520 RCW.

Applicable TMDL means a TMDL which has been approved by EPA on or before the issuance date of this Permit, or prior to the date that Ecology issues coverage under this Permit, whichever is later.

Beneficial Uses means uses of waters of the State, which include but are not limited to use for domestic, stock watering, industrial, commercial, agricultural, irrigation, mining, fish and wildlife maintenance and enhancement, recreation, generation of electric power and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the State.

Best Management Practices are the schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices approved by Ecology that, when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to waters of Washington State.

BMP means Best Management Practice.

Bypass means the diversion of stormwater from any portion of a stormwater treatment facility.

Circuit means a portion of a MS4 discharging to a single point or serving a discrete area determined by traffic volumes, land use, topography or the configuration of the MS4.

Component or **Program Component** means an element of the Stormwater Management Program listed in S5 - *Stormwater Management Program for Cities, Towns, and Counties*, or S6 – S*tormwater Management Program for Secondary Permittees*, or S7 – *Compliance with Total Maximum Daily Load Requirements*, or S8 – *Monitoring and Assessment*, of this Permit.

Community-based social marketing is a social marketing methodology. It employs a systematic approach intended to change the behavior of communities to reduce their impact on the environment. Realizing that providing information is usually not sufficient to initiate behavior change, community-based social marketing uses tools and findings from social psychology to discover the perceived barriers to behavior change and ways of overcoming these barriers.

Conveyance System means that portion of the municipal separate storm sewer system designed or used for conveying stormwater.

Co-Permittee means an owner or operator of an MS4 which is in a cooperative agreement with at least one other applicant for coverage under this Permit. A Co-Permittee is an owner or operator of a regulated MS4 located within or in proximity to another regulated MS4. A Co-Permittee is only responsible for permit conditions relating to discharges from the MS4 the Co-Permittee owns or operates. See also 40 CFR 122.26(b)(1).

CWA means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. 1251 *et seq*.).

Director means the Director of the Washington State Department of Ecology, or an authorized representative.

Discharge Point means the location where a discharge leaves the Permittee's MS4 through the Permittee's MS4 facilities/BMPs designed to infiltrate.

Entity means a governmental body, or a public or private organization.

EPA means the U.S. Environmental Protection Agency.

Fully Stabilized means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as riprap, gabions or geotextiles) which prevents erosion.

General Permit means a permit which covers multiple dischargers of a point source category within a designated geographical area, in lieu of individual permits being issued to each discharger.

Groundwater means water in a saturated zone or stratum beneath the surface of the land or below a surface water body. Refer to Chapter 173-200 WAC.

Hazardous Substance means any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the physical, chemical, or biological properties described in WAC 173-303-090 or WAC 173-303-100.

Heavy Equipment Maintenance or Storage Yard means an uncovered area where any heavy equipment, such as mowing equipment, excavators, dump trucks, backhoes, or bulldozers are washed or maintained, or where at least five pieces of heavy equipment are stored on a long-term basis.

Highway means a main public road connecting towns and cities.

Hydraulically Near means runoff from the site discharges to the sensitive feature without significant natural attenuation of flows that allows for suspended solids removal. See Appendix 7 Determining Construction Site Sediment Damage Potential for a more detailed definition.

Hyperchlorinated means water that contains more than 10 mg/Liter chlorine.

Illicit Connection means any infrastructure connection to the MS4 that is not intended, permitted or used for collecting and conveying stormwater or non-stormwater discharges allowed as specified in this Permit (S5.C.5 and S6.D.3). Examples include sanitary sewer connections, floor drains, channels, pipelines, conduits, inlets, or outlets that are connected directly to the MS4.

Illicit Discharge means any discharge to a MS4 that is not composed entirely of stormwater or of non-stormwater discharges allowed as specified in this Permit (S5.C.5 and S6.D.3).

Impervious Surface means a non-vegetated surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development. A non-vegetated surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or stormwater areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater.

Land Disturbing Activity means any activity that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to clearing, grading, filling and excavation. Compaction that is associated with stabilization of structures and road construction shall also be considered land disturbing activity. Vegetation maintenance practices, including landscape maintenance and gardening, are not considered land disturbing activity. Stormwater facility maintenance is not considered land disturbing activity if conducted according to established standards and procedures.

LID means Low Impact Development.

LID BMP means Low Impact Development Best Management Practices.

LID Principles means land use management strategies that emphasize conservation, use of on-site natural features, and site planning to minimize impervious surfaces, native vegetation loss, and stormwater runoff.

Low Impact Development (LID) means a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.

Low Impact Development Best Management Practices (LID BMP) means distributed stormwater management practices, integrated into a project design, that emphasize pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration. LID BMPs include, but are not limited to, bioretention, rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, vegetated roofs, minimum excavation foundations, and water re-use.

Material Storage Facilities means an uncovered area where bulk materials (liquid, solid, granular, etc.) are stored in piles, barrels, tanks, bins, crates, or other means.

Maximum Extent Practicable refers to paragraph 402(p)(3)(B)(iii) of the federal Clean Water Act which reads as follows: Permits for discharges from municipal storm sewers shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and system, design, and engineering methods, and other such provisions as the Administrator or the State determines appropriate for the control of such pollutants.

MEP means Maximum Extent Practicable.

MS4 means Municipal Separate Storm Sewer System.

Municipal Separate Storm Sewer System means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(i) Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the CWA that discharges to waters of Washington State.

(ii) Designed or used for collecting or conveying stormwater.

(iii) Which is not a combined sewer;

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.; and

(v) Which is defined as "large" or "medium" or "small" or otherwise designated by Ecology pursuant to 40 CFR 122.26.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking, and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the State from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington State Department of Ecology.

Native Vegetation means vegetation comprised of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and which reasonably could have been expected to naturally occur on the site. Examples include trees such as Douglas Fir, western hemlock, western red cedar, alder, big-leaf maple; shrubs such as willow, elderberry, salmonberry, and salal; and herbaceous plants such as sword fern, foam flower, and fireweed.

New Development means land disturbing activities, including Class IV General Forest Practices that are conversions from timber land to other uses; structural development, including construction or installation of a building or other structure; creation of hard surfaces; and subdivision, short subdivision and binding site plans, as defined and applied in Chapter 58.17 RCW. Projects meeting the definition of redevelopment shall not be considered new development. Refer to Appendix 1 for a definition of hard surfaces.

New Permittee means a city, town, or county that is subject to the *Western Washington Municipal Stormwater General Permit* and was not subject to the permit prior to July 1, 2019.

New Secondary Permittee means a Secondary Permittee that is covered under a municipal stormwater general permit and was not covered by the permit prior to July 1, 2019.

NOI means Notice of Intent.

Notice of Intent (NOI) means the application for, or a request for coverage under, a General Permit pursuant to WAC 173-226-200.

Notice of Intent for Construction Activity means the application form for coverage under the *Construction Stormwater General Permit.*

Notice of Intent for Industrial Activity means the application form for coverage under the *Industrial Stormwater General Permit.*

NPDES means National Pollutant Discharge Elimination System.

Outfall means a point source as defined by 40 CFR 122.2 at the point where a discharge leaves the Permittee's MS4 and enters a surface receiving waterbody or surface receiving waters. Outfall does not include pipes, tunnels, or other conveyances which connect segments of the same stream or other surface waters and are used to convey primarily surface waters (i.e., culverts).

Overburdened Community means minority, low-income, tribal, or indigenous populations or geographic locations in Washington State that potentially experience disproportionate environmental harms and risks. This disproportionality can be as a result of greater vulnerability to environmental hazards, lack of opportunity for public participation, or other factors. Increased vulnerability may be attributable to an accumulation of negative or lack of positive environmental, health, economic, or social conditions within these populations or places. The term describes situations where multiple factors, including both environmental and socio-economic stressors, may act cumulatively to affect health and the environment and contribute to persistent environmental health disparities.

Permittee unless otherwise noted, the term "Permittee" includes city, town, or county Permittee, Co-Permittee, New Permittee, Secondary Permittee, and New Secondary Permittee.

Physically Interconnected means that one MS4 is connected to another storm sewer system in such a way that it allows for direct discharges to the second system. For example, the roads with drainage systems and municipal streets of one entity are physically connected directly to a storm sewer system belonging to another entity.

Project site means that portion of a property, properties, or right-of-ways subject to land disturbing activities, new hard surfaces, or replaced hard surfaces. Refer to Appendix 1 for a definition of hard surfaces.

QAPP means Quality Assurance Project Plan.

Qualified Personnel means someone who has had professional training in the aspects of stormwater management for which they are responsible and are under the functional control of the Permittee. Qualified Personnel may be staff members, contractors, or volunteers.

Quality Assurance Project Plan means a document that describes the objectives of an environmental study and the procedures to be followed to achieve those objectives.

RCW means the Revised Code of Washington State.

Receiving Waterbody or **Receiving Waters** means naturally and/or reconstructed naturally occurring surface water bodies, such as creeks, streams, rivers, lakes, wetlands, estuaries, and marine waters, or groundwater, to which a MS4 discharges.

Redevelopment means, on a site that is already substantially developed (i.e., has 35% or more of existing hard surface coverage), the creation or addition of hard surfaces; the expansion of a building footprint or addition or replacement of a structure; structural development including construction, installation or expansion of a building or other structure; replacement of hard surface that is not part of a routine maintenance activity; and land disturbing activities. Refer to Appendix 1 for a definition of hard surfaces.

Regulated Small Municipal Separate Storm Sewer System means a Municipal Separate Storm Sewer System which is automatically designated for inclusion in the Phase II stormwater permitting program by

its location within an Urbanized Area, or by designation by Ecology and is not eligible for a waiver or exemption under S1.C.

Runoff is water that travels across the land surface and discharges to water bodies either directly or through a collection and conveyance system. See also "***Stormwater***."

SAM means Stormwater Action Monitoring

Secondary Permittee is an operator of a regulated small MS4 which is not a city, town or county. Secondary Permittees include special purpose districts and other public entities that meet the criteria in S1.B.

Sediment/Erosion-Sensitive Feature means an area subject to significant degradation due to the effect of construction runoff, or areas requiring special protection to prevent erosion. See Appendix 7 Determining Construction Site Sediment Damage Potential for a more detailed definition.

Shared Water Bodies means water bodies, including downstream segments, lakes and estuaries that receive discharges from more than one Permittee.

Significant Contributor means a discharge that contributes a loading of pollutants considered to be sufficient to cause or exacerbate the deterioration of receiving water quality or instream habitat conditions.

Small Municipal Separate Storm Sewer System means an MS4 that is not defined as "large" or "medium" pursuant to 40 CFR 122.26(b)(4) & (7) or designated under 40 CFR 122.26 (a)(1)(v).

Source Control BMP means a structure or operation that is intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. The *SWMMWW* separates source control BMPs into two types. Structural Source Control BMPs are physical, structural, or mechanical devices, or facilities that are intended to prevent pollutants from entering stormwater. Operational BMPs are non-structural practices that prevent or reduce pollutants from entering stormwater.

Stormwater means runoff during and following precipitation and snowmelt events, including surface runoff, drainage or interflow.

Stormwater Action Monitoring (SAM) is the regional stormwater monitoring program for Western Washington. This means, for all of Western Washington, a stormwater-focused monitoring and assessment program consisting of these components: status and trends monitoring in small streams and marine nearshore areas, stormwater management program effectiveness studies, and source identification projects. The priorities and scope for SAM are set by a formal stakeholder group that selects the studies and oversees the program's administration.

Stormwater Associated with Industrial and Construction Activity means the discharge from any conveyance which is used for collecting and conveying stormwater, which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant, or associated with clearing, grading and/or excavation, and is required to have an NPDES permit in accordance with 40 CFR 122.26.

Stormwater facility retrofits means both: projects that retrofit existing treatment and/or flow control facilities; and new flow control or treatment facilities or BMPs that will address impacts from existing development.

Stormwater Management Program (SWMP) means a set of actions and activities designed to reduce the discharge of pollutants from the MS4 to the MEP and to protect water quality, and comprising the components listed in S5 (for cities, towns, and counties) or S6 (for Secondary Permittees) of this Permit and any additional actions necessary to meet the requirements of applicable TMDLs pursuant to S7 – *Compliance with TMDL Requirements,* and S8– *Monitoring and Assessment*.

Stormwater Treatment and Flow Control BMPs/Facilities means detention facilities, permanent treatment BMPs/facilities; and bioretention, vegetated roofs, and permeable pavements that help meet Appendix 1 Minimum Requirements #6 (treatment), #7 (flow control), or both.

Surface Waters includes lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the State of Washington.

SWMMWW or **Stormwater Management Manual for Western Washington** means *Stormwater Management Manual for Western Washington (2019).*

SWMP means Stormwater Management Program.

TMDL means Total Maximum Daily Load.

Total Maximum Daily Load (TMDL) means a water cleanup plan. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the water body can be used for the purposes the state has designated. The calculation must also account for seasonable variation in water quality. Water quality standards are set by states, territories, and tribes. They identify the uses for each water body, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use. The Clean Water Act, Section 303, establishes the water quality standards and TMDL programs.

Tributary Conveyance means pipes, ditches, catch basins, and inlets owned or operated by the Permittee and designed or used for collecting and conveying stormwater.

UGA means Urban Growth Area.

Urban Growth Area (UGA) means those areas designated by a county pursuant to RCW 36.70A.110.

Urbanized Area is a federally-designated land area comprising one or more places and the adjacent densely settled surrounding area that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile. Urbanized Areas are designated by the U.S. Census Bureau based on the most recent decennial census.

Vehicle Maintenance or Storage Facility means an uncovered area where any vehicles are regularly washed or maintained, or where at least 10 vehicles are stored.

Water Quality Standards means Surface Water Quality Standards, Chapter 173-201A WAC, Groundwater Quality Standards, Chapter 173-200 WAC, and Sediment Management Standards, Chapter 173-204 WAC.

Waters of the State includes those waters as defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and "waters of the State" as defined in

Chapter 90.48 RCW which includes lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and water courses within the jurisdiction of the State of Washington.

Waters of the United States refers to the definition in 40 CFR 122.2.

APPENDIX E

GEOTECHNICAL REPORT

Geotechnical Engineering Services

3rd Avenue NE Reconstruction Project
143rd Place NE to NE Stephens Street
Duvall, Washington

for
City of Duvall and KPG Psomas, Inc.

February 15, 2024

GeoEngineers
Earth Science + Technology

Geotechnical Engineering Services

3rd Avenue NE Reconstruction Project
143rd Place NE to NE Stephens Street
Duvall, Washington

for
City of Duvall and KPG Psomas, Inc.

February 15, 2024

GeoEngineers

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Geotechnical Engineering Services

3rd Avenue NE Reconstruction Project
143rd Place NE to NE Stephens Street
Duvall, Washington

File No. 8258-026-00

February 15, 2024

Prepared for:

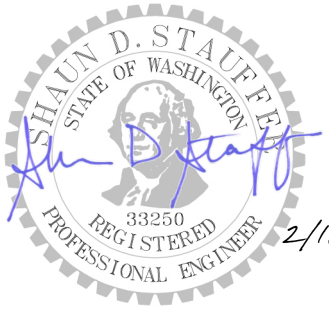
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2/15/24

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Figures C-1 through C-3. Pilot Infiltration Test Results
Appendix D. Report Limitations and Guidelines for Use

1.0 INTRODUCTION AND PROJECT UNDERSTANDING

This report presents the results of GeoEngineers, Inc.'s (GeoEngineers') geotechnical engineering services for the proposed City of Duvall's (City) 3rd Avenue NE Reconstruction project in Duvall, Washington. The project includes improvements to 3rd Avenue NE between NE 143rd Place (southern limit) to NE Stephens Street (northern limit). The project location is detailed in the Vicinity Map, Figure 1. This report replaces our previous geotechnical engineering report dated January 29, 2024.

Our understanding of the project design for this report is based on the project plan set titled "City of Duvall, Coe-Clemons Creek Culvert Replacement, 90 percent Review Submittal, January, 2024" (90 percent culvert plans) and "City of Duvall, 3rd Avenue NE Reconstruction, 60 percent Review Submittal, June 2023 (60 percent roadway plans). The project includes the following major components that will be separated into two construction projects as follows:

- Proposed roadway and streetscape improvements to the 3rd Avenue NE between NE 143rd Place and NE Stephens Street which are planned to include:
    - Streetscape and roadway improvements including bike lanes, a multi-use path and sidewalks;
    - Roundabouts at the intersections of NE 143rd Place and NE 145th Street; and
    - New stormwater management systems including permeable pavement sidewalk in select locations.
- Replacement of the 3rd Avenue NE Coe-Clemons Creek Culvert and construction of a pedestrian overlook at the culvert crossing. The new culvert crossing is planned to consist of a three-sided box culvert that will accommodate a 20-foot-wide stream channel opening to meet current fish passage standards.

New retaining walls will also be required for both construction projects to allow for grade changes in select locations along the roadway alignment. Headwalls will be incorporated into the culvert design. Rockeries are currently present in the northern portion of the alignment and are planned to remain in place.

The recommendations presented in this report are applicable for both major project components.

The purpose of our geotechnical engineering services is to evaluate the subsurface soil and groundwater conditions along the proposed alignment as a basis for providing geotechnical design recommendations to support the overall 3rd Avenue NE Reconstruction project. Key geotechnical elements include recommendations for culvert foundation support, lateral earth pressures and foundation recommendations for retaining walls, rockery recommendations, pavement design, stormwater infiltration considerations, and earthwork and site preparation. Our services were provided under our subconsultant professional services agreement with KPG Psomas, Inc. (KPGP) dated September 17, 2021 and Contract Amendment 1 dated October 7, 2022.

2.0 FIELD EXPLORATIONS AND LABORATORY TESTING

2.1. Field Explorations

The subsurface soil and groundwater conditions at the site were evaluated by completing nine borings, GEI-B-1 through GEI-B-10 (with the exclusion of GEI-B-2) to depths of approximately 11 to 27 feet below existing ground surface (bgs) on December 5 through 9, 2022. Boring GEI-B-2 was planned but canceled due to utility obstructions. The borings were completed using subcontracted tracked drilling equipment and hollow-stem auger drilling methods. The upper 4 to 5 feet of the bored explorations were completed using a small diameter vacuum air knife as a precaution against utility strikes. This exploration method allows for limited observation and sampling in the upper 5 feet of the soil profile.

Two test pits, GEI-PIT-1 and GEI-PIT-2 were also excavated to complete small-scale pilot infiltration testing (PITs) as discussed in Section 2.3 below.

The approximate locations of the explorations are shown on the Site and Exploration Plan, Figure 2. A description of the subsurface exploration program and logs of the borings and test pits are presented in Appendix A.

2.2. Laboratory Testing

Soil samples were obtained during the exploration program and taken to our laboratory for further evaluation. Selected samples were tested for the determination of moisture content, fines content (percent passing U.S. No. 200 sieve) and grain size distribution (sieve and hydrometer analyses). A description of the laboratory testing and the test results are presented in Appendix B.

2.3. Pilot Infiltration Tests

Two PITs were conducted at the location of proposed permeable pavement sidewalks. The infiltration tests were conducted on December 12 and 13, 2022 in test pits GEI-PIT-1 and GEI-PIT-2 at the approximate locations shown on the Site Plan. A description of the infiltration testing and test results are presented in Appendix C.

3.0 SITE CONDITIONS

3.1. Geology

We reviewed a Washington State Department of Natural Resources (DNR) geologic map for the project area, titled “Geologic Map of the Carnation 7.5-Minute Quadrangle, King County, Washington” by Dragovich et al. (2010), and geologic information at the Washington Interactive geologic map (http://www.dnr.wa.gov/geologyportal). The geologic soil deposits are the result of both glacial and non-glacial processes that have occurred during the last 12,000 years. The most recent glacial event includes the Vashon Stade of the Fraser Glaciation.

The following geologic units are mapped along the project alignment, listed from youngest to oldest.

- Recessional glaciolacustrine deposits (Qgl(r)): This unit consists of loose to dense silt, sandy silt and silty sand deposited by glacial lakes. This unit is predominantly mapped near the southern end of the alignment between NE 143rd Street and about NE 144th Place.

- **Ice-contact kames deposits (Qgik):** This unit generally consists of loose to dense sand and gravel with potential cobbles and boulders (glacial erratics) deposited by melting ice-during glacial retreat. This unit is mapped between about NE 144th Place and NE Kennedy Drive.
- **Glacial till (Qgt(v)):** This unit generally consists of a non-sorted, non-stratified mixture of dense sand, gravel, silt, and clay that has been overridden by several thousand feet of ice during the Vashon Stade of the Fraser Glaciation. It typically has high shear strength and low consolidation characteristics in the undisturbed state. Glacial till is mapped in the northern portion of the alignment between Coe-Clemons Creek and Stephens Street. Glacial till is also surficially mapped in the vicinity of 3rd Avenue NE along the southern portion of the alignment where ice-contact and recessional lacustrine deposits are mapped in the alignment. We interpret that glacial till is likely present at a variable depth below the recessional and ice-contact deposits in the southern portion of the alignment (Coe-Clemons Creek to NE 143rd Place).
- **Advance glaciolacustrine deposits (Qgl(v)):** This unit generally consists of dense/hard silt, sandy silt, clayey silt, and was formed during by glacial lake deposits prior to the Vashon State and was glacially consolidated by the advancing Vashon glaciation. Advance glaciolacustrine deposits are mapped in the vicinity of the Coe-Clemons Creek Crossing.
- Although not mapped in the project vicinity, colluvium deposits, consisting of loose to dense silty sand with gravel and silt with variable sand, gravel and organics, have been observed overlying glacial till and advance glaciolacustrine deposits in erosion hazard areas mapped near Coe-Clemons Creek (west of the 3rd Avenue NE alignment). These deposits are derived from other native soil deposits and have formed due to landslides or erosion.

3.2. Surface Conditions

The 3rd Avenue NE project alignment is located in a single-family residential area within the City of Duvall limits. The roadway is paved with asphalt concrete along the entire alignment. The roadway is generally two lanes wide and is sometimes striped for two lanes. In some locations, including at the Coe-Clemons Creek crossing, the roadway becomes narrow and does not have a center stripe. Concrete sidewalk is currently present in some locations of the project alignment but is discontinuous. Variable vegetation is present adjacent to the roadway along the alignment, including grasses, brushes, and trees of various sizes and species.

The topography of 3rd Avenue NE south of the Coe-Clemons Creek crossing is generally gently sloping north to south with a high point near the NE 144th Place intersection. Roadway slopes are steeper (up to about 8H:1V [horizontal to vertical] or about 12 percent) for short distances immediately approaching the culvert crossing at Coe-Clemons Creek. Steeper cross slopes are present for most of the alignment north of Coe-Clemons Creek, with uphill and downhill slopes up to about 3H:1V. The northern portion of the alignment features an east-to-west cross slope typically ranging between about 4H:1V to 2H:1V, and up to 1H:1V for short heights and distances. Several rockeries of various lengths are present on the east (uphill) side of the road adjacent to the sidewalk and several walls are present on private property on the west (downhill) side of the road in the northern portion of the alignment.

3.3. Subsurface Conditions

The subsurface conditions vary significantly throughout the project alignment. For ease of discussion, we have separated the project alignment into two segments north and south of the Coe-Clemons Creek crossing.

3.3.1. North Section (NE Stephens Street to Coe-Clemons Creek)

This segment of the road alignment extends north of Coe-Clemons Crossing to NE Stephen Street. GEI-B-1 through GEI-B-5 were completed along this segment. A majority of this segment is mapped as glacial till. The borings in this segment generally encountered limited fill overlying dense to very dense sand and gravel with variable silt content interpreted to be glacial till. The glacial till appeared to have significant cobble and boulder contents based on visual observation and drilling action. Glacial till was encountered to the full depth explored in borings GEI-B-1 through GEI-B-5, and often drilling refusal was encountered prior to attaining the desired drilling depth. We did not observe soils corresponding to mapped advance glaciolacustrine deposits near Coe-Clemons Creek (boring GEI-B-5).

3.3.2. South Section (Coe-Clemons Creek to NE 143rd Place)

This segment of the road alignment extends south of Coe-Clemons Creek to NE 143rd Place. GEI-B-6 through GEI-B-10, GEI-PIT-1, and GEI-PIT-2 were completed in this segment. The area is mapped as a combination of glacial till, ice-contact deposits and recessional lacustrine deposits. Explorations in this segment generally encountered a layer of medium dense to very dense sand and gravel with variable silt and cobble content, and very stiff to hard silt with variable sand and gravel content interpreted to be ice-contact deposits overlying glacial till. The ice-contact deposits were typically observed to depths of 5 to 7 feet bgs. A thicker layer of ice-contact soils was observed in boring GEI-B-10 extending to depths of approximately 17 feet bgs. Ice-contact deposits were observed to the full depth explored in GEI-PIT-1.

Glacial till, consisting of dense to very dense sand and gravel with variable silt and cobbles and hard sandy silt, was encountered underlying the ice-contact deposits to the full depth explored in all explorations except GEI-PIT-1. Similar to the north section, drilling refusal in the glacial till was often encountered prior to attaining desired drilling depth. We did not observe soils corresponding to mapped advance glaciolacustrine deposits near Coe-Clemons Creek (boring GEI-B-6); nor were recessional lacustrine units specifically identified in the southernmost area of the alignment.

3.4. Groundwater Conditions

Wet soil conditions, indicative of perched groundwater, were observed at variable depths in some of the borings ranging from approximately 3 to 12 feet bgs. Groundwater conditions observed during drilling, where encountered, are presented on the boring logs.

We interpret that the regional groundwater table to be well below the depth of the proposed improvements (greater than 50 feet bgs). The groundwater encountered in the borings is interpreted to be perched groundwater condition or as a discontinuous localized groundwater regime. Shallow perched groundwater conditions can develop above or within fill soils and within more permeable layers of the ice-contact and glacial till units.

Groundwater conditions observed while completing the explorations represent a short-term condition and may or may not be representative of the long-term groundwater conditions at the site. Borings were not left

open long enough to measure static groundwater conditions. GeoEngineers did not install groundwater monitoring wells as part of the scope of this project. The groundwater conditions should be expected to vary as a function of season, precipitation, water levels in Coe-Clemons Creek and other factors.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1. Summary of Geotechnical Considerations

We conclude that the planned improvements can be successfully completed from a geotechnical perspective, provided the considerations presented in this report are incorporated into the project planning and design. A summary of the primary site preparation and design considerations for the proposed project is provided below. This summary is presented for introductory purposes and should be used in conjunction with the complete recommendations presented in this report.

- Based on the borings completed to date, the site is designated as seismic Site Class C per the Washington State Department of Transportation (WSDOT) *Geotechnical Design Manual* (GDM) and American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design (LRFD) Bridge Design Specifications.
- The risk of seismically induced liquefaction or lateral spreading along the project alignment is low, based on our explorations.
- We anticipate that the new Coe-Clemons culvert structure can be supported on shallow foundations bearing on native glacially consolidated soils that are proof compacted to a uniformly firm and unyielding condition. If soils present at the design foundation bearing surface elevation cannot be adequately proof compacted or contain loose fill or deleterious material, they should be removed and replaced with compacted structural fill.
- New retaining walls for culvert headwalls and to support other site grade changes are planned to consist of cast-in-place concrete, precast concrete, gravity block and/or mechanically stabilized earth walls. We anticipate that the subgrade conditions for retaining walls will vary from existing fill to medium dense to very dense ice-contact and glacial till deposits. Where existing fill is exposed in the foundation subgrade, the fill should be recompacted or replaced with structural fill. Design recommendations for retaining walls are included herein. We do not anticipate permanent shoring type walls, including soil nail or soldier piles walls, will be required based on current design concepts.
- We understand the design team desires to preserve existing rockeries to the extent feasible. Based on planned improvements, rockeries can be maintained with design and construction considerations presented herein.
- The existing fill and native soils at the site contain significant fines (silt) such that they are moisture-sensitive soils that will become easily disturbed when wet. We recommend site development be accomplished during extended periods of dry weather when the site soils will be less susceptible to disturbance due to rain and runoff and when the groundwater seepage is less. If construction is completed during the wet season, additional excavation and replacement of portions of the new pavement and sidewalk subgrade may be necessary. Cobbles and possibly boulders should also be anticipated in the deposits. The contractor should be prepared to remove these materials.
- Effective erosion and sedimentation control must be implemented during construction so that potential impacts to adjacent areas are reduced. The erosion and sediment control measures used for this

project should be in accordance with the requirements of the City of Duvall and the Washington State Department of Ecology (Ecology).

- After performing independent internal analysis, it is our opinion that the City of Duvall standard pavement section consisting of 6 inches of hot-mix asphalt concrete (HMA) over 12 inches of crushed surfacing base course (CSBC) is acceptable for use on this project.
- Stormwater infiltration via deep infiltration best management practice systems is considered infeasible due to shallow depth to impermeable glacial soils. Shallow infiltration systems may be feasible in the vicinity of explorations GEI-B-8 and GEI-PIT-2 (roadway station 23+00 to 24+00). However, any shallow infiltration system should have underdrains, overflows or bypass structures as soils capable of infiltration are limited in area and depth. Additional discussion of site infiltration, including results of PITs, is presented in Section 4.9 of this report.

Material specifications presented herein are based on the 2022 WSDOT Standard Specifications for Road, Bridge and Municipal Construction (WSDOT Standard Specifications).

4.2. Seismic Design Considerations

We used map-based methods in conjunction with our explorations to develop seismic design parameters in general accordance with the 2022 WSDOT *Bridge Design Manual* and 2020 AASHTO LRFD Bridge Design Specifications. The recommended seismic design parameters are shown in Table 1.

TABLE 1. SEISMIC DESIGN CRITERIA

2020 AASHTO Seismic Design Parameters	
Spectral Response Acceleration at Short Periods (S_S)	0.839g
Spectral Response Acceleration at 1-Second Periods (S_1)	0.244g
Site Class	C
Design Peak Ground Acceleration (A_S)	0.382g
Design Spectral Response Acceleration at Short Periods (S_{DS})	0.893g
Design Spectral Response Acceleration at 1-Second Periods (S_{D1})	0.380g

4.2.1. Liquefaction

Liquefaction refers to a condition where vibration or shaking of the ground, usually from earthquake forces, results in development of excess pore pressures in loose, saturated soils and subsequent loss of strength in the deposit of soil so affected. In general, soils that are susceptible to liquefaction include loose to medium dense sands to silty sands that are below the water table.

We anticipate the proposed improvements will be founded in glacial soil units. In our opinion, these geologic units have sufficient density and/or cohesive properties such that they are not susceptible to liquefaction. Based on our understanding of site conditions and the anticipated construction, in our opinion there is a low risk of liquefaction occurring at this site.

4.2.2. Lateral Spreading Potential

Lateral spreading related to seismic activity typically involves lateral displacement of large, surficial blocks of non-liquefied soil when a layer of underlying soil loses strength during seismic shaking. Lateral spreading usually develops in areas where sloping ground or large grade changes (including retaining walls) are present. Based on our understanding of the liquefaction risk at the site, it is our opinion that the risk of lateral spreading is low.

4.2.3. Surface Rupture Potential

According to the DNR Interactive Natural Hazards Map, the Snoqualmie Valley Fault (No. 1) is mapped running northwest to southeast near the project alignment and is inferred to cross 3rd Avenue NE near the NE Valley Street intersection. However, based on the level of activity and frequency of movement of the fault and anticipated depth to bedrock, it is our opinion that the risk of surface fault rupture impacting the roadway during the design life of the improvements is relatively low.

4.3. Culvert Foundation Support

We understand that the proposed culvert will be a three-sided concrete box culvert and that footings will be founded approximately 10 feet below the design stream thalweg elevation. We anticipate that foundation conditions exposed at the proposed culvert subgrades will consist of native glacial till. Although not encountered in our explorations near the culvert crossing, glacially consolidated glaciolacustrine deposits could also be encountered at the foundation elevation based on exposed soils downstream of the culvert. If existing fill is present at the foundation bearing surface elevation, we recommend it be removed and replaced with compacted structural fill as discussed below. The foundation recommendations discussed herein are applicable for subgrade conditions consisting of glacial till, glaciolacustrine deposits, or structural fill placed over the glacial soils.

Bottom of footing elevations are anticipated to be between Elevation 196.7 and 201.9 feet. We understand foundation depths incorporate appropriate burry depths for scour. We recommend footings have a minimum width of 2 feet; current designs show a footing width of approximately 6 feet. The sections below provide our recommendations for foundation bearing surface preparation and foundation design parameters for the culvert.

4.3.1. Foundation Bearing Surface Preparation

Competent glacial soils are anticipated at the culvert foundation-bearing surface elevation. If glacially consolidated soils are present at foundation-bearing surface elevation, we recommend that they be proof compacted in place to a firm and unyielding condition prior to construction of the footing.

If existing fill or relatively loose soils are present at the foundation bearing surface elevation, we recommend they be overexcavated and replaced with compacted structural fill. Overexcavations, if needed, should be extended to expose competent native soil. If organic-rich soil or other deleterious material is encountered below footings, we recommend complete removal of this material. Overexcavations should be backfilled with compacted structural fill. We recommend structural fill placed in overexcavations extend laterally beyond the foundation perimeter a distance equal to the depth of fill (measured from the base of the footing), or 3 feet, whichever is less.

We recommend a leveling course consisting of CSBC per WSDOT Standard Specifications 9-03.9(3) be placed over dense glacial soils for ease of construction.

Foundation bearing surfaces should not be exposed to standing water. If water is present in the excavation, it must be removed before placing formwork and reinforcing steel or precast foundation elements.

Prepared foundation bearing surfaces should be evaluated by a member of our firm prior to placement of formwork or reinforcing steel to verify that the bearing surface has been prepared in accordance with our recommendations or to provide recommendations for remediating unsuitable bearing soils.

4.3.2. Foundation Bearing Resistance

Shallow foundation bearing resistance was computed in general accordance with the 2020 AASHTO LRFD Bridge Design Specifications, Section 10.6.3.1.2. Figure 3 included with this report provides design bearing resistance for the Service, Strength, and Extreme Limit States considering continuous footings and varying footing widths. The provided bearing resistances assume an embedment of 2 feet and level ground in front of the footings. The recommended bearing pressures assume that footings are established at or below the groundwater level.

The Service Limit State bearing resistance assumes an allowable static settlement of ½ or 1 inch. The bearing resistances for the Extreme and Strength Limit States include resistance factors of 0.9 and 0.45, respectively. These resistance factors are based on recommendations in the 2020 AASHTO LRFD and the WSDOT GDM.

The foundation widths referenced in Figure 3 are effective widths and should be corrected for eccentric loading conditions, if applicable, by the following equation:

$$B' = B - 2e_y$$

Where:

B' is the effective footing width;

B is the actual footing width; and

e_Y is the eccentricity along the footing width.

The eccentricity is measured from the center of the footing to the location of the resultant reaction force along the length of the footing (x-axis) and the width of the footing (y-axis). Refer to Chapter 8.11 of the WSDOT GDM for additional information regarding eccentricity.

4.3.3. Foundation Lateral Resistance

The ability of the soil to resist lateral loads is a function of the base friction, which develops on the base of footings and slabs, and the passive resistance, which develops on the face of below-grade elements of the structure as these elements move into the soil. For footings founded in accordance with the recommendations presented above, the frictional resistance on the base of the footing may be computed using a nominal coefficient of friction of 0.6 applied to the vertical dead-load forces. The nominal passive resistance on the face of footings or other embedded foundation elements may be computed using an equivalent fluid density presented in Table 4 in Section 4.4.3 of this report. These values do not contain

hydrostatic pressure and are ultimate resistances. The resistance factors summarized in Table 2 below should be applied to the values for design.

TABLE 2. LATERAL RESISTANCE FACTORS FOR SHALLOW FOUNDATIONS

Limit State	Resistance Factor	
	Shear Resistance to Sliding	Passive Pressure Resistance to Sliding
Strength	0.8 (cast-in-place) 0.9 (precast)	0.5
Service	1.0	1.0
Extreme	0.9	0.9

4.4. Retaining Walls

The following retaining walls are planned to be constructed as part of this project:

- Scour walls extending from the culvert structure. These walls will consist of precast concrete and will be integrated into the culvert structure.
- Headwalls immediately adjacent to the culvert. These walls will consist of structural earth (SE) and precast concrete walls. Note that for the purposes of this report, mechanically stabilized earth (MSE) and SE walls are synonymous wall types.
- Site walls to facilitate grade transitions. These walls will consist of gravity block and possibly some short MSE/SE walls.

Design recommendations for these wall types are presented in the following section.

4.4.1. Subgrade Preparation

We recommend that walls be supported on exposed medium dense to very dense glacial soil deposits, on a minimum of 2 feet of compacted structural fill, or on structural fill extending to medium dense to very dense glacial deposits (for fill thicknesses less than 2 feet). We anticipate exposed soils will consist of native glacial soils.

Walls supported directly on native glacial soil deposits should include at least a 6-inch layer of a crushed rock as a leveling layer. For walls supported on structural fill, the zone of structural fill should extend laterally beyond the footing edges a horizontal distance at least equal to the thickness of the fill. A geotextile separator fabric may be used at the base of the overexcavation if loose/soft soils extend below the depth of the overexcavation. We recommend that the footing excavations be examined by a representative of our firm prior to forming footings or placing structural steel.

4.4.2. Design Height and Minimum Embedment

The design height of the retaining walls should include the above ground wall height as well as the full embedment depth of the wall.

The minimum embedment depth for walls founded on level and/or sloping ground should be provided as presented in Table 3 below. The minimum embedment depth should be provided below a theoretical

4-foot-wide horizontal bench that extends from the face of the wall and intersects the sloping ground in front of the wall.

TABLE 3. MINIMUM EMBEDMENT DEPTHS FOR RETAINING WALLS

Slope in Front of Wall	Minimum Embedment Depth[1] (feet)
Horizontal	H/20 or 2 feet, whichever is greater
3H:1V	H/10 or 2 feet, whichever is greater
2H:1V	H/7 or 2 feet, whichever is greater

Note:

[1] H equals the retained wall height

4.4.3. Cast-In-Place and Precast Concrete Wall Design Recommendations

4.4.3.1. Design Lateral Soil Pressure

The following table provides lateral soil pressure parameters suitable for the design of cast-in-place (CIP) or precast concrete retaining walls, including culvert wingwalls and headwalls, or other subsurface structures that require lateral earth pressure inputs.

TABLE 4. LATERAL SOIL PRESSURE PARAMETERS FOR PERMANENT SUBSURFACE STRUCTURES

Soil Parameter	Backfill/Retained Soil Above Groundwater	Submerged Backfill/Retained Soil[2]
Soil Unit Weight, γ	Total Weight = 135 pcf	Buoyant Weight = 73 pcf
Backfill Friction Angle, ϕ	36 degrees	36 degrees
Backfill Cohesion	0 psf	0 psf
Foundation Friction Angle, ϕ	36 degrees	36 degrees
Active Earth Pressure[1]	Ka = 0.23 EFP[3] = 32 pcf	Ka = 0.23 EFP[3] = 18 pcf
Active Seismic Earth Pressure[1]	Kae[4] = 0.36 EFP[3] = 49 pcf	Kae[4] = 0.36 EFP[3] = 27 pcf
At-rest Earth Pressure[1]	Ko = 0.41 EFP[3] = 56 pcf	Ko = 0.41 EFP[3] = 30 pcf
At-rest Seismic Earth Pressure[1]	Koe[5] = 0.75 EFP[3] = 102 pcf	Koe[5] = 0.75 EFP[3] = 55 pcf
Passive Pressure – Level Toe Slope	Kp=3.85 EFP[3] = 520 pcf	Kp=3.85 EFP[3] = 280 pcf
Passive Earth Pressure- 2H:1V[6] Foreslope	Kp=1.45 EFP[3] = 195 pcf	Kp=1.45 EFP[3] = 105 pcf

Notes:

[1] Provided lateral soil pressure parameters are appropriate for the level backfill (for active and at-rest earth pressure).

[2] These values do not include hydrostatic pressure. An equivalent fluid pressure of 63 pcf should be applied to hydrostatic conditions.

[3] EFP = Equivalent fluid pressure, defined as soil unit weight (total or buoyant) multiplied by appropriate active or at-rest earth pressure coefficient (Ka, Ko, Kae or Koe).

[4] Kae value assumes a horizontal acceleration coefficient of 0.5*A_S, for A_S presented in Table 1.

[5] Koe value assumes a horizontal acceleration coefficient of A_S, for A_S presented in Table 1

[6] GeoEngineers should be contacted for passive soil parameters for foreslopes between level and 2H:1V.

pcf = pounds per cubic foot; psf = pounds per square foot

For walls free to yield at the top at least one thousandth of the wall height (i.e., wall height times 0.001), soil pressures will be less than if movement is restrained and active earth pressures may be used for design. For walls that are braced and restrained from movement, as anticipated for structures, including rigid concrete box culverts, the soil pressures will be higher and at-rest pressures should be used for design.

Uniform live-load traffic surcharge should be included in walls supporting vehicle traffic. The horizontal pressure from uniform vertical surcharge loads (e.g., typical 250 pounds per square foot [psf] traffic loads) can be estimated by multiplying the vertical pressure by the active (Ka) or at rest (Ko) earth pressure coefficients provided in Table 4 for the appropriate wall restraint condition. The resulting horizontal pressure should be applied as a uniform rectangular load acting over the exposed height of the wall. Other surcharge loads or configurations should be considered on a case-by-case basis.

Appropriate load factors should be applied to the lateral earth pressures and surcharge pressures described above.

4.4.3.2. Bearing Capacity

Recommendations presented in Section 4.3.3 for culvert footings are applicable for retaining wall footings, except that the bearing pressures presented in Figure 4 of this report shall be used. All other recommendations in Section 4.3.3 are applicable for retaining walls.

4.4.3.3. Settlement

We estimate that post-construction settlement of retaining walls that are underlain by structural fill or other granular deposits and are designed and constructed as recommended will be on the order of 1 inch or less, with differential settlement over a 25-foot wall section on the order of half that amount (½ inch). Most of this settlement will occur rapidly as loads are applied.

4.4.4. Gravity Block and Mechanically Stabilized Earth Walls

Gravity block walls and MSE walls should be designed in accordance with the AASHTO LRFD Bridge Design Manual and the WSDOT GDM or should consist of WSDOT preapproved proprietary wall systems (described in WSDOT GDM Appendix 15-D). Suitable wall types may include large concrete block or gabion basket gravity structures, or MSE walls with dry-cast concrete block, welded wire basket, geocell or other facing types. Gravity block and MSE walls can be designed in accordance with the design parameters presented in Section 4.4.3 above, or alternatively can be designed using the geotechnical design parameters presented in Table 5. Resistance factors should follow AASHTO LRFD *Bridge Design Manual* guidance.

We recommend using a horizontal acceleration coefficient k_h of 0.20g and a vertical seismic acceleration coefficient k_v of 0.0g for the Extreme Limit State. In areas where parking or equipment storage will be within 10 feet of the top of the wall, we recommend using a uniform surcharge pressure of 250 psf. Adequate drainage provisions should be included in the wall design, as discussed in Section 4.4.6 of this report.

TABLE 5. RETAINING WALL DESIGN PARAMETERS – SOIL PROPERTIES

Soil Properties	Wall Backfill	Retained Soil	Foundation Soil
Unit Weight (pcf)	135	130	130
Friction Angle (deg)	36	36	36
Cohesion (psf)	0	0	0

Note:
pcf – pounds per cubic foot

4.4.5. Wall Backfill and Drainage

Retaining wall backfill materials should consist of Gravel Backfill for Walls as described in Section 9-03.12(2) of the WSDOT Standard Specifications. Placement and compaction of fill behind the walls should be in accordance with WSDOT Standard Specifications section 2-09.3(1) E.

Drainage behind gravity block walls should be provided by including a 4-inch-diameter perforated collector pipe enveloped within a minimum thickness of 12 inches of gravel backfill for drains conforming to Section 9-03.12(4) of the WSDOT Standard Specifications. A construction geotextile for underground drainage, moderate survivability, conforming to Section 9-33 of the WSDOT Standard Specifications should be placed between the gravel backfill and the native soils to prevent movement of the soils into the drainage backfill.

4.4.5.1. Special Drainage Considerations for Culvert and Wingwalls

Even with drainage measures included, we recommend the culvert walls and wingwalls be designed to withstand at least 1 foot of hydrostatic differential (i.e., a groundwater level behind the structure 1 foot higher than the ordinary high or flood water level in the creek). This will allow for some time lag in drainage if the creek level drops suddenly or if the drainage system becomes temporarily clogged.

If it is not feasible to install drains behind culvert walls and/or wingwalls, weep holes should be installed in accordance with the WSDOT Standard Plans and WSDOT Standard Specifications Section 6 02.3(22). Weep holes may consist of 3-inch-diameter polyvinyl chloride (PVC) pipes at 12-foot on-center spacing or 2-inch-diameter pipe at 10-foot on-center spacing. Provisions should be incorporated to prevent migration of the backfill through the weep holes; for instance, the weep holes could be covered with a non-woven geotextile fabric (Mirafi 140N or equivalent) prior to backfilling. Weep holes should be placed a maximum of 12 inches above the adjacent finished grade.

4.4.6. Retaining Wall Global Stability

We completed global stability analyses of select tall wall sections of proposed gravity block retaining walls and proposed culvert headwalls. Two retaining wall cases were modeled as follows:

- A gravity block wall with a maximum height of 14 feet (including embedment depth). The wall was modelled using a maximum block width of 5 feet (60 inches), a backslope of 3H:1V and a level foreslope. This wall is based on the tallest portion of gravity block retaining planned near roadway Station 37+00 RT.

- An SE/MSE headwall with a maximum height of 18 feet (including embedment). The wall was modelled assuming a reinforced zone width of 11 feet, a level backslope with 250 psf traffic surcharge for static condition, and a foreslope mimicking the proposed stream gradient.

Our analyses were performed using GeoStudio SLOPE/W 2023, Version 23.1.2.11 developed by Bentley Systems. The sections were analyzed under static and seismic (pseudostatic) loading conditions. A pseudostatic horizontal acceleration coefficient of 0.2g was used in the seismic analyses, corresponding to 50 percent of the expected peak ground acceleration (PGA) at the ground surface.

Based on our analysis, both proposed wall cases have global stability factors of safety greater than 1.5 for static conditions and greater than 1.1 for seismic conditions, which meet global stability requirements in the 2020 AASHTO LRFD Bridge Design Specifications and the 2021 WSDOT GDM.

4.5. Rockeries

4.5.1. New Rockery Design

At the time of this final report, no new rockeries are planned as part of the project. Stability considerations for existing rockeries that will be maintained as part of the project are presented in the next section.

4.5.2. Existing Rockery Stability

We understand the design team desires to preserve existing rockeries to the extent feasible. We anticipate that the stability of existing rockeries can be preserved to an appropriate factor of safety for rockery stability if minor changes to rockery foreslope are made as part of the proposed improvements. Existing rockery embedment should be evaluated during construction to confirm that rockeries will not be undermined during planned streetscape improvements. We recommend the following design measures to maintain adequate rockery stability.

- Foreslopes immediately in front of rockeries should not exceed a height of 12 inches and a slope of 3H:1V.
- Rockeries should maintain a minimum embedment depth of 6 inches at the rockery face.

4.6. Site Preparation and Earthwork

We anticipate earthwork activities for site development will include the following:

- Site preparation, grading and fill placement, including new pavement and hardscape, roundabouts, and retaining walls;
- Excavations and backfill for the culvert and wingwalls;
- Site utilities;
- Stormwater management system construction; and
- Potentially some excavation at the existing rockeries.

Based on the subsurface conditions encountered in the explorations, we anticipate the soils along the project alignment may be excavated using conventional heavy-duty construction equipment. Near-surface site soils generally consist of loose to medium dense granular fill and ice-contact deposits, and medium

dense to very dense glacial till. Cobbles and boulders are frequently encountered in glacial soils, and frequent cobbles were observed in our explorations. We anticipate that these soils can be excavated with conventional excavation equipment, such as trackhoes or dozers; however, where excavations are deeper than 2 to 3 feet, larger horsepower excavators will be more efficient for excavating the very dense glacial till, or where cobbles and boulders are encountered. The contractor should be prepared to handle cobbles, boulders and very dense glacial till soils.

The on-site fill and native soils contain a significant percentage of fines (particles passing the U.S. Standard No. 200 sieve) and are highly moisture-sensitive and susceptible to disturbance, especially when wet. Ideally, site preparation and earthwork should be undertaken during extended periods of dry weather (June through September) when the surficial soils will be less susceptible to disturbance and provide better support for construction equipment. Dry weather construction will help reduce earthwork costs and increase the potential for reusing the existing fill and native soils as structural fill.

4.6.1. Clearing, Grubbing and Stripping

We anticipate site demolition to include removal of existing curbs, sidewalks and other hardscape features. Concrete and asphalt should be recycled or removed from the site along with other construction debris.

Trees, brush, vegetation and debris should be cut down and removed from planned widened areas. In addition, stumps and roots larger than 1 inch in diameter should be grubbed. Cut vegetation can also be chipped and used as mulch for landscaping or erosion control in other parts of the alignment if permitted by the City. Clearing and grubbing should be done in accordance with Section 2-01 of the WSDOT Standard Specifications.

Areas beneath new improvements should be stripped of topsoil and other surficial organic materials such as forest duff. We estimate the depth of stripping will range from about 4 to 12 inches across vegetated areas.

Existing asphalt and concrete may be recycled for use in the lower portion of structural fills provided they are crushed to meet the gradation requirements for structural fill. Recycled asphalt and concrete should not be used in landscape areas, as retaining wall backfill or for improvements made near Coe-Clemons Creek.

4.6.2. Subgrade Evaluation

Prior to placing new fills or pavement section materials, the subgrade areas should be evaluated by proof-rolling or probing to locate zones of soft or pumping soils. Proof-rolling can be completed using a piece of heavy tire-mounted equipment such as a loaded dump truck. In difficult access areas or during wet weather, the exposed subgrade areas should be probed to determine the extent of soft soils. If soft or pumping soils are observed, they should be removed and replaced with structural fill at the direction of the geotechnical engineer.

We recommend a representative of GeoEngineers be present during proof-rolling or probing of the exposed subgrades. Our representative will evaluate the adequacy of the subgrade soils and identify areas needing remedial work, if necessary.

4.6.3. Structural Fill

4.6.3.1. Imported Soils

Materials placed beneath new pavement, to support retaining structures or foundations, or placed behind retaining structures are classified as structural fill for the purpose of this report. Structural fill material quality varies depending upon its use, as described below:

1. As a minimum, structural fill placed to construct embankments, to backfill utility trenches and to support foundations, vaults or other structures should meet the criteria for Common Borrow, Section 9-03.14(3) of the WSDOT Standard Specifications. Common borrow will be suitable for use as structural fill during dry weather conditions only. If structural fill is placed during wet weather, the structural fill should consist of Gravel Borrow, WSDOT 9-03.14(1).
2. Backfill for CIP, precast and gravity block retaining walls, in at least a 1:H1V zone behind the wall, should meet the criteria for Gravel Backfill for Walls, Section 9-03.12(2) of the 2022 WSDOT Standard Specifications.
3. Structural backfill in the reinforced zone for MSE walls should meet the criteria for Gravel Borrow for Structural Earth Wall, Section 9-03.12(2) of the WSDOT Standard Specifications.
4. Structural fill placed to surround drainage pipes (drain rock) should meet the criteria for Gravel Backfill for Drains, Section 9-03.12(4) of the WSDOT Standard Specifications.
5. Structural fill placed as CSBC below pavements should conform to Section 9-03.9(3) of the WSDOT Standard Specifications.
6. Structural fill placed as roadway subbase below pavements should consist of Gravel Borrow per WSDOT 9-03.14(1).
7. Structural fill placed as pipe bedding should meet the criteria for Gravel Backfill for Pipe Zone Bedding as described in Section 9-03.12(3) of the WSDOT Standard Specifications.

4.6.3.2. On-site Soils

The soils observed in the explorations generally contain a high percentage of fines (silt and clay) and are moisture sensitive. Some of the granular on-site soils may meet the criteria for Common Borrow and may be suitable for use during dry weather construction only, provided the soil has a moisture content near optimum. Topsoil or existing fill with wood or other debris do not meet the criteria for Common Borrow and should not be used.

4.6.3.3. Fill Placement and Compaction Criteria

Structural fill should be mechanically compacted to a firm, non-yielding condition. Structural fill should be placed in loose lifts not exceeding 1 foot in thickness. Each lift should be conditioned to the proper moisture content and compacted to the specified density before placing subsequent lifts. Structural fill should be compacted to the following criteria:

1. Structural fill placed behind retaining walls should be compacted to at least 90 percent of the maximum dry density (MDD) in general accordance with ASTM International (ASTM) D 1557. The upper 2 feet of fill below final subgrade should be compacted to 95 percent of the MDD (ASTM D 1557) where the fill will support pavement or hardscape structures. Care should be taken when compacting fill near the face of retaining walls to avoid overcompaction and hence overstressing or moving the walls.

2. Structural fill in other embankment and new pavement areas, including utility trench backfill, should be compacted to 90 percent of the MDD (ASTM D 1557), except that the upper 2 feet of fill below final subgrade should be compacted to 95 percent of the MDD (ASTM D 1557).
3. Structural fill placed below foundations should be compacted to 95 percent of the MDD (ASTM D 1557).
4. Structural fill placed as crushed rock base course below pavements should be compacted to 95 percent of the MDD (ASTM D 1557).
5. Pipe bedding should be placed in accordance with WSDOT Standard Specification 7-08.3(1)C. Where soft or loose soils are encountered below the pipe alignment, we recommend they be removed to a depth of 12 inches, or to firm material as directed by the engineer.

We recommend that a representative of GeoEngineers be present during placement of structural fill. GeoEngineers will evaluate the adequacy of the subgrade soils and identify areas needing further work as discussed above, perform in-place moisture-density tests in the fill to evaluate whether the work is being done in accordance with the compaction specifications, and advise on any modifications to procedure that may be appropriate for the prevailing conditions.

4.6.3.4. Recycled Materials

Removal of the existing pavement and existing structures will generate quantities of asphalt and cement concrete. These materials may be recycled and used in the proposed pavement section and as structural fill, provided they meet the requirements of Section 9-03.21 of the WSDOT Standard Specification and meet gradation requirements for the intended material use. The maximum allowable recycled material percentage by weight for an intended material use as detailed in Section 9-03.21(1)F of the WSDOT Standard Specifications should be followed. Asphalt or concrete to be used as common borrow within fill areas must be broken into pieces no greater than 6 inches in diameter and be mixed with other backfill soil. No voids should be created in the fill. Asphalt or concrete fill should not be used within 12 inches of any utilities, within 6 inches of final subgrade elevation, or below groundwater.

4.6.3.5. Weather Considerations

The on-site soils generally contain a high percentage of fines (silt and clay) and are moisture-sensitive. When the moisture content of these soils is more than a few percent above the optimum moisture content, these soils become muddy and unstable, equipment access becomes difficult, and it will be difficult or impossible to meet the required compaction criteria. Additionally, disturbance of near-surface soils should be expected if earthwork is completed during periods of wet weather. The contractor will need to take precautions to protect the subgrade during periods of wet weather.

The wet weather season in western Washington generally begins in October and continues through May; however, periods of wet weather may occur during any month of the year. The optimum earthwork period for these types of soils is typically June through September. If wet weather earthwork is unavoidable, we recommend that:

- The ground surface in and around the work area should be sloped so that surface water is directed away from the work area. The ground surface should be graded such that areas of ponded water do not develop. The contractor should take measures to prevent surface water from collecting in

excavations and trenches. Measures should be implemented to remove surface water from the work area;

- Erosion control techniques should be implemented to prevent sediment from leaving the site;
- Earthwork activities should not take place during periods of heavy precipitation;
- Slopes with exposed soils should be covered with plastic sheeting;
- The contractor should take necessary measures to prevent on-site soils and soils to be used as fill from becoming wet or unstable. These measures may include the use of plastic sheeting, sumps with pumps, and grading. The site soils should not be left uncompacted and exposed to moisture. Sealing the surficial soils by rolling with a smooth-drum roller prior to periods of precipitation will help reduce the extent that these soils become wet or unstable; and
- Construction activities should be scheduled so that the length of time that soils are left exposed to moisture is reduced to the extent practical.

4.6.4. Temporary Cut Slopes

The stability of open cut slopes is a function of soil type, groundwater seepage, slope inclination, slope height and nearby surface loads. The use of inadequately designed open cuts could impact the stability of adjacent work areas, existing structures and utilities, and endanger personnel. The contractor performing the work has the primary responsibility for the protection of workers and adjacent improvements.

In our opinion, the contractor will be in the best position to observe subsurface conditions continuously throughout the construction process and to respond to variable soil and groundwater conditions. Therefore, the contractor should have the primary responsibility for deciding whether to use open cut slopes or shoring, and for establishing the safe inclination of the cut slope.

For planning purposes, temporary unsupported cut slopes more than 4 feet high may be inclined at 1.5H:1V or flatter within the existing fill and inclined at 1H:1V or flatter within dense to very dense glacial till deposits and ice-contact deposits. If significant seepage is present on the cut face or if the slope begins to unravel, the cut slopes may have to be flattened. Temporary cuts should be evaluated by the geotechnical engineer during construction.

Because of the diversity of construction techniques and available shoring systems, the design of temporary shoring is most appropriately left up to the contractor proposing to complete the installation. Temporary cut slopes and shoring must comply with the provisions of Title 296 in the Washington Administrative Code (WAC), Part N, "Excavation, Trenching and Shoring." The above cut slope recommendations apply to fully dewatered conditions.

For temporary open cuts, we also recommend that:

- No traffic, construction equipment, stockpiles or supplies be allowed at the top of cut slopes within a distance of at least 10 feet from the top of the cut;
- The excavation does not encroach on a 1H:1V influence line projected down from the edges of nearby structures or pavement;

- Exposed soil along the slope be protected from surface erosion using plastic sheeting or erosion control blankets, in conjunction with hydroseeding, if needed;
- Construction activities be scheduled so that the length of time the temporary cut is left open is reduced to the extent practicable;
- Erosion control measures be implemented as appropriate such that runoff from the site is reduced to the extent practicable;
- Surface water be diverted away from the excavation; and
- The general condition of the slopes be observed periodically by GeoEngineers to confirm adequate stability.

4.6.5. Temporary Shored Excavations

We anticipate that select deeper excavations will be completed using shored excavations to minimize the limits of the excavations. Excavations deeper than 3 feet should be shored or laid back at a stable slope if workers are required to enter. Where wet soils are encountered, caving should be anticipated and thus shoring will likely be required. Because of the diversity of available shoring systems and construction techniques, the design of temporary shoring is most appropriately left up to the contractor proposing to complete the installation. However, we recommend that the shoring be designed by a Professional Engineer (PE) licensed in the State of Washington, and that the PE-stamped shoring plans and calculations be submitted to the City of Duvall and the engineer for review prior to construction. The following paragraphs present general recommendations for the type of shoring system and design parameters that we conclude are appropriate for the subsurface conditions at the project.

We anticipate that the excavations will be shored using trench boxes, conventional sheet piles or a slide rail system. The lateral soil pressures acting on temporary supports will depend on the nature and density of the soil behind the wall, the inclination of the ground surface behind the wall, and the groundwater level. For walls that are free to yield at the top at least one thousandth of the height of the wall (i.e., wall height times 0.001), soil pressures will be less than if movement is restrained. The design of temporary shoring should allow for lateral pressures exerted by the adjacent soil, and for surcharge loads resulting traffic, construction equipment, temporary stockpiles adjacent to the excavation, etc. Lateral load resistance can be mobilized using braces, tiebacks, anchor blocks and passive pressures on members that extend below the bottom of the excavation. Temporary shoring used to support trench excavations typically uses internal bracing such as hydraulic shoring or trench boxes.

We recommend that yielding walls retaining native soils be designed using an equivalent fluid density of 35 pounds per cubic foot (pcf) for horizontal ground surfaces. For non-yielding (i.e., braced) systems, we recommend that the shoring be designed using an equivalent fluid density of 55 pcf. These values assume that the ground behind the shoring has been dewatered such that the groundwater table is at least 2 feet below the base of the excavation. Temporary dewatering recommendations are discussed in a subsequent section of this report.

The above lateral soil pressures do not include traffic, structure or construction surcharges that should be added separately, if appropriate. Shoring should be designed for a traffic influence equal to a uniform lateral pressure of 70 psf acting over the depth of the trench. More conservative pressure values should be used if the designer deems them appropriate.

The soil pressure available to resist lateral loads against shoring is a function of the passive resistance that can develop on the face of below-grade elements of the shoring as those elements move horizontally into the soil. The allowable passive resistance on the face of embedded shoring elements may be computed using an equivalent fluid density of 280 pcf for native soils above the groundwater. This passive equivalent fluid density value includes a factor of safety of about 1.5.

4.6.6. Dewatering Considerations

The groundwater conditions encountered are interpreted to be in a perched condition or localized groundwater regime. In general, we anticipate that groundwater seepage in the proposed excavations can be controlled with in-trench pumping from sumps and pumps. Drainage ditches that are connected to the sump are typically excavated along the sidewalls at the base of the excavation or trench. The excavation for the sump and the drainage ditches should be backfilled with appropriately sized material to serve as a filter to reduce the amount of erosion and associated sediment in the water pumped from the sump. In our experience, a slotted casing that is installed in the sump backfill provides suitable housing for a submersible pump.

4.6.6.1. Culvert Dewatering Considerations

We assume that the creek will be rerouted around the work area during construction and anticipate that dewatering in excavations that extend to, or just below the groundwater level, may be achieved with sumps and pumps, discussed above, in the interior of the excavation. Deeper dewatering methods, such as wellpoints and wells may have limited effectiveness removing water immediately above and into the glacially consolidated soil because of the silty nature and dense matrix of these soils.

4.6.7. Permanent Cut and Fill Slopes

We recommend permanent unreinforced slopes be constructed at inclinations of 3H:1V or flatter per City of Duvall requirements. Fill slopes should be blended into existing slopes with smooth transitions. To achieve uniform compaction, we recommend fill slopes be overbuilt slightly and subsequently cut back to expose well compacted fill.

All fill placed on existing slopes inclined at 5H:1V or steeper should be benched or keyed into existing slopes. This should be accomplished by excavating a series of horizontal benches a minimum of 3 feet wide into the existing slope. The vertical height should also be 3 feet. The benches should be constructed in accordance with Section 2-03.3(14) of the WSDOT Standard Specifications.

To reduce erosion, newly constructed slopes should be planted, or hydro seeded shortly after completion of grading. Until the vegetation is established, some sloughing and raveling of the slopes should be expected. This may necessitate localized repairs and reseeding.

4.6.8. Underground Utilities

Trench excavation, pipe bedding, and trench backfill should be completed using the general procedures described in the WSDOT Standard Specifications or other suitable procedures specified by the City and the project civil engineer.

Utility trench backfill should consist of structural fill and should be placed in uniform lifts such that adequate compaction can be achieved throughout each lift. Structural fill should be placed in loose lifts not exceeding 12 inches in thickness if using heavy compactors, such as hoe-packs, and 6 inches if using hand-operated

compaction equipment. The actual lift thickness will be dependent on the structural fill material used and the type and size of compaction equipment.

Each lift must be compacted prior to placing the subsequent lift. Prior to compaction, the backfill should be moisture conditioned to within 2 percent of the optimum moisture content, if necessary. The backfill should be compacted in accordance with the criteria discussed above and with City of Duvall requirements.

4.6.9. Site Drainage

Permanent drainage systems should intercept surface water runoff at the top and/or bottom of cut and fill slopes to prevent it from flowing in an uncontrolled manner across or off the site. The finished ground surface adjacent to new retaining walls should be sloped so that surface water runoff flows away from the structures.

4.6.10. Sedimentation and Erosion Control

In our opinion, the erosion potential of the on-site soils is moderate to high. Construction activities, including stripping and grading, will expose soils to the erosional effects of wind and water. The amount and potential impacts of erosion are partly related to the time of year that construction actually occurs. Wet weather construction will increase the amount and extent of erosion and potential sedimentation.

Erosion and sedimentation control measures may be implemented by using a combination of interceptor swales, straw bale barriers, silt fences and straw mulch for temporary erosion protection of exposed soils. All disturbed areas should be finish graded and seeded as soon as practicable to reduce the risk of erosion. Erosion and sedimentation control measures should be installed and maintained in accordance with the requirements of the City of Duvall and Ecology.

4.7. Light Poles

We understand that new luminaires are planned for the project. Pole foundation dimensions and loading have not been finalized at the time of this draft report. The following recommendations are based on Section 17.2 of the WSDOT GDM.

4.7.1. Design Considerations

Drilled shaft foundations designed in accordance with the WSDOT GDM, require a lateral-bearing pressure to determine the shaft depth required. The WSDOT design method to estimate lateral-bearing pressures is based on empirical correlations with blow count data and the angle of internal friction of the soil. Light pole foundation may be designed using an allowable lateral bearing pressure as follows:

- Existing ground surface to 10 feet below existing grade: 2,500 psf
- Below 10 feet below existing grade: 4,500 psf

These recommendations assume that new pole foundations are founded in medium dense or denser native sand and gravel soils or properly compacted structural fill.

4.7.2. Construction Considerations

We recommend that drilled shaft foundations for the poles be installed using the WSDOT procedure. Concrete should be cast neat against excavation sides (Method 1). The use of temporary casing, drilling

mud or other types of procedures should be used, as necessary, to control sloughing of sidewalls. However, any casing should be removed while the concrete is still fluid so that proper soil/cement contact is achieved. Alternatively, Method 2, using a 36-inch-diameter corrugated metal pipe (CMP) form can be utilized provided the overexcavated area is backfilled as noted on WSDOT standard plan sheet J-28.30-03. Sonotube casings should not be used. Slough should be removed from the bottom of the excavation prior to placement of concrete, as loose or disturbed soil in the excavation base could result in increased settlement.

Drilling contractors should be prepared for drilling into very dense soil conditions and prepared to encounter cobbles and boulders. The contractor should be prepared to utilize casing or other methods of hole stabilization if groundwater is encountered.

All backfill placed around the foundation in the excavation must be compacted in accordance with the WSDOT Standard Specification, Section 2-09.3(1)E and as described in Section 4.6 of this report using high quality soil backfill. Foundation construction should be in accordance with WSDOT Standard Specifications, Sections 8-20.3(2) and 8-20.3(4). Following the removal of the concrete forms (the forms may be left in place ONLY if CMP is used), compacted backfill should be placed around the shaft to provide containment.

We recommend that GeoEngineers be present during foundation excavation and/or drilling. GeoEngineers will evaluate and confirm the adequacy of the subgrade soils with respect to the anticipated conditions based on the borings and foundation design recommendations presented in this report.

4.8. Pavement Design

4.8.1. Subgrade Preparation

We recommend that the subgrade soils in new pavement areas be prepared and evaluated as described in Section 4.6 of this report. We recommend that the subgrade be compacted to at least 95 percent of the MDD per ASTM D 1557 prior to placing pavement section materials. If the subgrade soils are loose or soft, it may be necessary to excavate the soils and replace them with structural fill. A layer of suitable woven geotextile fabric may be placed over soft subgrade areas to limit the thickness of structural fill required to bridge soft, yielding areas.

4.8.2. Material Specifications

Pavement materials should conform to applicable sections of the most recent WSDOT Standard Specifications. We strongly recommend the pavement section include an 8-inch-thick subbase layer consisting of Gravel Borrow per WSDOT 9-03.14(1) due to presence of large gravels and cobbles observed in the subgrade soil. The subbase layer will provide a suitable choker layer and firm base for the CSBC layer. Alternatively, a suitable woven geotextile fabric may be used in lieu of the subbase layer but this may require the contractor to selectively remove oversize material to ensure the full thickness of HMA and base course materials are installed.

4.8.3. New Hot-Mix Asphalt Pavements

We understand City desires to use a typical City Standard pavement section consisting of 6 inches of HMA over 12 inches of CSBC. We evaluated the anticipated performance of this pavement section using procedures outlined in the AASHTO 1993 Pavement Design Guide. The following parameters and procedures were used in our analyses and design:

- Traffic parameters were provided by KPGP in their Draft Transportation Study for the project prepared April 2022.
- An estimated California Bearing Ratio (CBR) value of 20, approximately equivalent to a subgrade resilient modulus (M_r) value of 15,000 pounds per square inch (psi) based on correlation with Unified Soil Classification System (USCS) soil types and the near-surface soil conditions encountered in the borings. This assumption assumes subgrades are prepared in accordance with the recommendations of Section 4.8.1 above.
- An estimated equivalent single-axle load (ESAL) value of about 1 million (for general roadway case) to 2 million (for roundabout case) for a 25-year design life based on traffic data provided by KPGP.
- A reliability of 95 percent, in general accordance with AASHTO guidelines.
- A standard deviation of 0.44, in accordance with AASHTO and WSDOT design guidelines.
- An initial serviceability index of 4.2 and a terminal serviceability index of 2.5 with a change in serviceability of 1.7.
- Layer coefficients, in accordance with WSDOT Pavement Policy design guidelines: 0.5 for HMA Type A and 0.13 for CSBC. A layer coefficient of 0.11 was selected for the subbase layer.
- A drainage coefficient of 1.0 for base and subbase layers.

Based on this analysis, we concur that the City Standard pavement section consisting of 6 inches HMA and 12 inches base course is an acceptable section for use for roadway and proposed roundabouts. This section is also appropriate for any side streets intersecting 3rd Avenue where pavement improvements are proposed (including NE 143rd Place). This assumes that the traffic data is consistent with that reported in KPGP's Draft Transportation Study.

4.9. Infiltration Considerations

We understand that stormwater infiltration is desired for the project. At the time of this report, permeable pavement sidewalk is proposed in the area between approximately roadway Station 21+10 RT to 24+25 RT. No additional infiltration systems are proposed at this time, and we understand remaining stormwater runoff will be managed by detention systems.

Stormwater management considerations for the site are based on guidance from Ecology's *2019 Stormwater Management Manual for Western Washington* (2019 SMMWW), which provides guidelines for determining infiltration rates for stormwater systems. GeoEngineers completed two small-scale PITs at the project site to evaluate infiltration rates. Additionally, infiltration rates estimated from grain size analysis methods were completed on samples from other borings; we note that the 2019 SMMWW does not permit grain size analysis methods of determining infiltration rate alone for glacially consolidated soils (including glacial till and glaciolacustrine deposits on this project).

4.9.1. Pilot Infiltration Tests

Two PITs were conducted at two selected representative locations of proposed permeable pavement sidewalks in accordance with the 2019 SMMWW. The PIT locations are shown in Figure 2. The results of the infiltration tests are discussed in detail in Appendix C. A summary of the infiltration test results is provided below.

GEI-PIT-1 and GEI-PIT-2 (completed in separate test pits) were conducted at depths of 5 and 5.5 feet bgs, respectively. The initial saturated hydraulic conductivity ($K_{sat\ initial}$) field infiltration rate in GEI-PIT-2 was 20 inches per hour (in/hr). Due to perched groundwater and low permeability soil encountered at the depth of GEI-PIT-1, perched groundwater entered the PIT faster than the vertical downward infiltration rate. As a result, the $K_{sat\ initial}$ of GEI-PIT-2 was determined to be 0 in/hr. The correction factor for site variability, CF_v, was set to 0.33 for both PITs.

The design saturated hydraulic conductivity is calculated by:

$$K_{satdesign} = K_{sat\ initial}\ x\ CF_v\ x\ CF_t\ x\ CF_m$$

The correction factors and long-term design hydraulic conductivities are shown in Table 6.

TABLE 6. INFILTRATION RATES FROM PILOT INFILTRATION TESTING

Test ID	Roadway Station	$K_{sat\ initial}$ (in/hr)	CF_v[1]	CF_t[2]	CF_m[3]	$K_{sat\ design}$ (in/hr)
GEI-PIT-1	15+50 (northbound shoulder)	0	0.33	0.5	0.9	0
GEI-PIT-2	23+50 RT (northbound shoulder)	20	0.33	0.5	0.9	2.9

Notes:

[1] Site variability and number of locations tested. CF_v = 0.33 to 1.0

[2] Test method. CF_t = 0.5 for small-scale PITs

[3] Degree of influent control to prevent siltation and bio-buildup. CF_m = 0.9

4.9.2. Grain Size Analysis

GeoEngineers completed grain size analyses on representative soil samples from borings to correlate to grain size results to the results of the PITs. Table 7 below presents short-term and factored long-term infiltration rates based on the Grain Size Analysis Method equation from the 2019 SMMWW. PIT short-term and long-term rates are reproduced at the bottom of the table for comparison.

TABLE 7. PRELIMINARY INFILTRATION CONSIDERATIONS

Infiltration Rate Determination Method	Exploration	Soil Type	Depth (feet)	Short-Term Infiltration Rate (uncorrected) (in/hr)	Correction Factor CF	Estimated Design (Long-term) Infiltration Rate (in/hr)
Grain Size	GEI-B-1	SM	2.5	6.2	0.11[1]	0.6
Grain Size	GEI-B-3	SM	5	2.9	0.11[1]	0.3

Infiltration Rate Determination Method	Exploration	Soil Type	Depth (feet)	Short-Term Infiltration Rate (uncorrected) (in/hr)	Correction Factor CF	Estimated Design (Long-term) Infiltration Rate (in/hr)
Grain Size	GEI-B-4	ML	5	3.0	0.11[1]	0.3
Grain Size	GEI-B-4	GM	5	13.6	0.11[1]	1.5
Grain Size	GEI-B-7	GP-GM	2.5	38.4	0.11[1]	4.2
Grain Size	GEI-B-8	GP-GM	5	26.4	0.11[1]	2.9
Grain Size	GEI-B-8	SM	7.5	5.8	0.11[1]	0.6
Grain Size	GEI-PIT-1	SM	5	3.9	0.11[1]	0.4
Grain Size	GEI-PIT-2	GM	5	11.8	0.11[1]	1.3
Grain Size	GEI-PIT-2	GM	5.5	11.7	0.11[1]	1.2
Grain Size	GEI-PIT-2	SM	6	4.28	0.11[1]	0.4
Small-Scale PIT	GEI-PIT-1	SM	5	0	0.14[2]	0
Small-Scale PIT	GEI-PIT-2	GM	5.5	20	0.14[2]	2.9

Notes:

[1] Total Correction Factor for Grain Size Analysis method based on CF_v = 0.33, Cf_t = 0.4 and long-term conductivity loss factor = 0.9 [1]

[2] Total Correction Factor for Small-Scale PIT method based on CF_v = 0.33, Cf_t = 0.5 and long-term conductivity loss factor = 0.9

Based on the result of GEI-PIT-1, we interpret that the soil grain size analysis method overpredicts the infiltration rate of silty sand and gravel (SM and GM) and silt (ML) soils in the project corridor. The results of the PIT tests should be used for the design of infiltration facilities for the project.

4.9.3. Design Considerations and Infiltration Rates

Per the 2019 SMMWW, any infiltration facility would require at least 5 feet of separation between the base of the infiltration system and the high groundwater level or impermeable layer per Site Suitability Criteria Number 5 defined in Section V-5.6 of the 2019 SMMWW; this section allows for design reduced to 3 feet of separation if groundwater mounding analysis, volumetric receptor capacity, or overflow/bypass structures are implemented to show prevention of stormwater backup or overtopping. Certain shallow infiltration facilities, such as bioswales and permeable pavements, have lower separation requirements.

Based on the results of the PITs and grain size analysis correlations, we interpret the glacially consolidated units (glacial till and glaciolacustrine deposits) and portions of the ice-contact deposits to be impermeable layers unsuitable for infiltration. Ice-contact deposits suitable for infiltration were only identified in the immediate vicinity of GEI-B-7, GEI-B-8, and GEI-PIT-2, and we observed this suitable infiltration layer to be very thin. We make the following infiltration feasibility conclusions:

1. Infiltration is considered infeasible in the project alignment, with the exception of the limited section described in (2.) below, due to the presence of impermeable units and/or groundwater at shallow depths.
2. The areas in the immediate vicinity of GEI-PIT-2 and GEI-B-8 (approximately Station 23+00 RT and 24+00 RT, respectively) have potential to support shallow infiltration systems. These systems should be founded no deeper than 3 feet bgs, and overexcavation to the permeable ice-contact deposits (sand and gravel with silt) could be required. In this case only, the infiltration system can be designed using a long-term design infiltration rate of 2.9 in/hr. Any infiltration system should include engineered

underdrains, overflows or bypass structures if the suitable infiltration layer becomes discontinuous in the planned facility area. GeoEngineers should evaluate any proposed shallow infiltration system design to confirm the design conforms to the recommendations presented in this section.

The proposed permeable pavement sidewalk between Station 21+10 and 24+25 RT is appropriate and may utilize the recommended design infiltration rate of 2.9 in/hr assuming that underdrains, overflows or bypass structures are included in design. Overexcavation below the base of the system to the permeable ice-contact deposits may be necessary to achieve the design infiltration rate.

4.9.4. Permeable Pavement Construction Considerations

Equipment use should be minimized in the proposed permeable pavement sidewalk areas after they are excavated to grade because of the potential for compaction of the subgrade that could reduce the infiltration rate. To help reduce clogging of permeable pavement layers, we recommend the subgrade, storage and base layers be protected during construction from siltation and runoff using appropriate temporary erosion control devices such as silt fences and straw wattles. Suspended solids can clog the soil and reduce the infiltration rate.

5.0 ADDITIONAL GEOTECHNICAL SERVICES

Throughout this report, recommendations are provided where we consider additional geotechnical services to be appropriate. These additional services are summarized below:

- Plan and specification review. We recommend that we be given the opportunity to review the project plans and specifications prior to issuing the bid set to confirm the recommendations presented in this report have been implemented appropriately.
- During construction, a representative of GeoEngineers should evaluate retaining wall foundation subgrades, evaluate subgrade and base for pavement, evaluate subgrade and observe construction of replacement culvert, evaluate subgrade for light pole foundations, evaluate subgrade for pervious pavement sidewalk, evaluate backfill compaction and observe installation of subsurface drainage measures. The purposes of GeoEngineers' construction phase services are to confirm that the subsurface conditions are consistent with those observed in the explorations and other reasons described in Appendix D, "Report Limitations and Guidelines for Use."
- GeoEngineers anticipates finalizing this report during final design.

6.0 LIMITATIONS

We have prepared this report for the exclusive use of KPG Psomas, Inc., the City of Duvall and their authorized agents for the 3rd Avenue NE Reconstruction Project, 143rd Place NE to NE Stephens Street in Duvall, Washington. The data should be provided to prospective contractors for their bidding or estimating purposes, but our report and interpretations should not be construed as a warranty of the subsurface conditions.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Please refer to Appendix D for additional information pertaining to use of this report.

7.0 REFERENCES

American Association of State Highway and Transportation Officials. 1993. Guide for Design of Pavement Structures, American Association of State Highway and Transportation Officials.

American Association of State Highway and Transportation Officials. 2020. "AASHTO LRFD Bridge Design Specifications, 9th Edition." ISBN 978-1560517382.

Dragovich, J.D., H.A. Littke, M.L. Anderson, G.R. Wessel, C.J. Koger, J.H. Saltonstall, J.H. MacDonald, S.A. Mahan, and S.A DuFrane. 2010. Geologic Map of the Carnation 7.5-minute Quadrangle, King County, Washington. Washington State Department of Natural Resources. Open File Report 2010-

King County Department of Transportation Road Services Division. 2016. Road Design and Construction Standards.

Washington State Department of Natural Resources Division of Geology and Earth Resources. Online Washington Interactive Geologic Map website http://www.dnr.wa.gov/ResearchScience/Topics/GeosciencesData/Pages/geology_portal.aspx. Accessed January 3, 2023.

Washington State Department of Ecology. 2019. "Stormwater Management Manual for Western Washington" Publication No. 19-10-021.

Washington State Department of Transportation/American Public Works Association, 2022. "Standard Specifications for Road, Bridge, and Municipal Construction." Publication M41-10.

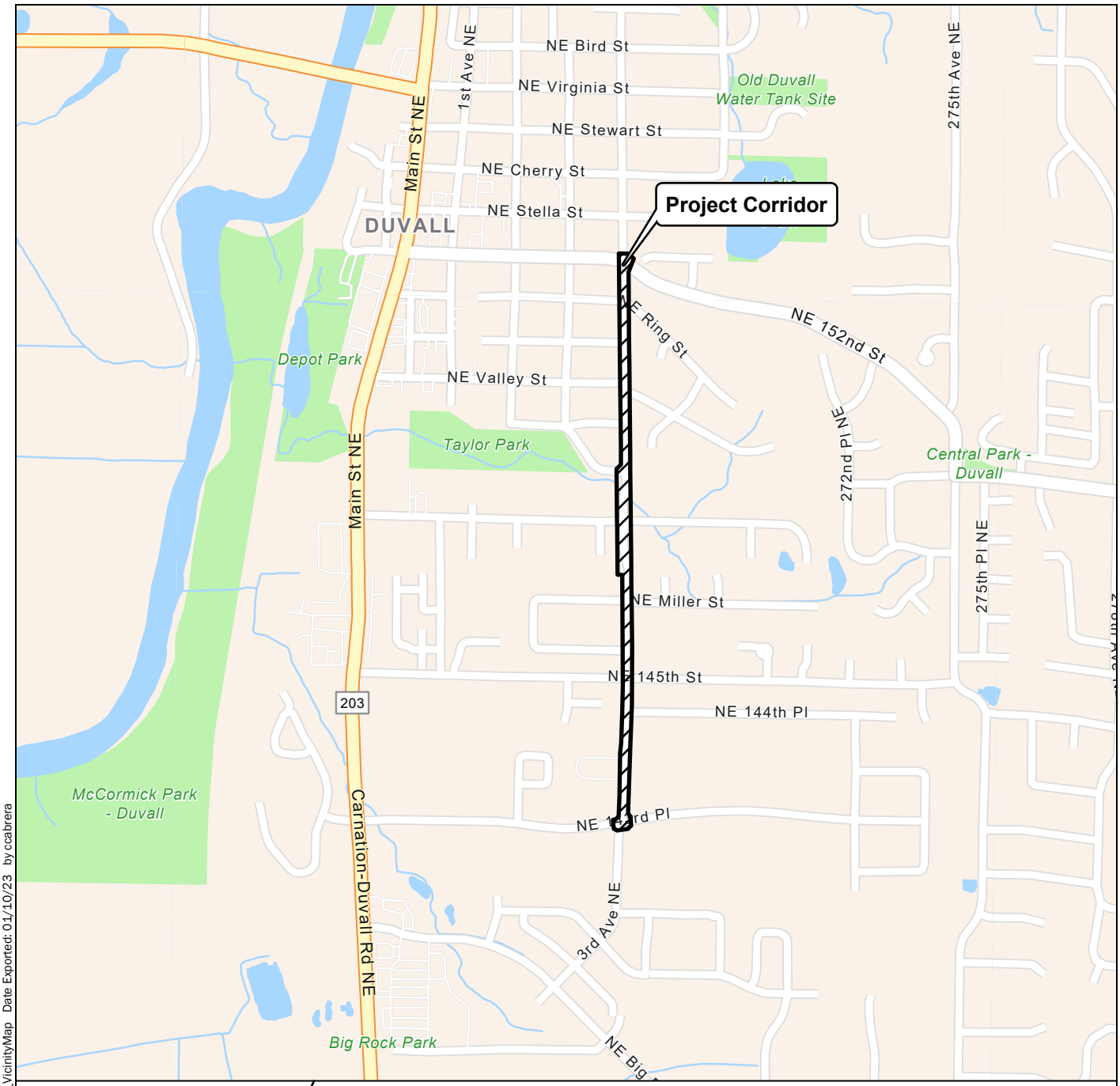
Washington State Department of Transportation. 2021. "Geotechnical Design Manual." Publication No. M 46-03.14.

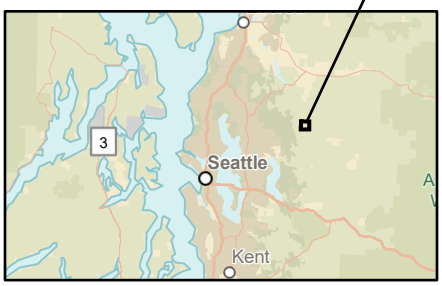
Washington State Department of Transportation. 2014. Steel Light Standard Foundation Types A & B, Standard Plan J-28.30-03.

Washington State Department of Transportation. 2018. "WSDOT Pavement Policy," Washington State Department of Transportation, Multimodal Development and Delivery, State Pavement Office.

FIGURES

GeoEngineers





N
W
E
S

1,000 0 1,000

Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Vicinity Map

3rd Avenue NE Reconstruction
Duvall, Washington

GeoEngineers

Figure 1

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\\geoengineers.com\WAN\Projects\8\8258026\CAD\00\Geotech\8258026600_F02_Site Plan.dwg F02 Date Exported:1/10/2023 3:00 PM - by TJ Byrd

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Background from KPG dated 11/29/22.

Projection: Washington State Plane, North Zone, NAD83, US Foot

Legend

GEI-B-1 — Boring by GeoEngineers, Inc., 2022

GEI -PIT-1 — Test Pit by GeoEngineers, Inc., 2022

W S N E

300 0 300

Feet

Site and Exploration Plan

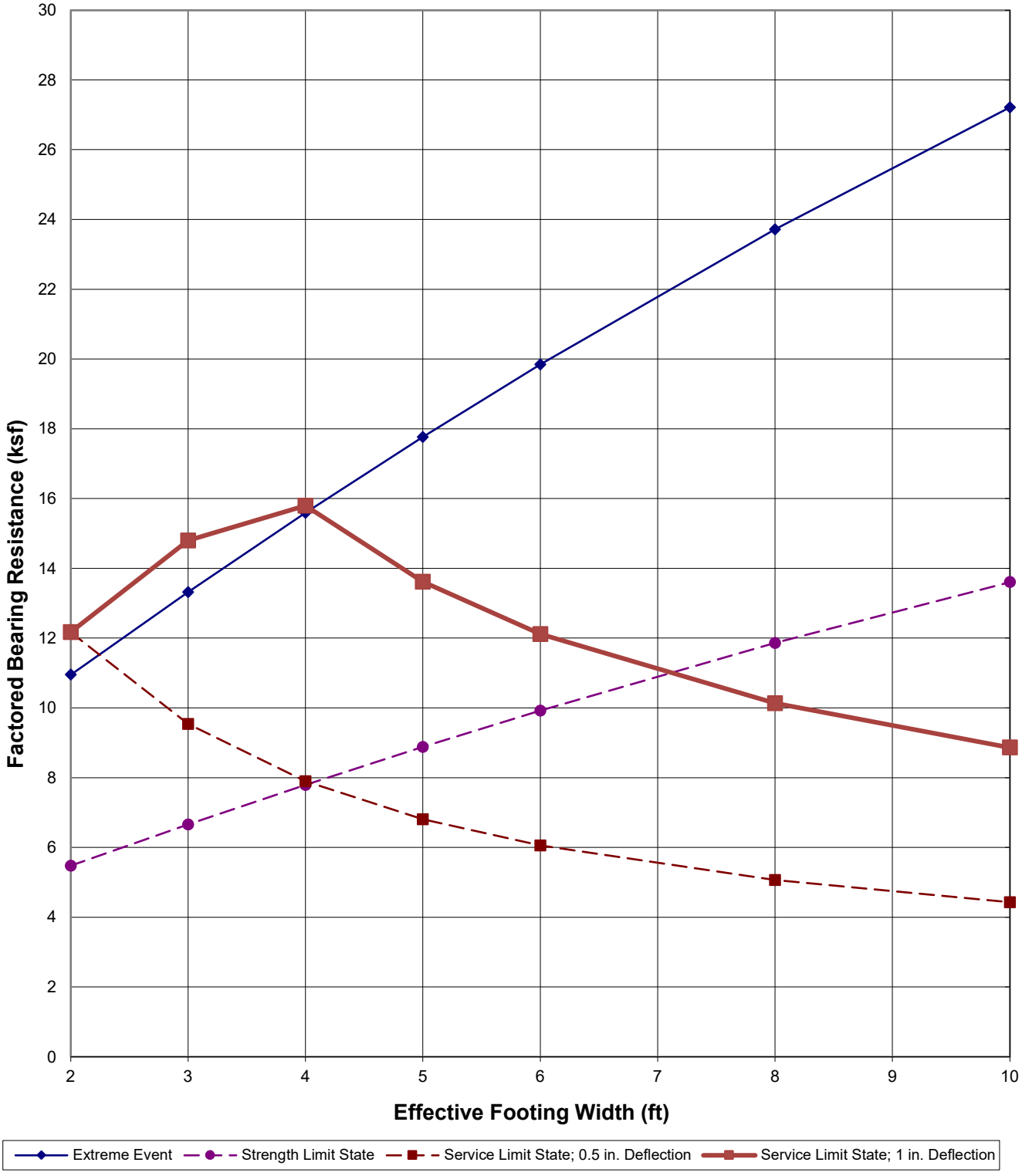
3rd Avenue NE Reconstruction
Duvall, Washington

GeoEngineers

Figure 2

City of Duvall 3rd Avenue

AASHTO LRFD Bearing Resistance (Coe-Clemmons Culvert)



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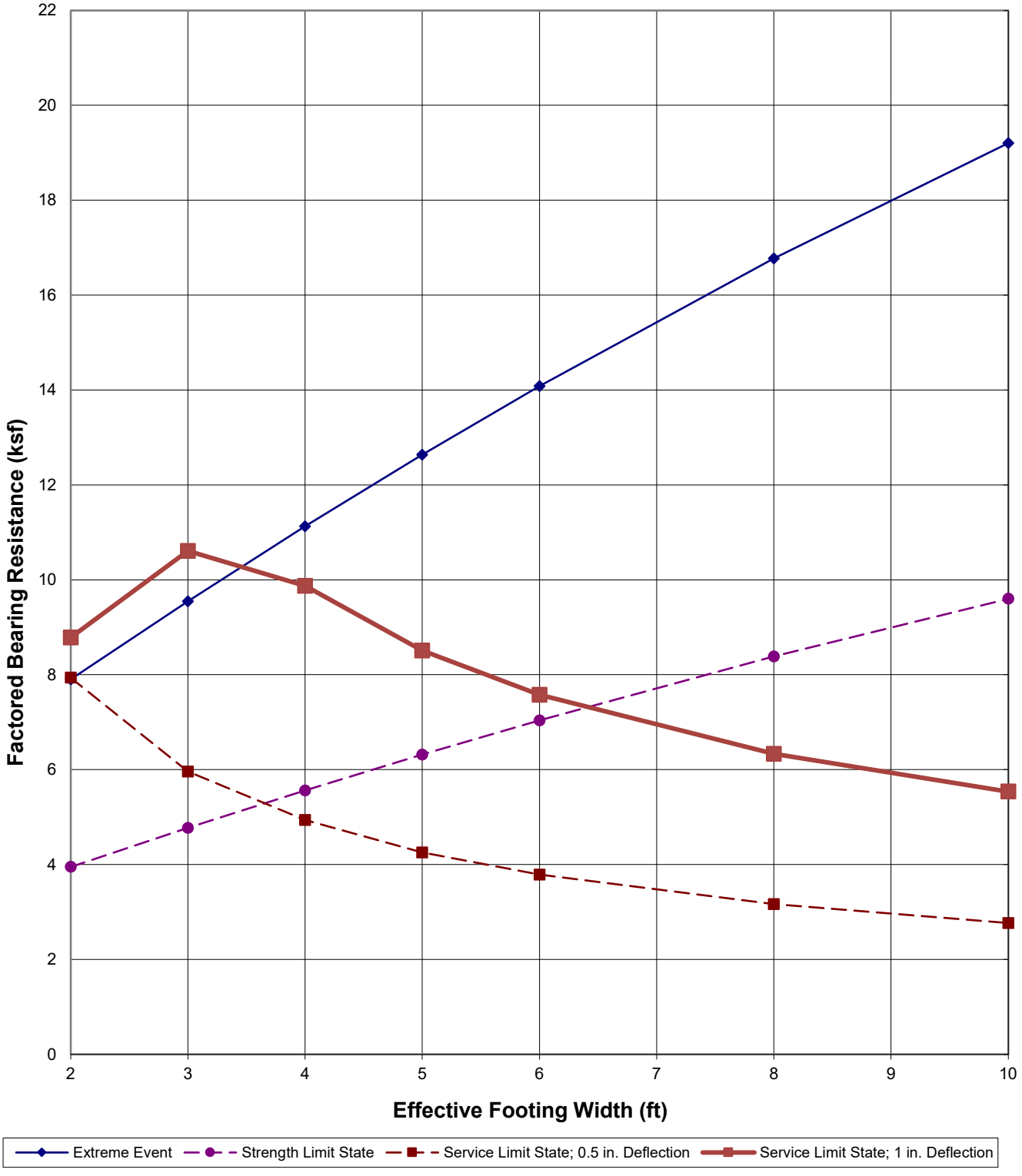
Earth Science + Technology

Shallow Foundation Design - Culvert

Figure 3

City of Duvall 3rd Avenue

AASHTO LRFD Bearing Resistance (Retaining Walls)



GeoEngineers

Earth Science + Technology

Shallow Foundation Design - Retaining Walls

Figure 4

APPENDICES

GeoEngineers

APPENDIX A
Field Explorations

APPENDIX A
FIELD EXPLORATIONS

Borings

Subsurface conditions were explored at the site by completing a series of soil borings, GEI-B-1 through GEI-B-10 (with the exclusion of GEI-B-2 due to utility obstructions) to depths of approximately 11 to 27 feet below existing ground surface (bgs) on December 5 through 9, 2022. The borings were completed by Holocene Drilling under subcontract to GeoEngineers.

The locations of the explorations were estimated from existing site features. Exploration locations are shown on the Site and Exploration Plan, Figure 2. Exploration locations should be considered accurate to the degree implied by the method used. Note that GEI-B-2 was eliminated as noted above and not replaced on the site plan and boring log set.

A vacuum air knife was used by the driller in the upper 4 to 5 feet of each boring exploration to evaluate for the presence of unmarked or potentially mis-marked utilities. Air knifing utilizes high velocity air to expand and break up soil. The soil was removed from the boring location and placed in a 55-gallon steel drum. GeoEngineers attempted sampling at a depth of approximately 2.5 feet bgs during air knifing using a 4-inch-diameter hand auger. Upon completion of air knifing, borings were completed using track-mounted rig with continuous-flight, hollow-stem auger drilling equipment. The explorations were continuously monitored by a geotechnical engineer or geologist from our firm who examined and classified the soils encountered, obtained representative soil samples, observed groundwater conditions and prepared a detailed boring log of each exploration. Soils encountered in the explorations were visually classified in general accordance with the classification system described in Figure A-1. A key to the boring log symbols is also presented in Figure A-1. The logs of the borings are presented in Figures A-2 through A-10. The boring logs are based on our interpretation of the field and laboratory data and indicate the various types of soils and groundwater conditions encountered. The logs also indicate the depths at which these soils or their characteristics change, although the change may actually be gradual. If the change occurred between samples, it was interpreted. The densities noted on the boring logs are based on the blow count data obtained in the borings and judgment based on the conditions encountered.

The soils encountered in the borings were sampled at 2½- or 5-foot vertical intervals with a 2-inch outside-diameter split-barrel standard penetration test (SPT) sampler. The samples were obtained by driving the sampler 18 inches into the soil with a 140-pound hammer free-falling 30 inches. The number of blows required for each 6 inches of penetration was recorded. The blow count ("N-value") of the soil was calculated as the number of blows required for the final 12 inches of penetration. This resistance, or N-value, provides a measure of the relative density of granular soils and the relative consistency of cohesive soils. Where very dense soil conditions precluded driving the full 18 inches, the penetration resistance for the partial penetration was entered on the logs. The blow counts are shown on the boring logs at the respective sample depths.

Observations of groundwater conditions were made during drilling, and these observations represent a short-term condition and may or may not be representative of the long-term groundwater conditions at the site. Groundwater conditions observed during drilling should be considered approximate.

Test Pits and Pilot Infiltration Tests

Shallow subsurface conditions in two representative areas for proposed permeable pavement sidewalks were explored by excavating two test pits and completing small-scale pilot infiltration tests (PITs) on December 12 and 13, 2023. The approximate location of the test pits are shown on Figure 2. Details of the PITs are presented in Appendix C.

During our exploration program, our field representative obtained samples, classified the soils, maintained a detailed log of the exploration and observed groundwater conditions. The samples were retained in sealed plastic bags to prevent moisture loss. Soils encountered in the explorations were visually classified in general accordance with the classification system described in Figure A-1. Summary logs of the test pit excavations are included as Figures A-11 and A-12. The densities noted on the test pit exploration log are based on the difficulty of excavation, observations of caving and our experience and judgment.

The test pit excavation was performed using a mini excavator subcontracted by GeoEngineers. The test pits were extended to depths of 6 feet below the surrounding grade following completion of the PIT. After the test pit was completed, the excavation was backfilled using the generated material. The backfill was compacted using the bucket of the excavator.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel / Dames & Moore (D&M)

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
UU	Unconsolidated undrained triaxial compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

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Figure A-1

Drilled Start 12/8/2022 End 12/8/2022	Total Depth (ft) 25.5	Logged By IS Checked By WW	Driller Holocene Drilling	Drilling Method Hollow-stem Auger	
Surface Elevation (ft) 230 Vertical Datum NAVD88		Hammer Data Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment Diedrich D-70 Turbo	
Easting (X) 1358180 Northing (Y) 271854		System Datum WA State Plane North NAD83 (feet)		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0						SM	Brown silty fine to coarse sand with gravel (dense, wet) (fill to glacial till)			Air knife to 5 feet below ground surface
					1 HA				17	34	
225	5	10	50/4"		2			Becomes very dense			
							SM	Brown silty fine to coarse sand (very dense, moist) (glacial till)			
		14	50/4"		3						
220	10	6	50/6"		4			Grades gray			
		4	50/4"		5						
215	15	8	50/4"		6						
210	20	6	50/5"		7						
205	25	3	50/4"		8						

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

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Log of Boring GEI-B-1

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Figure A-2
Sheet 1 of 1

Drilled Start 12/9/2022 End 12/9/2022	Total Depth (ft) 18.25	Logged By EP Checked By WW	Driller Holocene Drilling	Drilling Method Hollow-stem Auger	
Surface Elevation (ft) 235 Vertical Datum NAVD88	Hammer Data Autohammer 140 (lbs) / 30 (in) Drop	Drilling Equipment Diedrich D-50 Track			
Easting (X) 1358187 Northing (Y) 271395	System Datum WA State Plane North NAD83 (feet)	Groundwater not observed at time of exploration			

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0						GP	Fine to coarse gravel with sand and cobbles (fill to glacial till)			Air knife to 4½ feet below ground surface
230	5	18	45		1 HA		SM	Brown silty fine to medium sand with gravel (dense, moist) (glacial till)	11	47	
		4	50/4"		2			Becomes very dense			
225	10	11	50/6"		3		SM	Becomes fine to coarse grained			
		8	50/5"		4						
220	15	7	50/6"		5			Grades gray			
		0	50/2"		6			Drilling refusal at 18 feet, 2 inches due to cobbles and hard drilling			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

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Log of Boring GEI-B-3

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Drilled Start 12/7/2022 End 12/7/2022	Total Depth (ft) 26.5	Logged By IS Checked By WW	Driller Holocene Drilling	Drilling Method Hollow-stem Auger	
Surface Elevation (ft) 235 Vertical Datum NAVD88		Hammer Data Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment Diedrich D-70 Turbo	
Easting (X) 1358183 Northing (Y) 271060		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0						GM	Brown silty fine to coarse gravel with sand (medium dense to dense, wet) (fill to glacial till)			Air knife to 5 feet below ground surface
					1						
230	5	12	73		2 HA			Becomes very dense	4	17	
		3	50/5"		3 MC				2		
225	10	10	33		4 MC			Becomes wet	11		
							SM	Brown silty fine to coarse sand with gravel (very dense, wet)			Groundwater observed at approximately 12 feet below ground surface during drilling
		12	30		5 MC				11		
220	15						GM	Brown silty fine gravel with sand (very dense, wet)			
		12	57		6 MC				12		
							SM	Gray silty fine to coarse sand with gravel (very dense, moist)			
215	20	9	50/4"		7 MC				8		
210	25	0	50/4"		8			No recovery			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

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Log of Boring GEI-B-4

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Figure A-4
Sheet 1 of 1

Drilled: Start 12/7/2022 End 12/7/2022	Total Depth (ft) 26.5	Logged By IS Checked By WW	Driller Holocene Drilling	Drilling Method Hollow-stem Auger	
Surface Elevation (ft) 235 Vertical Datum NAVD88		Hammer Data Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment Diedrich D-70 Turbo	
Easting (X) 1358229 Northing (Y) 270637		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0										Air knife to 5 feet below ground surface, no recovery due to cobbles
230	5	14	24		1 SA		ML	Brown sandy silt with occasional gravel (very stiff, wet) (glacial till)	13	57	Groundwater observed at approximately 5 feet below ground surface during drilling
		10	19		2 %F		SM	Brown silty fine to medium sand with gravel (medium dense, wet)	16	33	
225	10	3	50/3"		3			Becomes dense to very dense			
								Increased gravel content			
		12	35		4 MC				14		
220	15	0	50/1"		5			No recovery			
							GM	Brown silty fine gravel with sand (very dense, wet)			
215	20	3	50/3"		6 MC				9		
210	25	0	50/1"		7						
								Drilling refusal at 26 feet, 6 inches due to cobbles and hard drilling			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

Log of Boring GEI-B-5

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Figure A-5
Sheet 1 of 1

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Drilled Start 12/7/2022 End 12/7/2022	Total Depth (ft) 11.25	Logged By IS Checked By WW	Driller Holocene Drilling	Drilling Method Hollow-stem Auger	
Surface Elevation (ft) 248 Vertical Datum NAVD88		Hammer Data Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment Diedrich D-70 Turbo	
Easting (X) 1358173 Northing (Y) 270418		System Datum WA State Plane North NAD83 (feet)		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0										Air knife to 5 feet below ground surface, no sample recovery due to cobbles
245											
	5	6	50/6"		1		GM	Brown silty fine gravel with sand (very dense, wet) (ice-contact deposits)			Rough drilling
240		12	59		2 %F		GP-GM	Dark gray fine to coarse gravel with silt and sand (very dense, moist) (glacial till)	4	9	Gravel appears angular and broken, likely cobbles at depth
	10	6	86/10"		3		GM	Gray silty fine to coarse gravel with sand (very dense, moist)			Angular gravel suggests cobbles broken during drilling at depth

Drilling refusal at 11 feet, 3 inches due to cobbles and hard drilling

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

Log of Boring GEI-B-6

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Figure A-6
Sheet 1 of 1

Date:1/10/23 Path:P:\8\8258026\GINT\825802600.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_GEOTECH_STANDARD_%F_NO_GW

Drilled: Start 12/5/2022 End 12/5/2022	Total Depth (ft) 16	Logged By IS Checked By WW	Driller Holocene Drilling	Drilling Method Hollow-stem Auger	
Surface Elevation (ft) 250 Vertical Datum NAVD88		Hammer Data Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment Diedrich D-70 Turbo	
Easting (X) 1358183 Northing (Y) 270188		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0						GP-GM	Brown fine to coarse gravel with silt and sand (very dense, wet) (fill to ice-contact deposits)			Air knife to 5 feet below ground surface
					1 SA				10	8	
245	5	12	45		2		SM	Brown silty fine to coarse sand with gravel (dense, wet) (ice-contact deposits)			Groundwater observed at approximately 3 to 4 feet below ground surface during drilling
		8	78/10"		3		GM	Brown silty fine gravel with sand (very dense, wet) (glacial till)			
240	10	6	50/5"		4			Becomes tan			
		4	50/4"		5						
235	15	6	50/5"		6		SM	Tan silty medium to coarse sand with gravel (very dense, wet)			
								Drilling refusal at 15 feet, 11 inches below ground surface due to cobbles and hard drilling			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

Log of Boring GEI-B-7

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Figure A-7
Sheet 1 of 1

Date:1/10/23 Path:P:\8\8258026\GINT\8258026O0.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_GEOTECH_STANDARD_%F_NO_GW

Drilled Start 12/6/2022 End 12/6/2022	Total Depth (ft) 13.5	Logged By IS Checked By WW	Driller Holocene Drilling	Drilling Method Hollow-stem Auger	
Surface Elevation (ft) 252 Vertical Datum NAVD88		Hammer Data Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment Diedrich D-70 Turbo	
Easting (X) 1358237 Northing (Y) 269634		System Datum WA State Plane North NAD83 (feet)		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0						SM	Brown silty sand with gravel (dense, wet) (fill to ice-contact deposits)			Air knife to 5 feet below ground surface
250					1						
	5	16	50		2 SA		SP-SM	Brown fine to medium to coarse sand with silt and gravel (dense to very dense, moist to wet) (ice-contact deposits)	7	9	
245		8	55		3 SA		SM	Brown silty fine to coarse sand with gravel (very dense, moist) (glacial till)	12	35	
	10	4	50/4"		4						
240		12	50/6"		5			Becomes gray			
								Drilling refusal at 13 feet, 6 inches due to cobbles and hard drilling			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

Log of Boring GEI-B-8

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Figure A-8
Sheet 1 of 1

Date:1/10/23 Path:P:\8\8258026\GINT\8258026O0.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_GEOTECH_STANDARD_%F_NO_GW

Drilled: Start 12/9/2022 End 12/9/2022	Total Depth (ft): 12	Logged By: EP Checked By: WW	Driller: Holocene Drilling	Drilling Method: Hollow-stem Auger	
Surface Elevation (ft): 267 Vertical Datum: NAVD88		Hammer Data: Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment: Diedrich D-50 Track	
Easting (X): 1358226 Northing (Y): 269142		System Datum: WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0										Air knife to 5 feet below ground surface, no sample recovery due to cobbles
265											
	5	14	39		1 %F		SM	Brown silty fine to medium sand (dense, moist) ice-contact deposits)	12	47	
260		1	50/1"		2		GM	Brown silty fine gravel with sand (very dense, moist) (glacial till)			
	10	3	50/3"		3			Becomes coarse, wet			Groundwater observed at 10 feet below ground surface at time of drilling
255								Drilling refusal at 12 feet below ground surface due to cobbles and boulders			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

Log of Boring GEI-B-9

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Figure A-9
Sheet 1 of 1

Date:1/10/23 Path:P:\8\8258026\GINT\825802600.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_GEOTECH_STANDARD_%F_NO_GW

Drilled Start 12/6/2022 End 12/6/2022	Total Depth (ft) 25.5	Logged By IS Checked By WW	Driller Holocene Drilling	Drilling Method Hollow-stem Auger	
Surface Elevation (ft) 259 Vertical Datum NAVD88		Hammer Data Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment Diedrich D-70 Turbo	
Easting (X) 1358212 Northing (Y) 268514		System Datum WA State Plane North NAD83 (feet)		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0						ML	Brown sandy silt with gravel (very stiff, moist) (fill to ice-contact deposits)			Air knife to 5 feet below ground surface
255					1						
	5	16	41		2 HA		ML	Tan silt with sand and gravel (very stiff to hard, moist) (ice-contact deposits)	14	51	
		10	29		3						
250	10	16	41		4						
			52		5		SM	Tan silty fine to coarse sand with gravel (very dense, moist to wet)			
245	15	10	48		6						
240							ML	Gray sandy silt (hard, moist) (glacial till)			
	20	3	50/1"		7						
235											
	25	6	50/6"		8						

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

Date:1/10/23 Path:P:\8\8258026\GINT\825802600.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_GEOTECH_STANDARD_%F_NO_GW

Log of Boring GEI-B-10

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Figure A-10
Sheet 1 of 1

Date Excavated	12/12/2022	Total Depth (ft)	6	Logged By OA Checked By MWR	Excavator Kelly's Excavating Equipment Takeuchi TB-138 Mini-excavator
See "Remarks" section for groundwater observed See "Remarks" section for caving observed					

Surface Elevation (ft) Vertical Datum	267 NAVD88	Easting (X) Northing (Y)	1358230 268885	Coordinate System Horizontal Datum	WA State Plane North NAD83 (feet)

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
					SOD	Approximately 2 inches of sod			
			1		SM	Dark brown silty fine to coarse sand with gravel and organic matter (roots, rootlets) (medium dense, moist) (fill)			
266	1				GM	Dark brown silty fine to coarse gravel with sand (medium dense, moist)			
265	2				ML	Dark brown sandy silt with occasional gravel (medium stiff, moist)			
					SM	Tan with moderate oxidation staining silty fine to coarse sand with gravel (medium dense, moist to wet) (ice-contact deposits)			Moderate groundwater seepage observed at 2½ feet Moderate caving observed from 2½ to 4 feet
264	3								
263	4		2 %F				17	45	
262	5		3 SA				16	44	PIT completed at 5 feet below ground surface
261	6								

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

Log of Test Pit GEI-PIT-1

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Figure A-11
Sheet 1 of 1

Date:1/10/23 Path:P:\8\8258026\GINT\825802600.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_TESTPIT_1P_GEOTEC_%F

Date Excavated 12/13/2022	Total Depth (ft) 6.5	Logged By OA Checked By MWR	Excavator Kelly's Excavating Equipment Takeuchi TB-138 Mini-excavator	Groundwater not observed Caving not observed
Surface Elevation (ft) 261 Vertical Datum NAVD88		Easting (X) 1358235 Northing (Y) 269620	Coordinate System WA State Plane North Horizontal Datum NAD83 (feet)	

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
260	1		1		SM	Dark brown silty fine to coarse sand with gravel and occasional organic matter (roots, rootlets) (medium stiff, moist) (fill)			
					GP-GM	Tan with minor oxidation staining fine to coarse gravel with silt, sand and occasional organic matter (medium dense, moist)			
					ML	Dark brown sandy silt with occasional gravel (stiff, moist)			
259	2		2		ML	Tan with moderate oxidation staining silt with sand and occasional gravel (very stiff, moist) (ice-contact deposits)			
258	3								
			3 %F				24	54	
257	4				GM	Tan silty fine to coarse gravel with sand and occasional cobbles (medium dense to dense, moist)			
256	5		4 SA				7	15	
			5 SA				8	15	PIT completed at 5½ feet below ground surface
255	6		6 SA		SM	Gray with moderate oxidation staining silty fine to medium sand (very dense, moist) (glacial till)	16	45	

Test pit terminated due to excavation refusal at 6½ feet below ground surface

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

Log of Test Pit GEI-PIT-2

GeoEngineers

Project: 3rd Avenue NE Reconstruction
Project Location: Duvall, Washington
Project Number: 8258-026-00

Figure A-12
Sheet 1 of 1

Date:1/10/23 Path:P:\8\8258026\GINT\8258026OO.GPJ DBLibrary/Library:GEOENGINEERS_DF_STD_US_JUNE_2017.GLB/GEI8_TESTPIT_1P_GEOTEC_%F

APPENDIX B
Laboratory Testing

APPENDIX B
LABORATORY TESTING

Soil samples obtained from the explorations were transported to our laboratory and examined to confirm or modify field classifications, as well as to evaluate index properties of the soil samples. Representative samples were selected for laboratory testing consisting of the determination of the moisture content, fines content, and grain size distribution (sieve and hydrometer analyses). The tests were performed in general accordance with test methods of ASTM International (ASTM) or other applicable procedures.

Moisture Content Testing

Moisture content tests were completed in general accordance with ASTM D 2216 for representative samples obtained from the explorations. The results of these tests are presented on the exploration logs in Appendix A at the depths at which the samples were obtained.

Percent Passing U.S. No. 200 Sieve (%F)

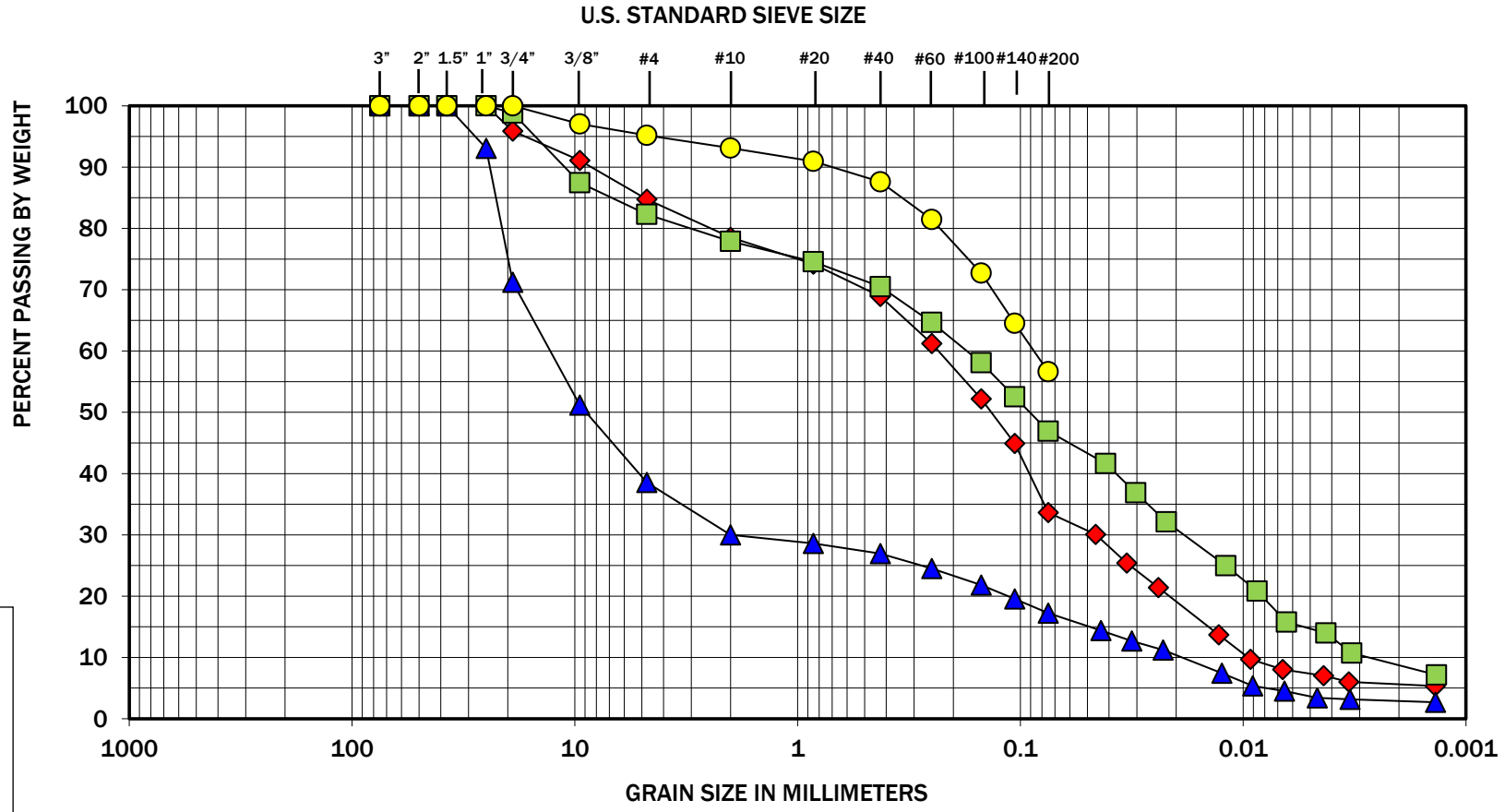
Selected samples were "washed" through the U.S. No. 200 mesh sieve to estimate the relative percentages of coarse- and fine-grained particles in the soil. The percent passing value represents the percentage by weight of the sample finer than the U.S. No. 200 sieve. These tests were conducted to verify field descriptions and to estimate the fines content for analysis purposes. The tests were conducted in accordance with ASTM D 1140, and the results are shown on the exploration logs in Appendix A at the respective sample depths.

Sieve Analyses

Sieve analyses were performed on selected samples in general accordance with ASTM D 422 to determine the sample grain-size distribution. The wet sieve analysis method was used to determine the percentage of soil greater than the U.S. No. 200 mesh sieve. The results of the sieve analyses were plotted, classified in general accordance with the Unified Soil Classification System (USCS), and are presented in Figures B-1 through B-3.

Hydrometer Test

A hydrometer analysis was performed on many of the sieve analysis samples to obtain the gradation of fines passing the U. S. No. 200 sieve using the ASTM D 422 test method. The hydrometer test results are presented on the sieve analyses plots in Figures B-1 and B-2.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	GEI-B-1	2.5	17	Silty sand with gravel (SM)
■	GEI-B-3	5	11	Silty sand with gravel (SM)
▲	GEI-B-4	5	4	Silty gravel with sand (GM)
●	GEI-B-5	5	13	Sandy silt (ML)

GeoEngineers

Figure-B-1

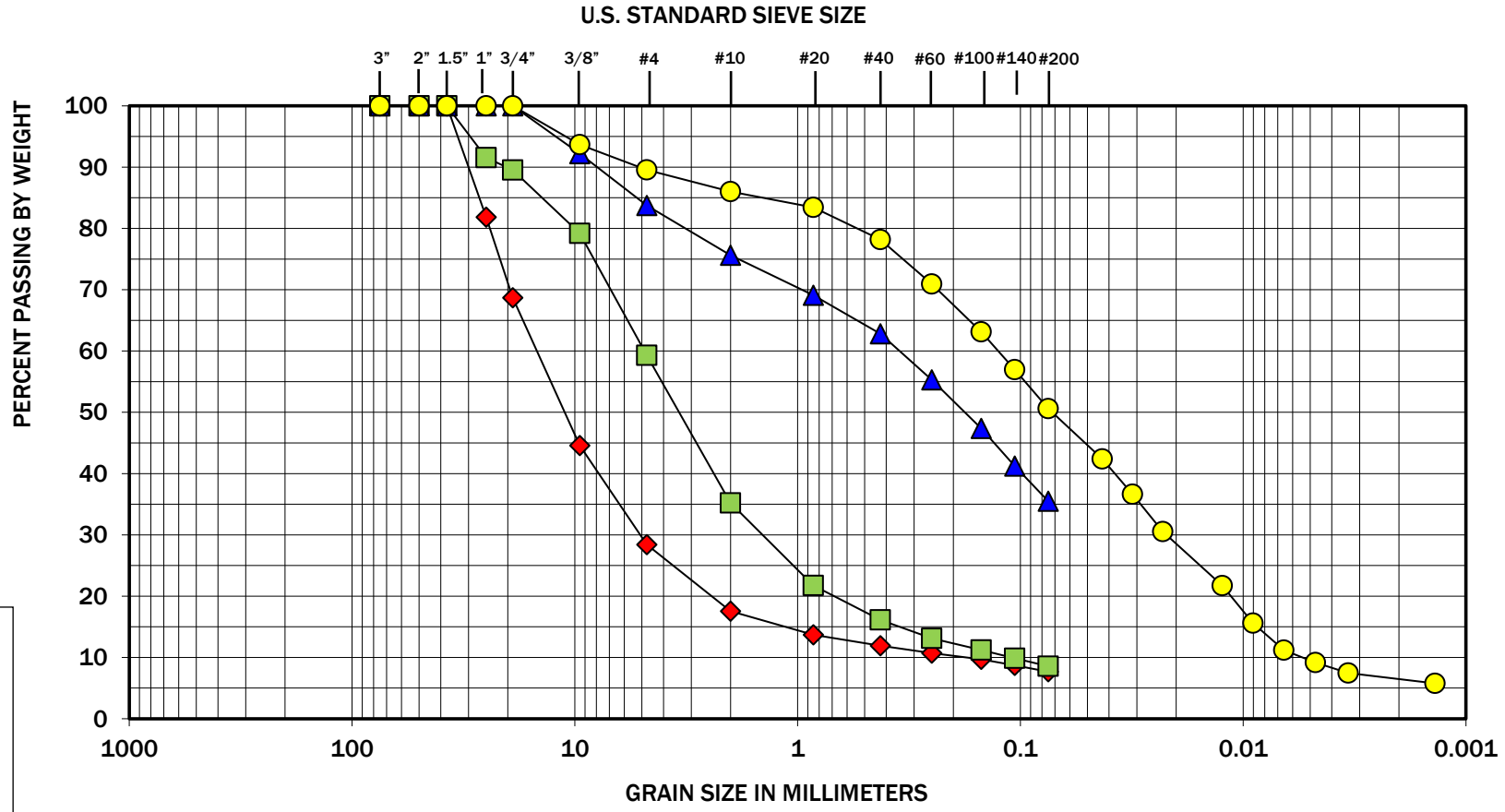
3rd Avenue NE Reconstruction
Duvall, Washington

Sieve Analysis Results

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The grain size analysis results were obtained in general accordance with ASTM C 136. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	GEI-B-7	2.5	10	Poorly graded gravel with silt and sand (GP-GM)
■	GEI-B-8	5	7	Poorly graded sand with silt and gravel (SP-SM)
▲	GEI-B-8	7.5	12	Silty sand with gravel (SM)
●	GEI-B-10	5	14	Sandy silt (ML)

GeoEngineers

3rd Avenue NE Reconstruction
Duvall, Washington

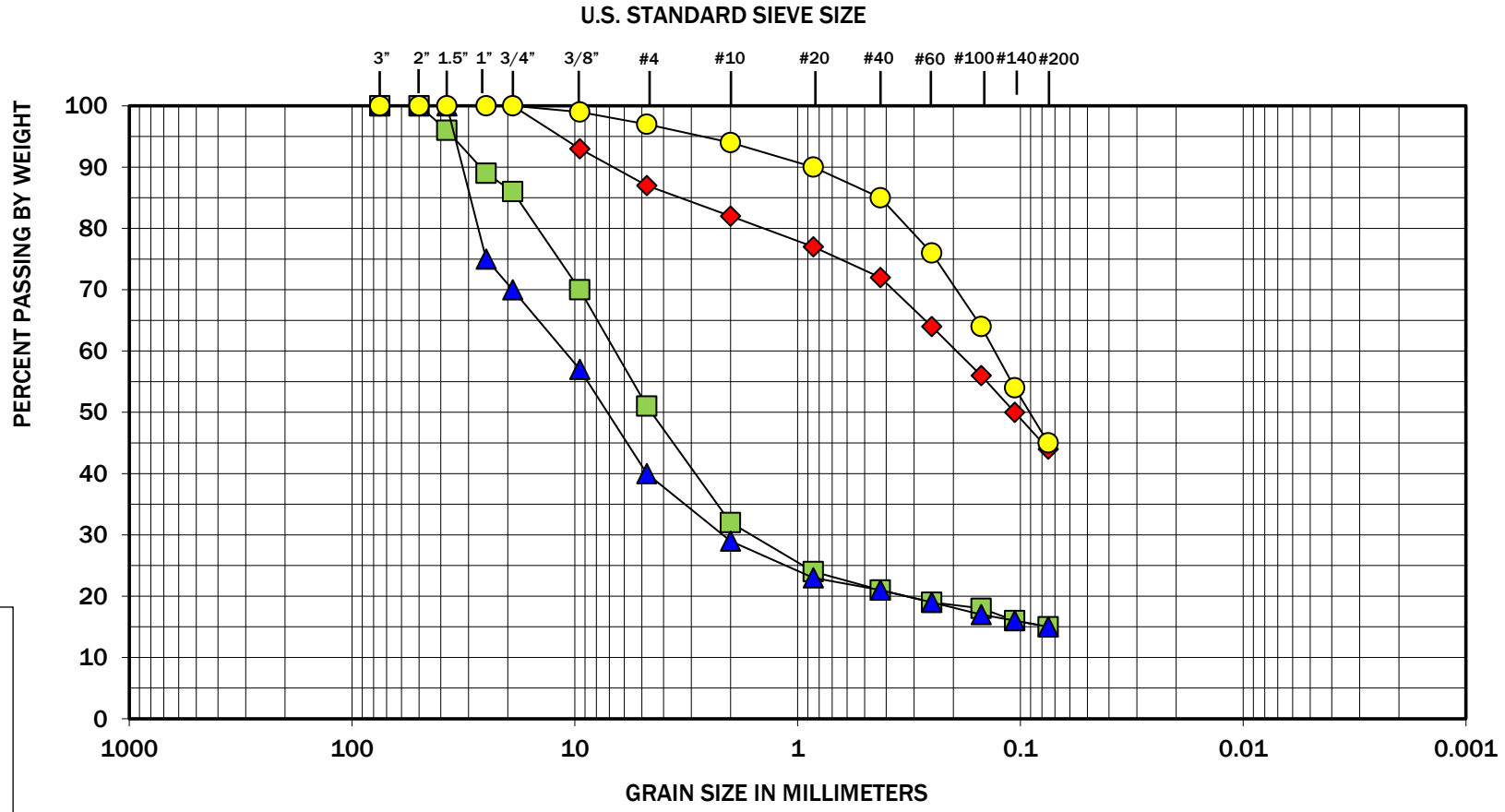
Sieve Analysis Results

Figure-B-2

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The grain size analysis results were obtained in general accordance with ASTM C 136. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	GEI-PIT-1	5	16	Silty sand (SM)
■	GEI-PIT-2	5	7	Silty gravel with sand (GM)
▲	GEI-PIT-2	5.5	8	Silty gravel with sand (GM)
●	GEI-PIT-2	6	16	Silty sand (SM)

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Figure-B-3

3rd Avenue NE Reconstruction
Duvall, Washington

Sieve Analysis Results

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The grain size analysis results were obtained in general accordance with ASTM C 136. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052

APPENDIX C
Infiltration Testing

APPENDIX C
INFILTRATION TESTING

Two small-scale pilot infiltration tests (PITs) were conducted at the project site following the general guidance provided in the 2019 Washington State Department of Ecology *Stormwater Management Manual for Western Washington* (SWMMWW). The Site and Exploration Plan, Figure 2 shows the approximate locations of the test pits (GEI-PIT-1 and GEI-PIT-2) where the small-scale PITs were completed.

GEI-PIT-1 and GEI-PIT-2 were conducted on December 12 and December 13, 2022, respectively. The excavation equipment and water supply were provided by Kelly's Excavating, subcontracted to GeoEngineers. Water for both infiltration tests was provided via a water truck from an off-site source.

Methodology

The PITs were conducted at the base of the test pits. Upon reaching the target excavation depth for the PITs, a graduated yard stick was driven into the floor of the test pit as a visual reference for monitoring water levels during testing. A piezoelectric pressure transducer was secured to the bottom of the yard stick to provide accurate water-level records at 15-second intervals throughout the duration of the test. A separate piezoelectric pressure transducer was secured near the test pits to record barometric pressure during the PIT. Full water-level records for each test are plotted on Figures C-1 and C-2.

The first phase of a PIT is the "pre-soak" period in which the PIT excavation is filled for approximately 6 hours. During the pre-soak period, water is added as necessary to keep the water depth in the test pit between approximately 12 and 16 inches. The pre-soak phase is intended to fully saturate the soil below the PIT excavation.

The second phase performed was the "testing phase" in which the water depth in the PIT excavation is kept at a constant head comparable with proposed operational conditions for the planned infiltration facility and the infiltration rate is measured. For this site, the water depth for the testing stage was kept between approximately 12 and 16 inches for GEI-PIT-2. No water was added to GEI-PIT-1 as described in the next section due to moderate seepage into the excavation from perched groundwater. Infiltration rates are dependent on the water depth in the pit because the hydraulic head of the water column 'pushes' water into the ground. For this reason, the testing stage requires a constant, or near-constant water depth. Ideally, water is added to the PIT excavation at a rate that would maintain the water depth for a period of 1 hour with water inflow volume measurements taken every 15 minutes. During the testing phase in GEI-PIT-2, the water level was allowed to decline over a small, 4-inch interval, and the infiltration rate was calculated by finding the slope of each stage over the same head range. The initial saturated hydraulic conductivity, $K_{sat\ initial}$, is the steady-state infiltration rate measured during the last hour of testing.

The plots of measured PIT infiltration rate for successive stages of GEI-PIT-2 provide a visual confirmation of subgrade saturation as infiltration rates decline to asymptotic steady-state values toward the end of the pre-soaking period when the water depth is typically 12 to 16 inches. This infiltration rate is assumed to approximate the saturated (vertical) hydraulic conductivity of the PIT excavation subgrade. This plot is presented in Figure C-3 for PIT-2. Note that because infiltration did not occur in PIT-1 (measured infiltration rate=0 inches per hour [in/hr]), this plot is not presented for PIT-1 data.

PIT Test Descriptions

GEI-PIT-1

Test pit GEI-PIT-1 was excavated with a mini-excavator to approximately 6 feet long, 3.5 feet wide, and 5 feet deep with the sidewalls kept as vertical as possible. The soil at the test elevation generally consisted of medium dense silty fine to coarse sand with gravel. Moderate groundwater seepage was observed at 2.5 feet bgs in the test pit sidewalls during initial excavation and infiltration testing. Water for the test was directed into the excavation from a water truck.

Figure C-1 shows the measured water levels in GEI-PIT-1 over the duration of the test (approximately 6.1 hours). We generally observed the water level rising during the test due to perched groundwater seepage entering the excavation faster than vertical downward infiltration occurred. Therefore, an initial, saturated infiltration rate of 0 in/hr was determined for this location. After the PIT was complete, the test pit was overexcavated to a depth of 6 feet.

GEI-PIT-2

Test pit GEI-PIT-2 was excavated with a mini-excavator to approximately 6 feet long, 3.5 feet wide, and 5.5 feet deep with the sidewalls kept as vertical as possible. The soil at the test elevation generally consisted of medium dense to dense fine to coarse gravel with silt, sand and occasional cobbles. Groundwater seepage was not observed in the test pit sidewalls during initial excavation and infiltration testing. Water for the test was directed into the excavation from a water truck.

Figure C-2 shows the measured water levels in GEI-PIT-2 over the duration of the test (approximately 6.7 hours). The pre-soak required 23 refills over approximately 6 hours to maintain a water depth of at least 12 inches. The mean of the testing phase head-change stages was calculated to determine a measured infiltration rate of approximately 20 in/hr. The 1-hour testing phase required two refill stages. After the PIT was complete, the test pit was overexcavated to a depth of 6.5 feet. The test pit was terminated due to reaching practical refusal in very dense glacial till deposits.

Measured Infiltration Rates

Infiltration rates for the testing phase stages in GEI-PIT-2 are shown on Figure C-3. The test-stage infiltration rates are assumed to approximate the initial saturated hydraulic conductivity ($K_{sat\ initial}$) of the test pit subgrade soils.

Three correction factors are applied to $K_{sat\ initial}$ to calculate the design saturated hydraulic conductivity ($K_{sat\ design}$) as required by the SWMMWW. The correction factors consider the site variability and number of locations tested (CF_v), the testing method (CF_t), and the degree of influent control to prevent siltation and bio buildup (CF_m). CF_t accounts for uncertainties in the testing methods and is equal to 0.5 for small-scale PITs. CF_m accounts for the clogging effect of suspended material in stormwater which will cause the soil's initial infiltration rate to gradually decline. The default value for CF_m is 0.9. CF_v can vary between 0.33 to 1.0 based on the variability of the soils on the site. CF_v was set to 0.33 based on the observed soil conditions between the two test pits.

The design saturated hydraulic conductivity is calculated by:

$$K_{satdesign} = K_{sat\ initial}\ x\ CF_v\ x\ CF_t\ x\ CF_m$$

All correction factors and hydraulic conductivities are shown in Table C-1.

TABLE C-1. INFILTRATION RATES FROM PILOT INFILTRATION TESTING

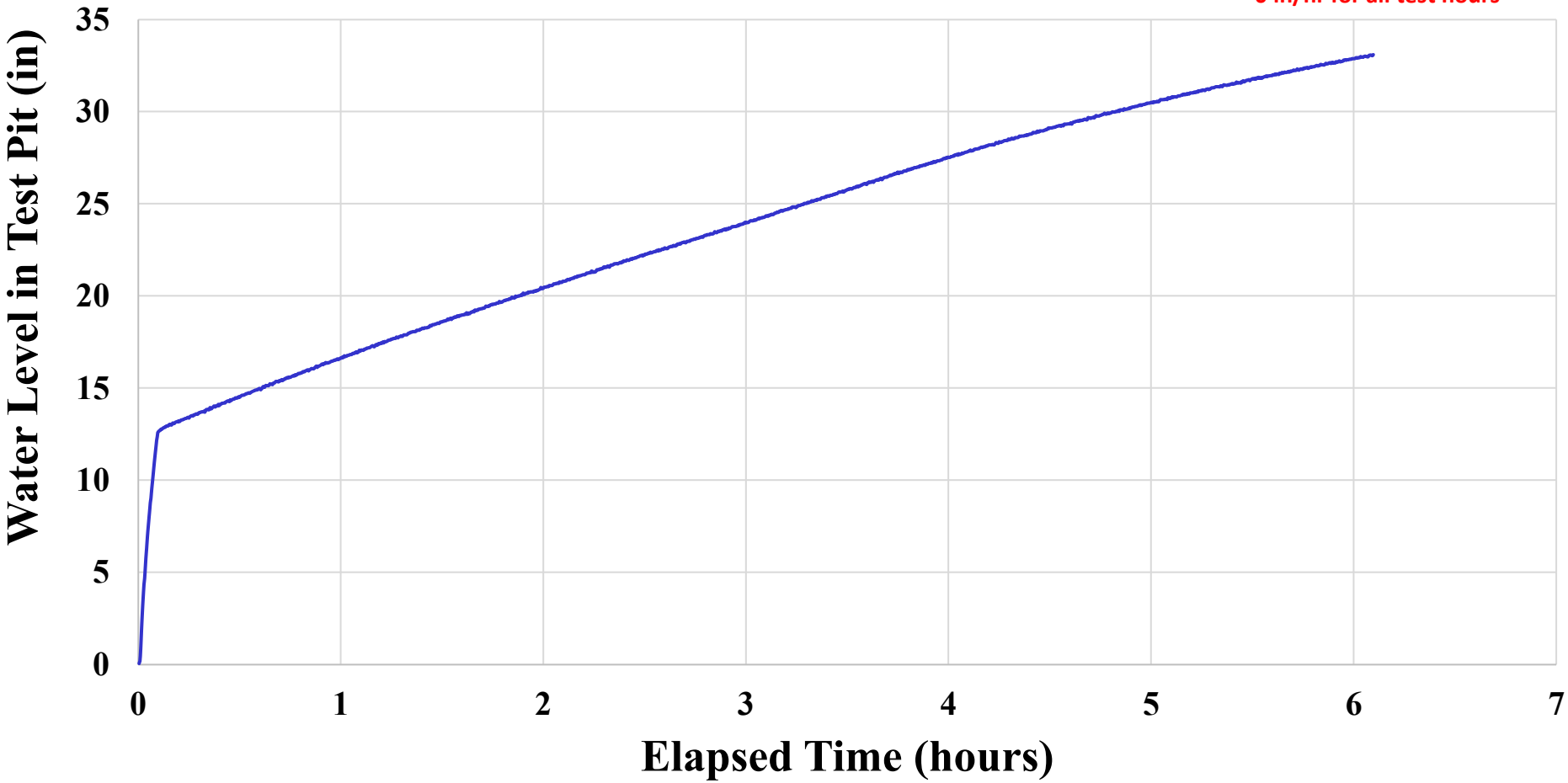
Test ID	$K_{sat\ initial}$ (in/hr)	CF_v[1]	CF_t[2]	CF_m[3]	$K_{sat\ design}$ (in/hr)
PIT-1	0	0.33	0.5	0.9	0
PIT-2	20	0.33	0.5	0.9	2.9

Notes:

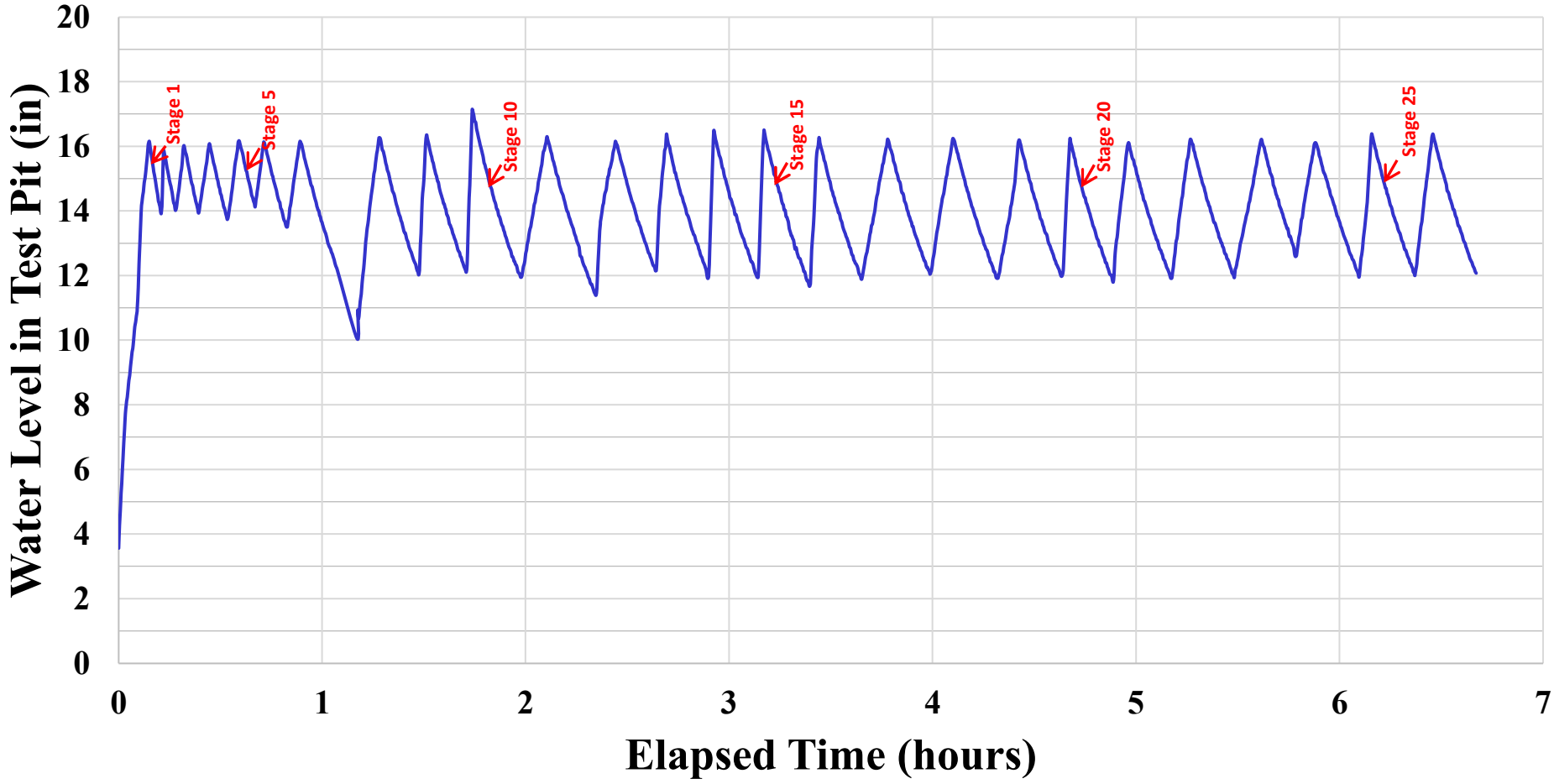
[2] Site variability and number of locations tested. CF_v = 0.33 to 1.0 per SMMWW

[3] Test method. CF_t = 0.5 for small-scale PITs

[4] Degree of influent control to prevent siltation and bio-buildup. CF_m = 0.9

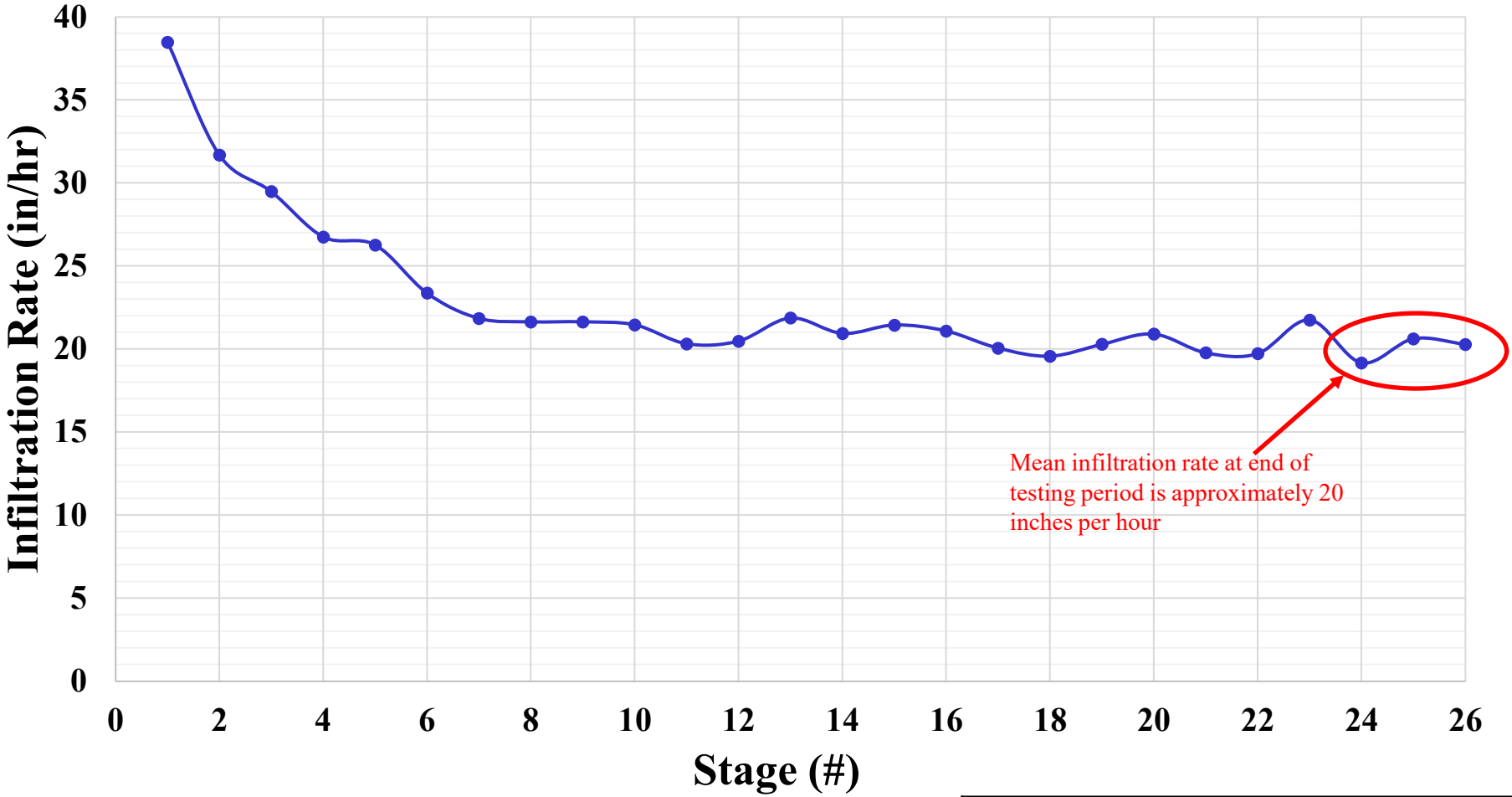


Pilot Infiltration Test Results: PIT-1	
3rd Avenue NE Reconstruction Duvall, Washington	
GeoEngineers	Figure C-1



Pilot Infiltration Test Results: PIT-2	
3rd Avenue NE Reconstruction Duvall, Washington	
GeoEngineers	Figure C-2

Short-Term Infiltration Rate: PIT-2



Pilot Infiltration Test Results: PIT-2	
3rd Avenue NE Reconstruction Duvall, Washington	
GeoEngineers	Figure C-3

APPENDIX D
Report Limitations and Guidelines for Use

APPENDIX D
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Geotechnical Services Are Performed for Specific Purposes, Persons and Projects

This report has been prepared for the exclusive use of KPG Psomas, Inc., the City of Duvall and their authorized agents for the 3rd Avenue NE Reconstruction Project, 143rd Place NE to NE Stephens Street in Duvall, Washington. This report may be made available to prospective contractors for their bidding or estimating purposes, but our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, a geotechnical or geologic study conducted for a civil engineer or architect may not fulfill the needs of a construction contractor or even another civil engineer or architect that are involved in the same project. Because each geotechnical or geologic study is unique, each geotechnical engineering or geologic report is unique, prepared solely for the specific client and project site. Our report is prepared for the exclusive use of our Client. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with which there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted geotechnical practices in this area at the time this report was prepared. This report should not be applied for any purpose or project except the one originally contemplated.

A Geotechnical Engineering or Geologic Report Is Based on a Unique Set of Project-Specific Factors

This report has been prepared for the 3rd Avenue NE Reconstruction Project, 143rd Place NE to NE Stephens Street in Duvall, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- Not prepared for you,
- Not prepared for your project,
- Not prepared for the specific site explored, or
- Completed before important project changes were made.

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

For example, changes that can affect the applicability of this report include those that affect:

- The function of the proposed structure;
- Elevation, configuration, location, orientation or weight of the proposed structure;
- Composition of the design team; or
- Project ownership.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying a report to determine if it remains applicable.

Most Geotechnical and Geologic Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ, sometimes significantly, from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Geotechnical Engineering Report Recommendations Are Not Final

Do not over-rely on the preliminary construction recommendations included in this report. These recommendations are not final, because they were developed principally from GeoEngineers' professional judgment and opinion. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for this report's recommendations if we do not perform construction observation.

Sufficient monitoring, testing and consultation by GeoEngineers should be provided during construction to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated, and to evaluate whether or not earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective method of managing the risks associated with unanticipated conditions.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by other design team members can result in costly problems. You could lower that risk by having GeoEngineers confer with appropriate members of the design team after submitting the report. Also retain GeoEngineers to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering or geologic report. Reduce that risk by having GeoEngineers participate in pre-bid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

Give Contractors a Complete Report and Guidance

Some owners and design professionals believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering or geologic report, but preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with GeoEngineers and/or to conduct additional study to obtain the specific types of information they need or prefer. A pre-bid conference can also be valuable. Be sure contractors have sufficient time to perform additional study. Only then might an owner be in a position to give contractors the best information available, while requiring them to at least share the financial responsibilities stemming from unanticipated conditions. Further, a contingency for unanticipated conditions should be included in your project budget and schedule.

Contractors Are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor’s procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and to adjacent properties.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering or geology) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory “limitations” provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these “Report Limitations and Guidelines for Use” apply to your project or site.

Geotechnical, Geologic and Environmental Reports Should Not Be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If Client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.

GeoEngineers

APPENDIX F

INADVERTENT DISCOVERY PLAN

Appendix C. Inadvertent Discovery Plan (IDP)

In accordance with RCW 27.44 Indian Graves and Records Act, RCW 27.53 Archaeological Sites and Resources, RCW 68.50 Human Remains, and RCW 68.60, Abandoned and Historic Cemeteries and Historic Graves, the following steps will be taken in the event that archaeological materials and/or human remains are discovered:

C.1 Procedures for Discovery of Potential or Actual Cultural Resources

Upon discovery of a potential or actual archaeological site or cultural resources as defined by RCW 27.44 Indian Graves and Records Act and RCW 27.53 Archaeological Sites and Resources, the project proponent, its employees, contractors, and sub-contractors shall:

(a) Immediately cease or halt ground disturbing, construction, or other activities around the area of the discovery and secure the area with a perimeter of not less than 30 feet until all procedures are completed and the parties agree that activities can resume. If such a perimeter would materially impact agency functions mandated by law, related to health, safety, or environmental concerns, then the secured area shall be of a size and extent practicable to provide maximum protection to the resource under the circumstances. Project activities that are not ground disturbing may continue outside the secured perimeter around the findings. No one shall excavate any findings and all findings will be left in place, undisturbed and without analysis, until consultation with DAHP and identified area Tribes regarding a final disposition of the findings has been completed. In accordance with RCW 27.53.060, no one shall knowingly remove or collect any archaeological objects without obtaining a permit.

(b) Notify the State Archaeologist at DAHP and identified area Tribes of the discovery as soon as possible and no later than 24 hours after the discovery. If human remains are found, the project proponent shall follow notification procedures specified below.

(c) Arrange for the parties to conduct a joint viewing of the discovery within 48 hours of the notification; or at the earliest possible time thereafter, the project proponent or their authorized representative shall arrange for the archaeologist to attend the joint viewing. After the joint viewing, taking into account any recommendations of the Tribes DAHP, and the archaeologist, the parties shall discuss the potential significance, if any, of the discovery.

(d) Consult with the identified area Tribes and DAHP on the transfer and final disposition of artifacts. Until the Tribe has a repository that meets the standards of curation established 36 CFR Part 79, artifacts shall be curated using an institution or organization that meets curation standards, selected through consultation with the Tribes.

C.2 Procedures for Discovery of Human Skeletal Remains

Upon discovery of human skeletal remains on non-federal and non-tribal land and in accordance with RCWs 68.50.645, 27.44.055, and 68.60.055, the project proponent, its employees, contractors, and sub-contractors shall:

(a) If ground-disturbing activities encounter human skeletal remains during the course of construction, then all activity must cease that may cause further disturbance to those remains and the area of the find must be secured and protected from further disturbance. In addition, the finding of human skeletal remains must be reported to the King County Medical Examiner's Office and King County Sheriff's Office in the most expeditious manner possible. The remains should not be touched, moved, or further disturbed.

(b) The King County Medical Examiner's Office will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic. If the county medical examiner determines the remains are non-forensic, then they will report that finding to DAHP who will then take jurisdiction over the remains and report them to the appropriate cemeteries and affected Tribes. The State Physical Anthropologist will make a determination of whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and the affected Tribes. DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

(c) DAHP will handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains if no federal agency is involved.

Confidentiality of Information

The project proponent and their authorized representative recognizes that archaeological sites are sensitive cultural resources that can become targets of vandalism and illegal removal activities. The project proponent or their authorized representative shall keep and maintain as confidential all information regarding any discovered cultural resources, particularly the location of known or suspected archaeological property, and exempt all such information from public disclosure consistent with RCW 42.17.300.

Contact Information

The lead representatives and primary contacts of each party under this plan are as identified below. The parties may identify other specific personnel before the commencement of any particular project element as the contacts.

Muckleshoot Indian Tribe
39015 172nd Avenue SE
Auburn, WA 98092
Primary Contact: Laura Murphy, Archaeologist, Cultural Resources, 253-876-3272, laura.murphy@muckleshoot.nsn.us

Snohomish Tribe of Indians
9792 Edmonds Way #267
Edmonds, WA 98020
Primary Contact: The Hon. Michael Evans, Chair, 425-671-1387, info@snohomishtribe.com

Snoqualmie Indian Tribe
8130 Railroad Avenue, Suite 103
P.O. Box 969
Snoqualmie, WA 98065
Primary Contact: Steven Mullen, Director of Archaeology and Historic Preservation, 425-495-6097, steve@snoqualmietribe.us

Stillaguamish Tribe of Indians
3310 Smokey Point Drive
PO Box 277
Arlington, WA 98223-0277
Primary Contact: Kerry Lyste, THPO, Cultural Resources, 360-652-7362 x226, klyste@stillaguamish.com

Tulalip Tribes
6406 Mariner Drive
Tulalip, WA 98271
Primary Contact: Richard Young, Hibulb Cultural Center & Natural History Preserve, 360-716-2652 (office), 425-239-0182 (cell), ryoung@tulaliptribes-nsn.org

Washington Department of Archaeology and Historic Preservation (DAHP)
P.O. Box 48343, Olympia, WA 98504-8343
Primary Contact: Rob Whitlam, State Archaeologist, 360-890-2615, Rob.Whitlam@dahp.wa.gov
Primary Contact for Human Remains: Guy Tasa, State Physical Anthropologist, 360-790-1633, Guy.Tasa@dahp.wa.gov

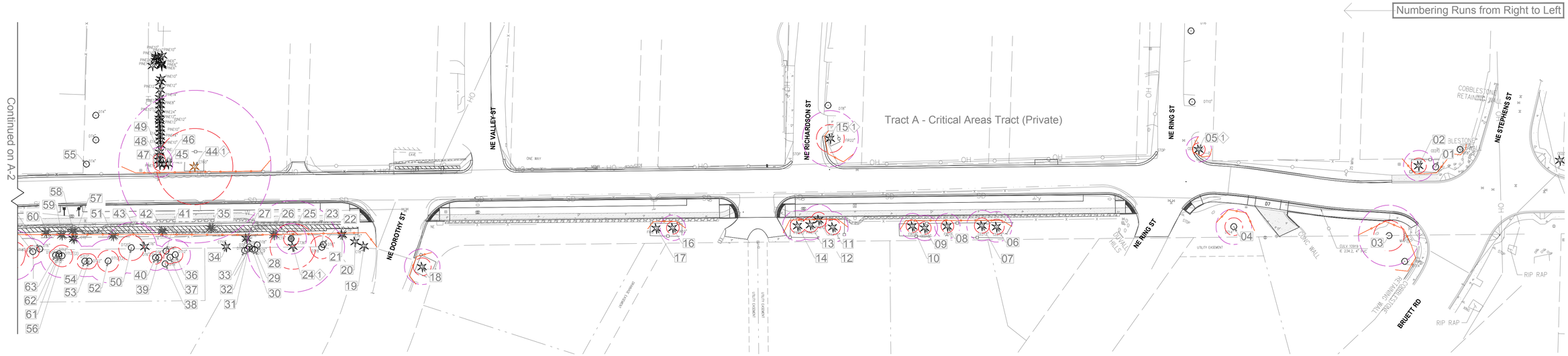
King County Medical Examiner's
Harborview Medical Center
Ninth & Jefferson Building, 2nd Floor
908 Jefferson St
Seattle, WA 98104
Primary Contact: Richard Harruff, MD, PhD, Chief Medical Examiner, 206-731-3232

King County Sheriff's Office
516 Third Avenue , Room W-116
Seattle, WA 98104-2312
Primary Contact: Non-Emergency Line, 206-296-3311

APPENDIX G

TREE PROTECTION PLAN

AND ARBORIST MEMO



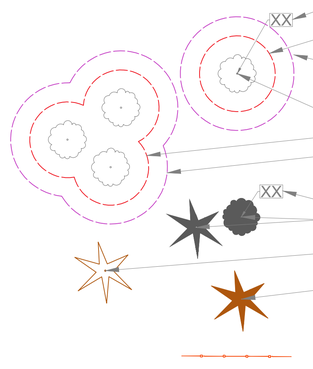
GENERAL NOTES:

1. All trees on private property to be protected.
2. Refer to the arborist memo for compliance numbers in accordance with Duvall Municipal Code.

NOTES

1 Provide arborist oversight during construction.

LEGEND



Unique Identifier
Inner Critical Root Zone (ICRZ)
Critical Root Zone (CRZ) - In accordance with DMC 14.40.120 CRZ has a radius equal to 1" DBH = 1' CRZ.
Tree to be Retained
ICRZ of Tree Grove
CRZ of Tree Grove where a Grove is Defined as 3 or more Trees
Unique Identifier
Tree to be Removed
Exceptional Tree
Tree to Snag refer to Detail 1, Sheet A-4
Tree Protection Area - Provide tree protection in accordance with DMC 14.40.080 and DMC 14.40.100, see Tree Protection Notes and Detail Sheet A-5.

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N

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

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TF 10/2023 DESIGNED BY DATE

TF 10/2023 DRAWN BY DATE

LG & BR 09/2023 CHECKED BY DATE

STATE OF WASHINGTON · TRISTAN FIELDS · No. 22006853 EXP. · LICENSED LANDSCAPE ARCHITECT

LAND MEETS WATER
2212 Walnut Ave SW | Seattle, WA 98116
(206) 947-3958
ISA Municipal Arborist & Tree Risk Assessor Qualified
PN-8836AM

60% REVIEW SUBMITTAL

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Small Town. Real Life.

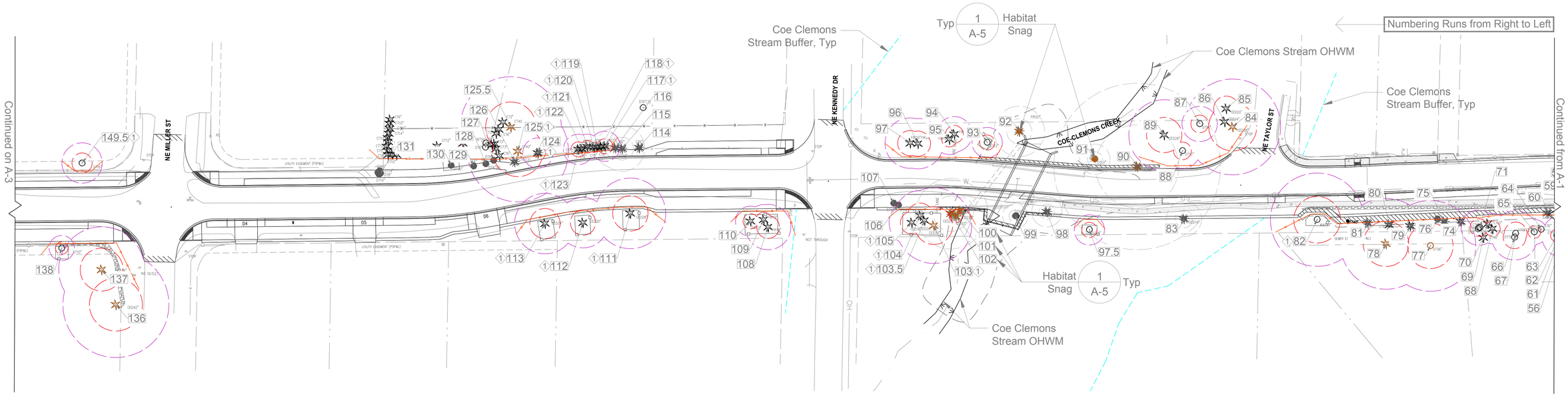
CITY OF DUVALL
3RD AVENUE NE RECONSTRUCTION

TREE RETENTION PLAN

KPG PROJECT No.

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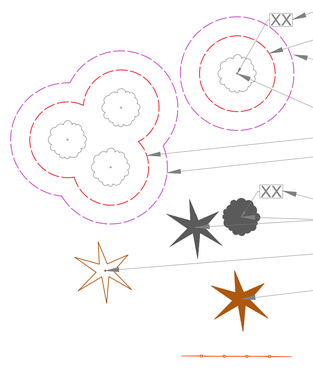
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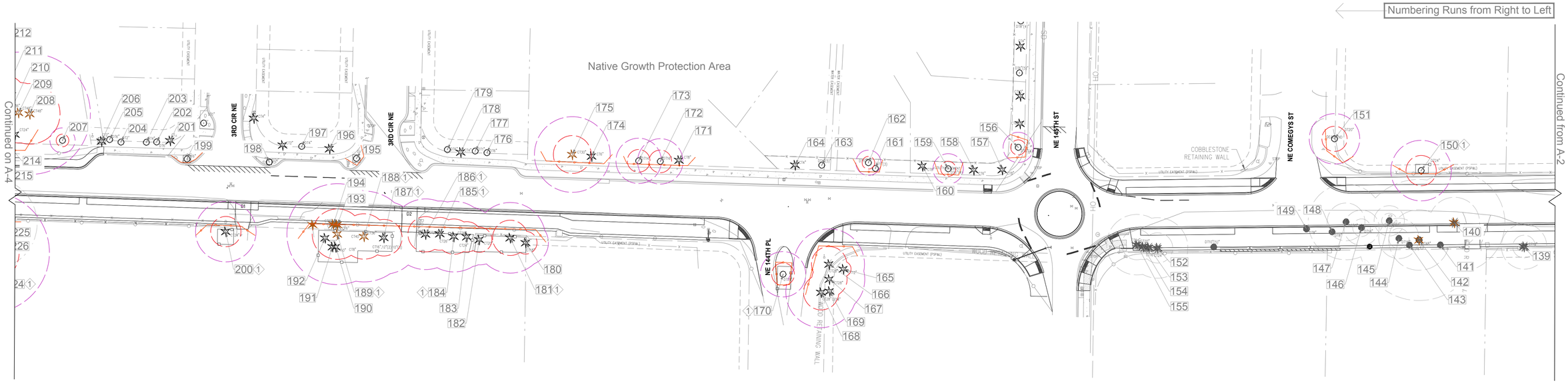
CITY OF DUVALL
3RD AVENUE NE RECONSTRUCTION

TREE RETENTION PLAN

KPG PROJECT No.

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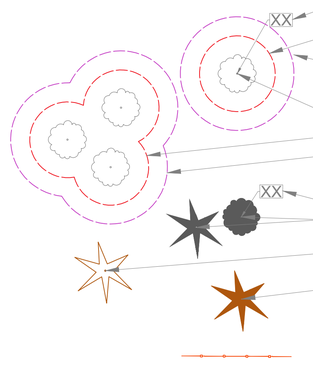
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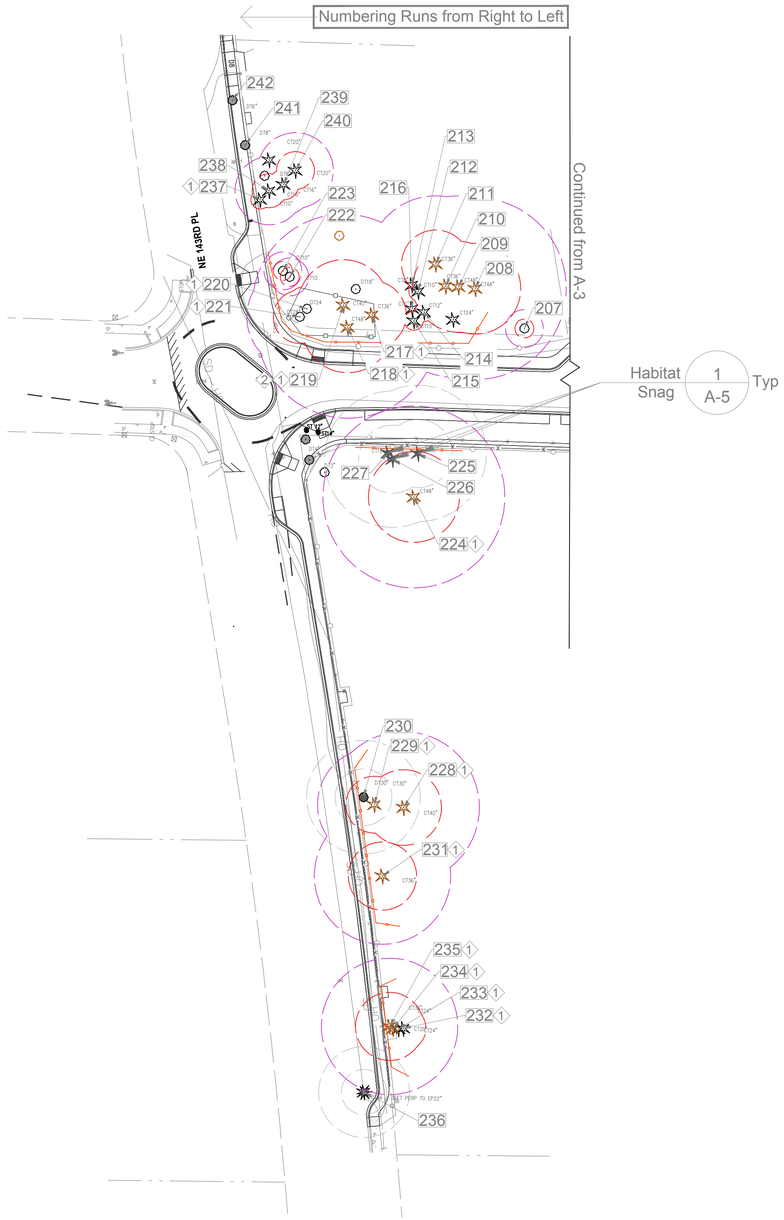
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3RD AVENUE NE RECONSTRUCTION

TREE RETENTION PLAN

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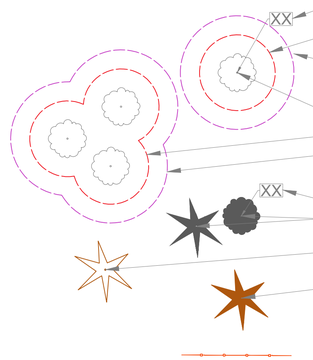
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Approved By

ENGINEERING MANAGER	DATE
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PN-8826AM

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CITY OF DUVALL
3RD AVENUE NE RECONSTRUCTION

TREE RETENTION PLAN

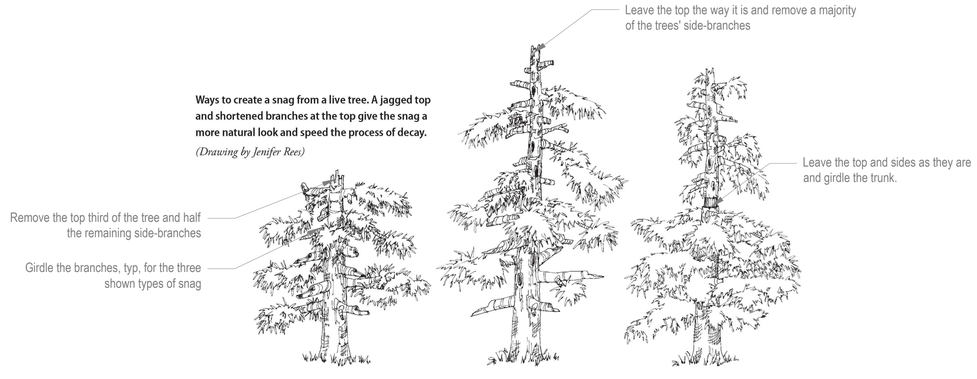
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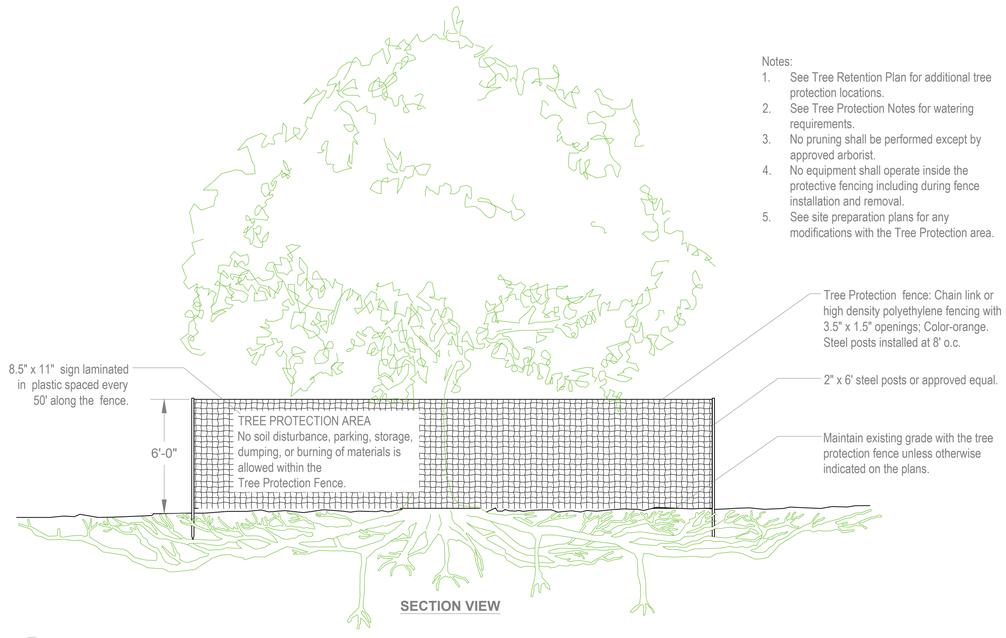
TREE PROTECTION NOTES

A. To ensure long-term viability of trees and tree stands identified for protection permit plans and construction activities shall comply with the following tree retention requirements:
   1. Tree protection barriers shall be installed along the outer edge and completely surround the critical root zone of trees to be protected prior to any land disturbance and shall remain until the director authorizes tree protection barrier removal.
   2. Tree protection barriers shall be a minimum of six (6) feet high, constructed of chain link or similar material, subject to approval by the Director. "Tree Protection Area" signs shall be posted visibly on all sides of the fenced areas facing toward areas of site grading and construction. On large project sites, the director may also require that signs requesting subcontractor cooperation and compliance with tree protection standards be posted at site entrances.
   3. Place tree protection fencing along Limits of Disturbance (LOD) line. If Inner Critical Root Zone (ICRZ) occurs within Limits of Work, place tree protection fencing along edge of Limits of Work.
   4. Native understory trees, shrubs and other vegetation shall be protected within the designated tree protection area.
   5. Construction planning and activities within the critical root zone of retained significant trees:
      a. To ensure that structures, utilities, and roadways are located an adequate distance from a protected tree and to allow adequate room for construction activities, the limits of construction clearing and grading shall generally be located no closer than the critical root zone of all protected trees.
      b. Except for structures proposed as a raised deck, bay window, or cantilevered or otherwise raised above the ground's surface so as not to disrupt the tree's roots, no structures shall be allowed within the interior critical root zone (ICRZ).
      c. Sidewalks and utilities may be located within the critical root zone of a protected tree, provided that construction methods and materials used will result in minimal disruption of the tree's roots, and that additional measures for tree protection are proposed and approved which will ensure the long-term viability of the tree.
      d. Grade within critical root zone: the grade shall not be elevated or reduced within the critical root zone of trees to be preserved without the director's authorization based on recommendations from a professional arborist.
      e. All construction activities, including, but not limited to, staging any materials, operating or parking equipment, or dumping concrete washout or other chemicals, shall be prohibited within the critical root zone of protected trees. During construction, no person shall attach any object to any tree designated for protection.
   6. In addition, the following is required:
      a. If equipment is authorized to operate within a tree protection area, the soil and critical root zone of a tree must be covered with mulch to a depth of at least six (6) inches or with plywood, steel plates or similar material in order to protect roots and soil from potential damage caused by heavy equipment.
      b. To minimize root damage wherever development is proposed and allowed within the critical root zone, a two (2) foot-deep trench shall be hand-excavated at edge of the allowed construction limit, to cleanly sever the roots of trees to be retained. Never rip or shred roots with heavy equipment.
      c. Tree roots smaller than 2-inches in diameter must be cut flush along the edge of the trench or tunnel. Cut off roots cleanly with a sharp blade when roots are exposed or disturbed by work activities.
   7. Preventative Measures. In addition to the above minimum tree protection measures, the following preventative measures, consistent with best management practices for maintaining the health of the trees, shall be applied:
      a. Pruning of visible deadwood on trees to be protected or transplanted;
      b. Application of fertilizer to enhance the vigor of stressed trees;
      c. Use of soil amendments and soil aeration in tree protection and planting areas;
      d. Mulching over tree critical root zone areas; and
      e. Ensuring proper water availability during and immediately after construction.
   8. The Project Manager may order the Work stopped if: protection measures are not completed prior to start of the Work; Unauthorized uses of protected areas are occurring; or Tree protection fencing is not restored within 24 hours of notice to do so.
   9. Instead of stump grinding create a habitat snag or a stump of trees along the borders of retained groves of trees. Refer to Detail 1 Sheet A-5. Stumps & habitat snags increase the safety of surrounding trees.



Ways to create a snag from a live tree. A jagged top and shortened branches at the top give the snag a more natural look and speed the process of decay.
(Drawing by Jenifer Rees)

1 DETAIL - CREATING A HABITAT SNAG
NTS



Notes:
1. See Tree Retention Plan for additional tree protection locations.
2. See Tree Protection Notes for watering requirements.
3. No pruning shall be performed except by approved arborist.
4. No equipment shall operate inside the protective fencing including during fence installation and removal.
5. See site preparation plans for any modifications with the Tree Protection area.

2 TREE PROTECTION
1/4" = 1'-0"

/Users/tsmac/Documents/_Clients/KPG/Arborist - Duvall/03 CAD/X21078ARB.dwg 10/20/2023 2:24 PM

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

X21078ARB.dwg	
FILENAME	
TF	10/2023
DESIGNED BY	DATE
TF	10/2023
DRAWN BY	DATE
LG & BR	09/2023
CHECKED BY	DATE

STATE OF WASHINGTON · TRISTAN FIELDS · NO. 22006653 EXP. · LICENSED LANDSCAPE ARCHITECT

LAND MEETS WATER
2212 Walnut Ave SW | Seattle, WA 98116
(206) 947-3958
ISA Municipal Arborist & Tree Risk Assessor Qualified
PN-8836AM

60% REVIEW SUBMITTAL

City of Duvall
Small Town. Real Life.

CITY OF DUVALL
3RD AVENUE NE RECONSTRUCTION

TREE RETENTION PLAN

KPG PROJECT No.

SHT A-5 OF A-5

3RD AVE NE ARBORIST MEMO

For the City of Duvall, 3rd Ave NE Reconstruction
Date Submitted: November 1, 2023

Submitted to:
KPG Psomas Inc
Attn: Oliva Paraschiv, PE, Project Manager
2502 Jefferson Ave
Tacoma, WA 98402

Prepared by:
Land Meets Water
Tristan Fields, ISA PN-8826AM
2212 Walnut Ave SW
Seattle, Washington, 98116
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LAND MEETS WATER

LAND MEETS WATER
2212 WALNUT AVE SW
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206.947.3958
tristan@landmw.com
ISA Municipal Arborist & TRAQ PN-8826AM

November 1, 2023

Attn: Olivia Paraschiv, PE, Project Manager
KPG Psomas Inc

Project: 3rd Avenue NE Reconstruction
Project Address: 3rd Avenue NE, north to Stephens St, south to NE 143rd Pl

Dear Olivia Paraschiv,

Enclosed, please find the Arborist Memo and Tree Protection Plans assessing the health of the trees and impacts from the reconstruction of 3rd Ave NE.

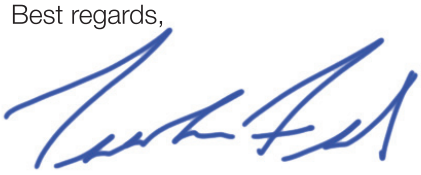
As a result of my site visit, I have concluded that 21 significant and exceptional trees in the Right-of-Way will require removal or snagging as part of the reconstruction improvements along 3rd Ave NE and 143rd Pl. To comply with DMC 14.40 -Tree Protection, 29 trees will be required as replacement trees.

I recommend creating habitat snags for the removed trees as often as possible. These recommendations are annotated in the following Arborist Memo and Tree Protection Plans. For further information on snags refer to the attached WADW Snags document.

I am available to discuss this report further.

This cover letter shall not be used separately from the 7-page report and 5 Tree Retention Plan Sheets.

Best regards,



Tristan Fields
PLA, ISA Municipal Arborist, TRAQ
Owner of Land Meets Water

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SUMMARY

This memo summarizes the tree health assessments of the trees along 3rd Avenue NE between NE 145th Street, NE Stephens Street, and NE 143rd Pl and the potential impacts of proposed improvements. This memo combines and includes the arborist memorandum submitted on December 17, 2021. Of the 242 trees assessed, 127 are significant, and 30 are exceptional, as determined by DMC 14.40.120 - Tree Protection Technical Terms and Definitions. Many of the assessed trees reside outside the City's ROW and were only documented because of their proximity to the road. Within the ROW, there are 70 significant trees and six (6) exceptional trees. The proposed improvements will impact 17 significant trees and four (4) exceptional trees in the ROW, requiring removal or snagging and a minimum of 29 replacement trees. Additionally, one (1) significant tree and three (3) exceptional trees outside of the ROW were identified as likely requiring removal or snagging. The City is encouraged to work with the private owners to mitigate these trees along with this project. Details of removals and retentions are in the attached Tree Retention Plans.

ASSIGNMENT

The assignment is to assist KPG Psomas, Inc. with their arborist needs for the design reconstruction of 3rd Ave NE and to finalize the draft arborist memo submitted in December 2021. This memo assesses the trees along the project extent and the potential impacts of the proposed development. The memo includes Tree Retention Plans and tree protection specifications.

Assessed trees have the potential to be affected by the roadway improvements to 3rd Ave NE, which include widening to add bike lanes, curb and gutter, 5' planter, and 6' sidewalk on both sides of the street. Potential improvements will consist of the protection of healthy mature trees.

OBSERVATIONS

Existing Site Conditions

The existing conditions along the segment of 3rd Ave NE include a mixture of new development frontages with new street trees, historic exceptional native trees, and wetland habitat around Coe Clemons Creek crossing. The Tree Retention Plans show the proposed improvements, which include 5' planters, 6' sidewalks, bike lanes, and travel lanes.

The site is zoned PF, Public Facilities, and the development area is 7.7 acres. The site is within Group 3 Subbasin.

Tree Information

The trees assessed are predominantly ingrown natives, including trees such as:

- Psuedotsuga menziesii, Douglas Fir.
- Acer macrophyllum, Big Leaf Maple.
- Thuja plicata, Western Red Cedar.
- Alnus rubra, Red Alder.

Along Coe Clemons Creek, the healthy undergrowth also includes many Acer circinatum, Vine Maple.

The trees along the project corridor vary in size, with the largest Douglas Fir measuring 66" diameter at breast height (dbh) and Western Red Cedar at 67" dbh. The majority of the trees exhibit low to good health. Refer to Table 1, Assessment of Relative Condition of Trees in Individual Tree Survey and the Tables 2 and 3 the Tree Inventory Tables at the end of this document.

There are several groves along the project corridor, that should be considered an integrated mass. Where significant impacts occur to one tree within the mass, the other trees may be detrimentally affected, with the primary concerns being structural root impacts and increased exposure leading to reduced wind firmness. In these instances, there are recommendations for either snagging the tree if the tree is on public property or flush cutting the tree, letting the roots remain to continue to provide structural integrity. See the supporting information document WADW-Snags for more information about the benefit and creation of snags.

TESTING & ANALYSIS

Testing of trees or soil did not occur as part of this tree health assessment.

DISCUSSION

LMW assessed Two hundred forty-two trees for health, species, and size. Of the 242 assessed, 70 trees are significant and 6 are exceptional within the Right-of-Way (ROW), according to DMC 14.40.120. Of the 76 significant or exceptional trees, 21 are recommended for removal or snagging. Tree removal was determined by the extent of impacts to their critical root zone, the tree size, and the ability to withstand construction impacts. According to DMC 14.40.025 Protection of Exceptional Trees and 14.40.070 New Development Site Priorities and Standards for Supplemental Trees, 29 trees are required to meet replacement requirements.

Effort was made to preserve trees, including reducing proposed planter widths and realigning sidewalks.

Throughout the project, there is a requirement for tree protection (see the Tree Retention Plans Note 1). In addition to tree protection, when a tree is part of a grove, of exceptional size, or on the borderline of acceptable impacts, an arborist shall be on site for impact observations and final determination of structural health (see Tree Retention Plans Note 1).

Table 2 shows the tree density credit calculations in compliance with DMC 14.40.050 Tree Density Requirements. The calculation of tree density credits pertains to retained trees within the ROW. Public Facility zoned areas require 40 tree density credits per acre. The development site is 7.7 acres, which equals 308 required tree density credits.

The retained tree density credits are 224, a deficit of 84 credits. To achieve the 84 missing credits, either replacement trees should be planted or a fee in lieu paid. .

For sites within Group 3 Subbasin 30% of the required tree credits must be achieved through the retention of existing trees. 224 of the retained tree credits are 72% of the required 308.

CONCLUSIONS

Improvements along 3rd Ave NE and 143rd Pl will impact the trees in various ways along the reconstruction corridor. There will be impacts on groves and individual trees. Details of efforts to protect and preserve trees are in the Tree Retention Plans.

RECOMMENDATIONS

Final recommendations include removing or snagging 17 significant and four (4) exceptional trees within the ROW, with a required replacement of 29 trees. To comply with tree density credits requirements, obtain 84 more tree density credits. Tree protection and arborist oversight during construction is part of the Tree Retention Plans. Refer to the Tree Retention Plans for specific locations of removals, protections, and oversight requirements.

SUPPORTING INFORMATION

Refer to the attached "Living with Wildlife: Snags-The Wildlife Tree" for more information about the benefit and creation of snags.

TABLE 1 - ASSESSMENT OF RELATIVE CONDITION OF TREES IN INDIVIDUAL TREE SURVEY[1]

Condition Rating	Overall Vigor	Canopy Density	Amount of Deadwood	History of Failure	Pests	Extent of Decay
1	Severe Decline	< 20%	Large; major scaffold branches	More than one scaffold	Infested	Major-conks and cavities
2	Declining	20-60%	Twig and branch dieback	Scaffold branches	Infestation of significant pests	One to a few conks; small cavities
3	Low	60-90%	Small twigs	Small branches	Minor	Present at pruning wounds
4	Good	90-100%	Little or none	None	Minor	Present at pruning wounds
5	Excellent	100%	None	None	None, or insignificant	Absent

1 Matheny, Nelda, and James R Clark. "Evaluation of the Resource." Trees and Development: A Technical Guide to Preservation of Trees during Land Development, International Society of Arboriculture, Champaign, IL, IL, 2000, pp. 63–63.

TABLE 2 - TREE RETENTION & REMOVAL

SIGNIFICANT & EXCEPTIONAL TREES

Unique Identifier	Common Name	*Latin Name*	DMC Class	DBH in inches	Retain/ Remove	Retained Density Credits	Removed Density Credits	Replacement Count (DMC 14.40.025 & 14.40.030)	Location	Condition Rating	Notes
2	Western Red Cedar	*Thuja Plicata*	Significant	12	Retain	2			ROW	3	
3	Big Leaf Maple	*Acer macrophyllum*	Significant	24	Retain				Private	3	
4	Bitter Cherry	*Prunus emarginata*	Significant	14	Retain	3			ROW	3	
5	Hinoki Cypress	*Chamaecyparis obtusa*	Significant	10	Retain	1			ROW	4	
6	Western Red Cedar	*Thuja Plicata*	Significant	12	Retain	2			ROW	3	
7	Western Red Cedar	*Thuja Plicata*	Significant	12	Retain	2			ROW	3	
8	Douglas Fir	*Pseudotsuga menziesii*	Significant	10	Retain	1			ROW	4	
9	Western Red Cedar	*Thuja Plicata*	Significant	10	Retain	1			ROW	3	
10	Douglas Fir	*Pseudotsuga menziesii*	Significant	10	Retain	1			ROW	3	
11	Shore Pine	*Pinus Contorta*	Significant	12	Retain	2			ROW	3	
12	Shore Pine	*Pinus Contorta*	Significant	12	Retain	2			ROW	3	
13	Shore Pine	*Pinus Contorta*	Significant	12	Retain	2			ROW	3	
14	Shore Pine	*Pinus Contorta*	Significant	12	Retain	2			ROW	3	
15	Douglas Fir	*Pseudotsuga menziesii*	Significant	22	Retain	7			ROW	3	
16	Douglas Fir	*Pseudotsuga menziesii*	Significant	10	Retain	1			ROW	3	
18	Douglas Fir	*Pseudotsuga menziesii*	Significant	14	Retain	3			ROW	5	
23	Big Leaf Maple	*Acer macrophyllum*	Significant	18	Retain	5			ROW	3	
24	Douglas Fir	*Pseudotsuga menziesii*	Exceptional	36	Retain	13			ROW	3	
25	Big Leaf Maple	*Acer macrophyllum*	Significant	12 (4, 4, 4,4)	Retain	2			ROW	3	
34	Western Red Cedar	*Thuja Plicata*	Significant	10	Retain	1			ROW	4	
44	Douglas Fir	*Pseudotsuga menziesii*	Exceptional	60	Retain				Private	3	
47	Western Red Cedar	*Thuja Plicata*	Significant	14	Retain				Private	4	

TABLE 2 - TREE RETENTION & REMOVAL
SIGNIFICANT & EXCEPTIONAL TREES

Unique Identifier	Common Name	*Latin Name*	DMC Class	DBH in inches	Retain/ Remove	Retained Density Credits	Removed Density Credits	Replacement Count (DMC 14.40.025 & 14.40.030)	Location	Condition Rating	Notes
48	Western Red Cedar	*Thuja Plicata*	Significant	10	Retain				Private	4	
50	Big Leaf Maple	*Acer macrophyllum*	Significant	20	Retain	6			ROW	3	
52	Big Leaf Maple	*Acer macrophyllum*	Significant	17 (12, 12, 12)	Retain				Private	3	
53	Big Leaf Maple	*Acer macrophyllum*	Significant	12	Retain				Private	3	
54	Big Leaf Maple	*Acer macrophyllum*	Significant	12	Retain				Private	3	
56	Big Leaf Maple	*Acer macrophyllum*	Significant	17 (12, 12, 12)	Retain				Private	3	
65	Big Leaf Maple	*Acer macrophyllum*	Significant	10	Retain				Private	3	
66	Big Leaf Maple	*Acer macrophyllum*	Significant	18	Retain				Private	3	
67	Big Leaf Maple	*Acer macrophyllum*	Significant	18	Retain				Private	3	
68	Douglas Fir	*Pseudotsuga menziesii*	Significant	12	Retain	2			ROW	4	
69	Douglas Fir	*Pseudotsuga menziesii*	Significant	10	Retain				Private	4	
71	Big Leaf Maple	*Acer macrophyllum*	Significant	14 (8, 8, 8)	Retain	3			ROW	4	
77	Big Leaf Maple	*Acer macrophyllum*	Exceptional	36	Retain				Private	3	
78	Western Red Cedar	*Thuja Plicata*	Exceptional	36	Retain				Private	3	
82	Big Leaf Maple	*Acer macrophyllum*	Exceptional	37 (11, 5, 6, 8, 14, 10, 10,15, 11, 8, 11, 6, 3, 3, 3, 5, 5, 14)	Retain	13			ROW	3	
83	Western Red Cedar	*Thuja Plicata*	Significant	14	Remove		3	1	ROW	4	
84	Western Red Cedar	*Thuja Plicata*	Exceptional	38	Retain	13			ROW	3	
85	Western Red Cedar	*Thuja Plicata*	Significant	20	Retain				Private	3	
86	Western Red Cedar	*Thuja Plicata*	Significant	24	Retain	8			ROW	3	
87	Big Leaf Maple	*Acer macrophyllum*	Significant	14	Retain	3			ROW	3	
88	Big Leaf Maple	*Acer macrophyllum*	Significant	12	Retain	2			ROW	3	
89	Western Red Cedar	*Thuja Plicata*	Significant	28	Retain		10		ROW	3	
90	Western Red Cedar	*Thuja Plicata*	Exceptional	66	Remove		13	3	ROW	2	
92	Douglas Fir	*Pseudotsuga menziesii*	Significant	20	Remove	6		1	ROW	3	Snag Tree
94	Douglas Fir	*Pseudotsuga menziesii*	Significant	14	Retain	3			ROW	3	
95	Douglas Fir	*Pseudotsuga menziesii*	Significant	12	Retain	2			ROW	3	
96	Douglas Fir	*Pseudotsuga menziesii*	Significant	20	Retain	6			ROW	3	
97	Douglas Fir	*Pseudotsuga menziesii*	Significant	20	Retain	6			ROW	3	
98	Western Red Cedar	*Thuja Plicata*	Significant	12	Remove		2	1	ROW	3	
99	Big Leaf Maple	*Acer macrophyllum*	Significant	10	Remove		1	1	ROW	3	
100	Western Red Cedar	*Thuja Plicata*	Significant	22	Remove		7	1	ROW	3	Snag Tree
101	Western Red Cedar	*Thuja Plicata*	Significant	10	Remove		1	1	ROW	3	Snag Tree
102	Western Red Cedar	*Thuja Plicata*	Significant	28	Remove		9	1	ROW	3	Snag Tree
103	Western Red Cedar	*Thuja Plicata*	Exceptional	30	Retain	10			ROW	3	
103.5	Western Red Cedar	*Thuja Plicata*	Significant	20	Retain	6			ROW	3	
104	Western Red Cedar	*Thuja Plicata*	Significant	20	Retain	6			ROW	3	
105	Western Red Cedar	*Thuja Plicata*	Significant	18	Retain	5			ROW	3	
108	Douglas Fir	*Pseudotsuga menziesii*	Significant	18	Retain	5			ROW	3	
109	Western Red Cedar	*Thuja Plicata*	Significant	12	Retain	2			ROW	3	
110	Western Red Cedar	*Thuja Plicata*	Significant	12	Retain	2			ROW	3	
111	Western Red Cedar	*Thuja Plicata*	Significant	28	Retain	10			ROW	3	
112	Western Red Cedar	*Thuja Plicata*	Significant	20	Retain	6			ROW	3	
113	Western Red Cedar	*Thuja Plicata*	Significant	24	Retain	8			ROW	3	

TABLE 2 - TREE RETENTION & REMOVAL
SIGNIFICANT & EXCEPTIONAL TREES

Unique Identifier	Common Name	*Latin Name*	DMC Class	DBH in inches	Retain/ Remove	Retained Density Credits	Removed Density Credits	Replacement Count (DMC 14.40.025 & 14.40.030)	Location	Condition Rating	Notes
115	Noble Fir	*Abies procera*	Significant	18	Remove		5	1	ROW	3	
116	Noble Fir	*Abies procera*	Significant	18	Remove		5	1	ROW	3	
117	Douglas Fir	*Pseudotsuga menziesii*	Significant	12	Retain	2			ROW	3	
121	Douglas Fir	*Pseudotsuga menziesii*	Significant	10	Retain	1			ROW	3	
123	Douglas Fir	*Pseudotsuga menziesii*	Significant	12	Retain	2			ROW	3	
124	Douglas Fir	*Pseudotsuga menziesii*	Significant	12	Retain	2			ROW	3	
125	Western Red Cedar	*Thuja Plicata*	Significant	24	Retain	8			ROW	3	
125.5	Western Red Cedar	*Thuja Plicata*	Exceptional	40	Retain				Private	3	
136	Western Red Cedar	*Thuja Plicata*	Exceptional	42	Retain				Private	3	
137	Western Red Cedar	*Thuja Plicata*	Exceptional	34	Retain				Private	3	
138	Cherry Plum Tree	*Prunus cerasifera*	Significant	10	Retain				Easement	3	
139	Douglas Fir	*Pseudotsuga menziesii*	Significant	18	Remove		5	1	ROW	3	
140	Douglas Fir	*Pseudotsuga menziesii*	Exceptional	40	Remove		13	3	ROW	3	
142	Douglas Fir	*Pseudotsuga menziesii*	Exceptional	48	Remove		13	3	ROW	3	
144	Big Leaf Maple	*Acer macrophyllum*	Significant	16	Remove		4	1	ROW	3	
145	Bitter Cherry	*Prunus emarginata*	Significant	12	Remove		2	1	ROW	3	
146	Big Leaf Maple	*Acer macrophyllum*	Significant	14	Remove		3	1	ROW	3	
147	Big Leaf Maple	*Acer macrophyllum*	Exceptional	30	Remove		11	3	ROW	3	
149.5	Black Walnut	*Jugulars nigra*	Significant	16	Retain				Easement	3	
150	Big Leaf Maple	*Acer macrophyllum*	Significant	24	Retain				Easement	3	
151	Freeman Maple	*Acer x freemanii*	Significant	20	Retain	6			ROW	3	
152	Douglas Fir	*Pseudotsuga menziesii*	Significant	24	Remove		8	1	ROW	3	
153	Douglas Fir	*Pseudotsuga menziesii*	Significant	16	Remove		4	1	ROW	3	
154	Douglas Fir	*Pseudotsuga menziesii*	Significant	20	Remove		6	1	ROW	3	
155	Douglas Fir	*Pseudotsuga menziesii*	Significant	24	Remove		8	1	ROW	3	
156	Paperbark Birch	*Betula papyrifera*	Significant	12 (6, 6, 6, 6)	Retain				Easement	3	
159	Paperbark Birch	*Betula papyrifera*	Significant	12 (6, 6, 6, 6)	Retain				Easement	3	
162	Western Red Cedar	*Thuja Plicata*	Significant	10	Retain				Easement	4	
165	Western Red Cedar	*Thuja Plicata*	Significant	12	Retain	2			Private	4	
166	Larch Tree	*Larix*	Significant	28	Retain				Easement	3	
167	Larch Tree	*Larix*	Significant	28	Retain				Easement	3	
168	Larch Tree	*Larix*	Significant	28	Retain	10			ROW	3	
169	Larch Tree	*Larix*	Significant	14	Retain				Easement	3	
170	Ornamental Cherry	*Prunus serrulata*	Significant	18	Retain	5			ROW	3	
175	Western Red Cedar	*Thuja Plicata*	Exceptional	30	Retain				Private	3	
180	Western Red Cedar	*Thuja Plicata*	Significant	18	Retain				Private	4	
181	Douglas Fir	*Pseudotsuga menziesii*	Significant	28	Retain				Private	3	
182	Douglas Fir	*Pseudotsuga menziesii*	Significant	20	Retain				Private	3	
183	Douglas Fir	*Pseudotsuga menziesii*	Significant	24	Retain				Private	3	
184	Douglas Fir	*Pseudotsuga menziesii*	Significant	26	Retain				Private	3	
185	Douglas Fir	*Pseudotsuga menziesii*	Significant	28	Retain				Private	3	
186	Western Red Cedar	*Thuja Plicata*	Significant	28	Retain				Private	3	
187	Western Red Cedar	*Thuja Plicata*	Significant	29 (16, 12 12, 10, 10, 10)	Retain				Private	3	
188	Western Red Cedar	*Thuja Plicata*	Exceptional	36	Retain				Private	3	
189	Western Red Cedar	*Thuja Plicata*	Exceptional	40	Retain				Private	3	

TABLE 2 - TREE RETENTION & REMOVAL
SIGNIFICANT & EXCEPTIONAL TREES

Unique Identifier	Common Name	*Latin Name*	DMC Class	DBH in inches	Retain/ Remove	Retained Density Credits	Removed Density Credits	Replacement Count (DMC 14.40.025 & 14.40.030)	Location	Condition Rating	Notes
191	Western Red Cedar	*Thuja Plicata*	Significant	10	Retain				Private	3	
200	Western Red Cedar	*Thuja Plicata*	Significant	24	Retain				Private	3	
207	Cherry Tree	*Prunus*	Significant	10	Retain				Private	1	
208	Western Red Cedar	*Thuja Plicata*	Exceptional	48	Retain				Private	4	
209	Western Red Cedar	*Thuja Plicata*	Exceptional	48	Retain				Private	4	
210	Western Red Cedar	*Thuja Plicata*	Exceptional	36	Retain				Private	4	
211	Western Red Cedar	*Thuja Plicata*	Exceptional	36	Retain				Private	4	
212	Western Red Cedar	*Thuja Plicata*	Significant	10	Retain				Private	4	
214	Western Red Cedar	*Thuja Plicata*	Significant	12	Retain				Private	4	
215	Western Red Cedar	*Thuja Plicata*	Significant	10	Retain				Private	3	
217	Western Red Cedar	*Thuja Plicata*	Exceptional	36	Retain				Private	4	
218	Western Red Cedar	*Thuja Plicata*	Exceptional	48	Retain				Private	3	
219	Western Red Cedar	*Thuja Plicata*	Exceptional	40	Retain				Private	4	
220	Big Leaf Maple	*Acer macrophyllum*	Significant	24	Retain				Private	3	
221	Big Leaf Maple	*Acer macrophyllum*	Significant	28	Retain				Private	3	
222	Big Leaf Maple	*Acer macrophyllum*	Significant	10	Retain				Private	3	
223	Hazelnut	*Corylus cornuta*	Significant	10	Retain				Private	3	
224	Western Red Cedar	*Thuja Plicata*	Exceptional	48	Retain				Private	3	
225	Western Red Cedar	*Thuja Plicata*	Exceptional	36	Remove				Private	3	Removal and snagging recommended. Work is outside of the project limits. Coordinate with private property owner and mitigate as required.
226	Western Red Cedar	*Thuja Plicata*	Exceptional	36	Remove				Private	3	
227	Western Red Cedar	*Thuja Plicata*	Significant	12	Remove				Private	3	
228	Western Red Cedar	*Thuja Plicata*	Exceptional	40	Retain				Private	3	
229	Western Red Cedar	*Thuja Plicata*	Exceptional	30	Retain				Private	3	
230	Big Leaf Maple	*Acer macrophyllum*	Exceptional	30	Remove				Private	1	See note above from 225, 226, and 227.
231	Western Red Cedar	*Thuja Plicata*	Exceptional	36	Retain				Private	3	
232	Western Red Cedar	*Thuja Plicata*	Significant	24	Retain				Private	3	
233	Western Red Cedar	*Thuja Plicata*	Significant	20	Retain				Private	3	
234	Western Red Cedar	*Thuja Plicata*	Significant	24	Retain				Private	3	
235	Western Red Cedar	*Thuja Plicata*	Exceptional	36	Retain				Private	3	
236	Unknown										Removed by private development - tree doesn't exist
237	Western Hemlock	*Tsuga heterophylla*	Significant	10	Retain				Private	3	
238	Western Hemlock	*Tsuga heterophylla*	Significant	18	Retain				Private	3	
239	Western Hemlock	*Tsuga heterophylla*	Significant	16	Retain				Private	3	
240	Western Hemlock	*Tsuga heterophylla*	Significant	20	Retain				Private	3	
					Totals	**224**	**133**	**29**			

TABLE 3 - TREE REMOVAL - NON-SIGNIFICANT

NON-SIGNIFICANT & NUISANCE TREES

Unique Identifier	Common Name	*Latin Name*	DMC Class	DBH in inches	Retain/ Remove	Location	Condition Rating	Notes
26	Shore Pine	*Pinus Contorta*		4	Remove	ROW	3	
27	Western Red Cedar	*Thuja Plicata*		6	Remove	ROW	3	
35	Shore Pine	*Pinus Contorta*		6	Remove	ROW	4	
42	Western Red Cedar	*Thuja Plicata*		6	Remove	ROW	4	
51	Western Red Cedar	*Thuja Plicata*		8	Remove	ROW	4	
58	Douglas Fir	*Pseudotsuga menziesii*		4	Remove	ROW	4	
59	Douglas Fir	*Pseudotsuga menziesii*		6	Remove	ROW	4	
60	Douglas Fir	*Pseudotsuga menziesii*		6	Remove	ROW	4	
75	Douglas Fir	*Pseudotsuga menziesii*		6	Remove	ROW	4	
76	Big Leaf Maple	*Acer macrophyllum*		6	Remove	ROW	4	
81	Douglas Fir	*Pseudotsuga menziesii*		6	Remove	ROW	4	
91	Red Alder	*Alnus Rubra*	Significant	12	Remove	ROW	2	Snag Tree
106	Red Alder	*Alnus Rubra*	Significant	12	Remove	ROW	3	
107	Red Alder	*Alnus Rubra*	Significant	12	Remove	ROW	3	
114	Spruce	*Picea*		6	Remove	ROW	2	
126	Western Red Cedar	*Thuja Plicata*		8	Remove	ROW	2	
127	Vine Maple	*Acer circinatum*		6	Remove	ROW	2	
128	Vine Maple	*Acer circinatum*		4	Remove	ROW	2	
129	Vine Maple	*Acer circinatum*		4	Remove	ROW	2	
131	Red Alder	*Alnus Rubra*	Significant	24 (10, 14, 8, 10, 10)	Remove	ROW	2	
141	Bitter Cherry	*Prunus emarginata*		6		ROW		This tree was removed before the project started.
148	Big Leaf Maple	*Acer macrophyllum*		8	Remove	ROW	4	
149	Bitter Cherry	*Prunus emarginata*		8	Remove	ROW	3	
193	Western Red Cedar	*Thuja Plicata*		6	Remove	ROW	3	Cut tree at ground level - do not stump grind
194	Western Red Cedar	*Thuja Plicata*		6	Remove	ROW	3	Cut tree at ground level - do not stump grind
241	Red Alder	*Alnus Rubra*		8	Remove	ROW	3	
242	Big Leaf Maple	*Acer macrophyllum*		6	Remove	ROW	3	

Living with Wildlife

Snags – The Wildlife Tree

The Importance of Snags in Your Neighborhood

Dead Wood Brings New Life

Hard to believe, but trees can actually provide more habitats for wildlife dead than when they are alive. Standing dead and dying trees, called "snags" or "wildlife trees," are important for wildlife in both natural and landscaped settings, occurring as a result of disease, lightning, fire, animal damage, too much shade, drought, root competition, as well as old age.



Raccoon family in tree den. A note about raccoons – raccoons can become habituated to people; they are aggressive and sometimes dangerous and carry the roundworm *Baylisascaris procyonis* that can infect humans and pets. Do NOT leave pet food and garbage out and never feed raccoons.

Birds, small mammals, and other wildlife use snags for nests, nurseries, storage areas, foraging, roosting, and perching. Live trees with snag-like features, such as hollow trunks, excavated cavities, and dead branches can provide similar wildlife value. Snags occurring along streams and shorelines eventually may fall into the water, adding important woody debris to aquatic habitat. Dead branches are often used as perches; snags that lack limbs are often more decayed and, may have more and larger cavities for shelter and nesting. Snags enhance local natural areas by attracting wildlife species that may not otherwise be found there.

All trees of all sizes are potential snags. Unfortunately, many wildlife trees are cut down without much thought to their wildlife value or of the potential management options that can safely prolong the existence of the tree. Wildlife trees offer a one-stop, natural habitat feature. In short, snags "live on" as excellent wildlife trees for all to enjoy!

Wildlife That Use Snags

West of the Cascade Mts 39 species of birds and 14 species of mammals depend on tree cavities for their survival. East of the Cascades 39 bird species and 23 mammal species depend on these snags (Pederson, USDA Forest Service). In total, more than 100 species of birds, mammals, reptiles, and amphibians need snags for nesting, roosting, shelter, denning, and feeding (Bottorff, WSU, Snohomish Co. Ext); nearly 45 species alone forage for food in them. Hollow snags and large knot-holes are used by many species of mammals such as squirrels, marten, porcupine, and raccoons. Table 1 shows Washington State bird species that depend on snags.



Tree swallow peering from a nest cavity excavated by a woodpecker.
Photo Credit: Joy Spurr

In winter when snow covers the ground, northern flickers and other common backyard wildlife depend heavily on insects and other foods found in snags. Brown creepers, bats, and other small animals will roost behind loose bark and bark slits for winter warmth and shelter. Hollow snags are very valuable in winter as they are used by many species such as squirrels, raccoons, owls, and bear for denning and roosting.

This high use of snags by a myriad of species underscores the importance of preserving snags and including them in your landscape.

The Woodpecker - Cavity Creator

Woodpeckers such as the northern flicker create new cavities in snags and are thus referred to as "primary cavity nesters." They have thick-walled skulls supported by powerful neck muscles, and a beveled, chisel-like bill. A woodpecker's strong, grasping feet with sharp, curved nails form a triangular base for support in the vertical position along with specially adapted tail feathers. The woodpecker's barb-tipped tongue and sticky saliva help it get insects from deep crevices. Unlike other cavity-nesting birds, woodpeckers rarely use nest boxes because they are biologically conditioned to dig their own cavities: the physical motions of cavity excavation stimulate reproduction.



Northern flicker in the process of excavating its nest cavity. Note the wood chips flying.



The head of a young pileated woodpecker emerging from its nest cavity.

Woodpeckers excavate several holes each year and rarely nest in the same one in consecutive years, thus creating many cavities for secondary cavity nesters such as bluebirds, tree and violet-green swallows, chickadees, nuthatches, house wrens, wood ducks, squirrels, and owls who cannot excavate cavities themselves. Secondary cavity nesting wildlife are highly dependent upon the availability of these abandoned nest cavities.

Trees That Make The Best Snags.

Large conifers such as cedar, fir, larch, and pine, tend to rot more slowly than do deciduous trees such as alder, birch, and cherry. However, large deciduous trees such as cottonwoods, big-leaf maples, and oaks can last many years as snags. Moreover, while alive, they tend to develop cavities in their bulky live and dead branches and trunks

Large snags more than 12 inches in diameter and 15 feet tall offer ideal hunting perches for hawks, eagles, and owls. They function as resting perches for swallows, band-tailed pigeons, mourning doves and other birds; food storage for mice, squirrels, woodpeckers, and jays; and song perches for tanagers and flycatchers. In addition to nesting, woodpeckers use large dead tree trunks as a way to announce their presence during courtship, hammering their bills against the tree's resonating surface. Small snags may be used as song posts by bluebirds, hummingbirds, and other songbirds to attract mates and proclaim nesting territories. Black-capped chickadees nest in small tree snags as little as six feet tall and four inches in diameter.



Bald eagles using a large dead tree snag. Bald eagles prefer bulky, tall snags for perching.

Tree Species. Snags of both deciduous trees (those that shed leaves in winter) and conifer trees (evergreens) are used by wildlife. The most favored snag species east of the Cascades are: ponderosa pine, western larch, quaking aspen, and paper birch; west of the cascades Douglas fir and western red cedar snags are highly favored and big-leaf maple and



Hard and Soft Snags

A snag habitat begins to form when a large tree dies and forms a "Hard Snag." As this hard snag decays it gradually becomes a "Soft Snag." A partially or recently dead tree is a hard snag. Hard snags tend to have their bark intact while the heartwood (the non-living inner core) and sapwood (the younger, softer, growing wood between the bark and heartwood) are still firm. These kinds of snags are good for cavity excavating birds. A soft snag has considerable decay in its heart and sapwood. Fungi infiltrate the heartwood and the tree becomes soft or hollow in the center. A soft snag rarely has limbs, and its top may be missing. Over the years, a soft snag gets shorter as weather and animal activity weakens it. Eventually it falls over and continues to provide important food and shelter on the ground.

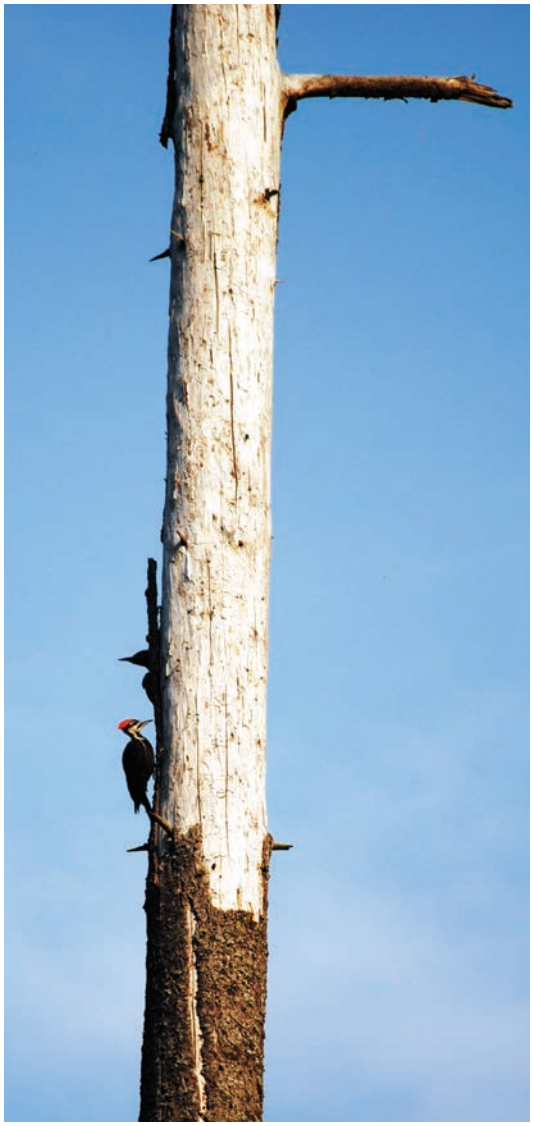
The snag with the abundant nest cavities and foraging evidence is a soft snag that has been used for many years. This photo was taken four years after the flat-top trees were created from live Douglas fir; they have barely started the decay process yet woodpeckers are beginning to work them.

Photo Credit: Patricia Thompson



Red squirrel poking out of a den tree savoring a nut dropped by a passerby. Central Park, New York City.

Photo Credit: Bruce Yolton
urbanhawks.blogs.com/.../2006/01/index.html



Pileated woodpeckers foraging on an old dead snag pulling off the bark to get to the insects underneath. Note the thick bare branch at the top of the tree perfect for bald eagles or other large birds.

Photo Credit: Patricia Thompson

Dead Tree/Wildlife Condo

You can see where wildlife finds food and shelter if you look carefully at a snag:

- A snag harbors many insects that are food for wildlife. The outer surface of the bark is where birds such as brown creepers, nuthatches, and woodpeckers eat bark beetles, spiders, and ants.
- The inner bark is where woodpeckers eat larvae and pupae of insects. Mammals such as raccoon and black bear may tear into these areas of snags to harvest the protein-rich insects.
- The heartwood is where strong excavators such as the pileated woodpecker prey upon carpenter ants and termites.
- The space between partially detached bark and the tree trunk is where nuthatches, winter wrens, and brown creepers roost or search for food. Pacific tree frogs, several species of bats, and many butterflies also find shelter there.



Live aspen snag "condominium." These trees have many nesting cavities excavated by at least three species of woodpeckers. In the tree on the left, the largest rectangular hole is a pileated woodpecker nest in which the pileateds were seen nesting; the top cavity just under the greenery was excavated and used by northern flickers; smaller nest cavities were excavated by red-naped sapsucker and also used by black-capped chickadee and house wren for nesting. Look for small nest holes in the tree on the right also.

Photo Credit: Patricia Thompson

cottonwood are also used. Softwood trees such as fir tend to make better food foraging trees, while hardwood trees are sometimes better for nesting cavities. Nevertheless, just about any species of snag tree will be used by wildlife.

Size. Small trees rot rapidly, creating wildlife habitat. Black-capped chickadees nest in snags as small as six feet tall and four inches in diameter. The large conifers such as cedar, fir, larch, and pine, tend to rot more slowly than do deciduous trees such as alder, birch, and cherry. However, large deciduous trees such as cottonwoods, big-leaf maples, and oaks can last many years as snags. Moreover, while alive, they tend to develop cavities in their bulky and dead branches and trunks.

Decay. The best snags for cavity-nesters are those with hard sapwood (between bark) and decayed heartwood (inner core) making them hard on the outside and soft in the middle. The hard sapwood provides protection from



Cedar snag with top burned out by homeowner adds an interesting and striking feature to this backyard landscape.

Photo Credit: Russell Link



Photo Credit: Russell Link

predators and insulation against weather, while the softened heartwood allows easy excavation deep into the snag. Many birds avoid very soft snags for nesting because extremely soft wood can be wet or crumbly.

Strong primary excavators, such as the pileated woodpecker and northern flicker, occasionally select living trees with decayed heartwood because they can penetrate through the sound layer of sapwood and excavate the nest cavity in the soft heartwood. Generally, the sapwood remains fairly intact and forms a shell surrounding the decaying heartwood. The excavated interior may remain useable for many years by many species.

Snags in Your Landscape

Try to incorporate one or more snags into your landscape keeping old and damaged trees when possible. When clearing, retain trees and tall shrubs near the planned snag to protect it from wind and provide a healthier environment for wildlife. In urban areas, tall snags are best located away from high activity areas, where they won't pose hazard if they fall. Trees that lean away or are downhill from structures and other areas of human activity present little or no risk.



A professional arborist creates an alder tree snag giving it a natural-looking jagged top. You must hire a professional to create these tall snags. It is unwise to attempt this yourself.

Photo Credit: Russell Link

Ways to Tell a Future Snag:

- Sap runs,
- Splits in the trunk,
- Dead main limbs,
- Fungi on the bark.
- Evidence of animal use, such as woodpecker holes.

Also, note any trees you may want to make into a snag including:

- Hazard trees--for example, one with a forked top, weak wood, or disease,
- A shade tree in an area where you want sun,
- A tree with invasive roots threatening a drainage or septic system,
- A tree in a group that needs thinning out,
- A tree in an area where there aren't any snags.

Because individual snags may have only one wildlife habitat feature (perch, cavity, etc.), retaining and promoting small clumps of snags throughout a larger property is more likely to provide all of these features. Small dead ornamental and fruit trees can be left in the landscape where they are not a safety hazard because they will be used as perches for preening, resting, foraging, and singing.

Creating Snags from Live Trees

Any snag you provide for wildlife will likely be used. You can even create one from a live tree. Branches or trunk you remove can be added to a brush shelter. Remember, a tree can provide habitat even when just part of it dies. For instance, if a large conifer has a fork in it, you can girdle one of the forks creating an excellent perch. If the trunk of this tree is large enough in diameter, a future cavity may develop at the perch limb dies. In addition, if the tree is not dying after the side branches and top have been removed; some individual side branches can be girdled to create perches help the tree decline.

Always hire an expert tree service to remove branches and tops of large trees. Make sure that whoever does the work is licensed, bonded, and insured, and understands your intention to make a wildlife tree. Many certified arborists with the International Society of Arboriculture specialize in wildlife tree creation and maintenance. Check with your local chapter.

There are several methods for creating snags:

- Remove the top third of the tree and half the remaining side-branches.
- Leave the top the way it is and remove a majority of the tree's side-branches.
- Leave the top and sides as they are and girdle the trunk.
- Girdle the branches.

Creating a Cavity in a Live Tree

Gradual Technique

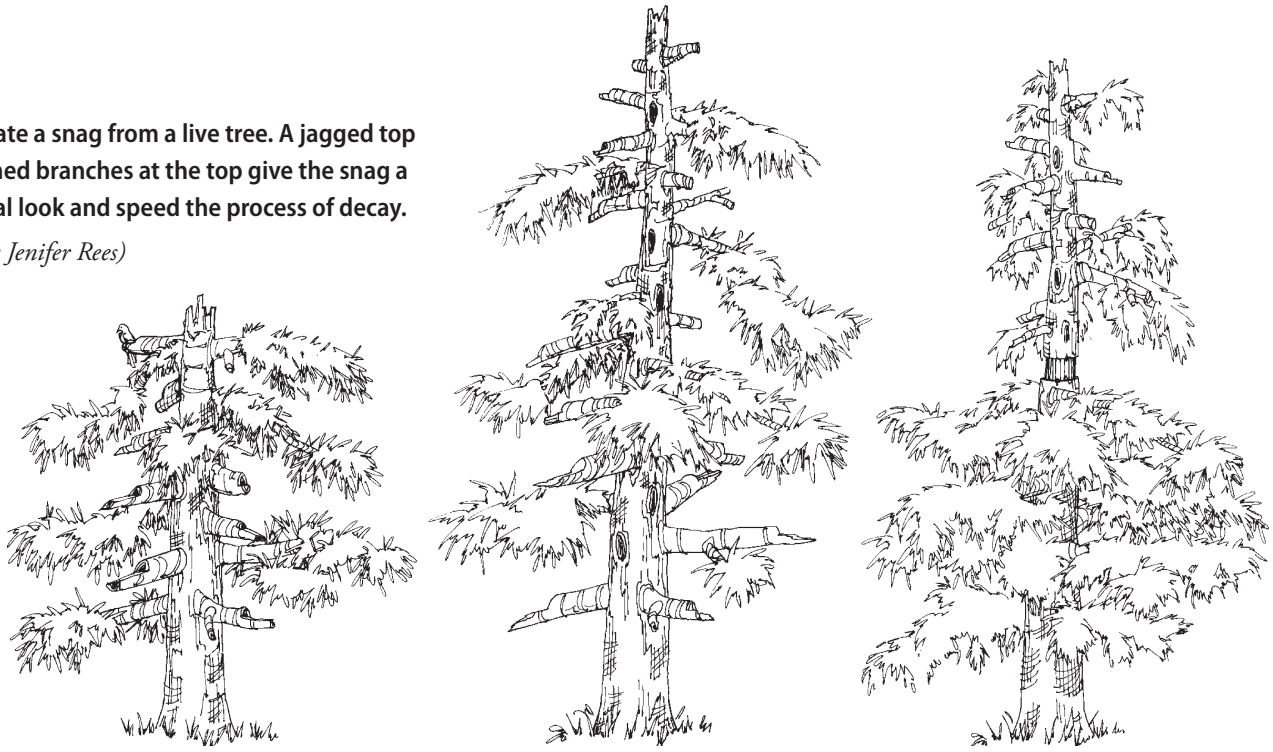
Drill a 1" diameter hole at a ten-degree angle downwards into the heartwood of the tree anywhere water might collect, such as below a crotch of a branch, starting the cavity making process. The illustration shows the drill going up

Remove a large (4" or larger) limb and leave the jagged, broken stub allowing for invasion by bacteria, fungi, and insects. Most diseases attack the dead heartwood and the outer layer can continues its growth around the rotten core; the rest of the tree can continue to grow for many years.

Rapid Technique

Cut a cavity in the trunk using a small chain saw, drill, or chisel. Next, cover the cutout with a piece of wood or sheet metal with the species-appropriate size entry hole drilled into it. Whether this kills a tree depends on the size of the cavity in relation to the size of the tree.

To prevent aggressive, non-native European starlings and house sparrows from nesting in a snag, create or reduce the size of an existing hole to 1 1/8 inches using leather, wood, or metal covers.



Ways to create a snag from a live tree. A jagged top and shortened branches at the top give the snag a more natural look and speed the process of decay.

(Drawing by Jenifer Rees)

Remove the top third of the tree and half the remaining side branches. This method ensures that the tree begins the preferred inside-out decay process, premium sites for cavity-nesting birds. Leave some shortened branches at the top for perches and make the snag look natural by creating a jagged top. A jagged top also provides an avenue for fungi infection and other rot-causing organisms. Water and bird feces will collect and speed decay. Sow bugs, earwigs, and other invertebrates will find their way in and assist in the decay process.

Leave the top intact and remove about 3/4 of the tree's side-branches. Douglas fir, hemlock, and pine respond well to this technique. Western red cedar is a tough conifer to kill in this way, but it makes an excellent snag because it is extremely wind-resistant and long-lasting. Keep branch ends jagged and more susceptible to microorganisms and fungi, and more natural looking.

Leave the top and sides as they are and girdle the trunk. Least preferred method. Girdling creates a dead but intact top, providing a taller snag, but leaves it more susceptible to breaking at the wound site. Girdling tends to cause a tree to rot from the outside in, instead of the preferred inside-out. As a result, by the time the rot has progressed far enough for woodpeckers to excavate a cavity, the tree has become fragile and may easily fall in a windstorm. Furthermore, a cavity in a girdled tree may not be safe because the hole is likely to be shallow, which exposes young to weather and predators.

To girdle a tree, remove a four-inch belt of inner and outer bark around the trunk which stops the movement of water and nutrients. If girdling is done at breast height and the tree falls, this leaves very little remaining snag habitat. Therefore, try to make the girdling cut as high up as possible. Big-leaf maple, aspen, and poplar may send up sprouts, which can be removed or left to grow around the tree as temporary cover. Some tree species, alder for example, are difficult to kill even when properly girdled. A tree girdled in winter may not show signs of decline until well into spring, after it has used its stored energy.

Roosting Slits

Roosting slits for bats and some songbirds, including brown creepers, may be added to created snags that are tall enough and wide enough in diameter to accommodate the cuts. The slits should be at least eight inches deep, one or more inches wide, and angled sharply upward. Bats need to fly up into the slits so the slits should be located in an area free of branches. The higher up the snag they are, the more likely these roosting slits will be used. Some sun exposure warms these roosts and makes them more attractive in winter.



Brown creeper on a snag with visible roosting slits.

Relocating Snags

It is possible to install a small snag on your property obtained from somewhere else, such as those salvaged from a construction or logging site. Be sure to get permission from the landowner. Snag relocation is difficult, dangerous and usually requires professional help and special equipment. A dead tree is generally much heavier and more fragile than it looks weighing several hundred or even thousands of pounds. Remember, if you double the diameter of a cylinder, you quadruple the weight. An old snag, too rotten to support its own weight, is best used as a log.

Relocate the snag to a place where it will remain upright and secure. If you are moving it within your property, try to install it as close as possible to its original location minimizing disturbance to wildlife that have been using it. Locate the snag in a wind-protected area near live trees and shrubs.

"Planting" a large snag.

Before setting the snag, cut its base flat so the snag will stand straight. Then do any of the following:

- Place it in a hole approximately one-third the height of the snag and firmly tamp soil, gravel, or pour a concrete footing around it.
- Lower a firm, hollow snag over a metal or wooden post that's been securely placed in the ground.
- Wire the snag to a sturdy post.

Hazard Tree and Snag Management

If not managed properly, snags can pose a risk to people and structures. If a dead or dying tree threatens something that can be moved, such as a swing set or patio furniture, consider moving those items before cutting the tree down. An alternative to eliminating the entire tree is to remove only the dangerous section(s). Consulting with a certified arborist with experience in wildlife snags is recommended. These professionals can determine what part of a tree is a hazard and provide management options to reduce or eliminate any risk. Remaining parts can be removed over time. Often, once the unsafe limbs or portions of the trunk have been removed, the tree is safe.

When a tree must be cut down, maximize its habitat value by placing as much of the debris as possible near the area where the tree was removed. In hot, dry areas, move the material into the shade of nearby trees or large shrubs. Bringing branches in contact with the ground will cause them to rot faster. Place a nest box on your site as replacement for cavities lost through tree or limb removal.



Wood duck ducklings plunging from their nest cavity in a tree. This is normal behavior for wood ducks when leaving the nest cavity which can be anywhere between 6 to 15 feet above ground and almost always above water into which they fall.

Photo Credit: Mike Lentz Images

References

Bull, E.L., C.G. Parks, T. R. Torgersen. 1998. *Trees and Logs Important to Wildlife in the Interior Columbia River Basin.* Diane Pub. 55 pgs.

Gilles, B.K. 2004. *Tree cutting and pruning to benefit urban wildlife.* Proceedings 4th International Urban Wildlife Symposium, Shaw et al., Eds. Pgs 325-329. http://ag.arizona.edu/pubs/adjunct/snr0704/snr07043l.pdf.

Link, R.E. 1999. *Landscaping for Wildlife in the Pacific Northwest.* Washington Department of Fish and Wildlife, University of Washington Press. 320 pp.

MacKenzie, Martin, T.T. Dunlap, B.J. Spears, and J.G O'Brien. 2003. Ch 5. *Correction of Hazardous Defects in Trees.* See Pp 143-159. *In Urban Tree Risk Management: A Community Guide to Program Design and Immplementation.* J.D Pokorny, Ed. USDA Forest Service, Northeastern Section. St. Paul MN. See: http://www.na.fs.fed.us/urban/index.shtm.

Rohila, C.M. 2002. *Landscape and Local Effects on Snags and Cavity-Nesting Birds in an Urbanizing Landscape.* Thesis, University of Washington College of Forest Resources, Seattle, WA.

Web Sites and Documents

Bottorff, J. *Snags, coarse woody debris, and wildlife.* Snohomish Co. Extension Service, Washington State University. http://snohomish.wsu.edu/forestry/documents/SNAGS.pdf

Fletcher Wildlife Gardens. *Wildlife Trees.* http://www.ofnc.ca/fletcher/howto/htsnags.php

Lewis, J.C. and J.M. Azerrad. 2003. *Priority Species Management Recommendations: Pileated Woodpecker; Black-backed woodpecker; Lewis' woodpecker; Flammulated owl; Cavity nesting ducks.* Washington Department of Fish and Wildlife;. http://wdfw.wa.gov/conservation/phs/mgmt_recommendations/ Click Volume IV: Birds; See Pileated Woodpecker.

Maser, Chris, Andrew Claridge, and James M. Trappe. 2007. *Trees, Truffles, and Beasts: How Forests Function.* Rutgers University Press

National Wildlife Federation. *Attracting Wildlife with Dead Trees*. http://www.nwf.org/Get-Outside/Outdoor-Activities/Garden-for-Wildlife/Gardening-Tips/Attracting-Wildlife-With-Dead-Trees.aspx

Pederson, Richard J. 1991. *Managing Small Woodlands for Cavity Nesting Birds.* USDA Forest Service, Pacific NW Region. 6 pages. http://www.woodlandfishandwildlife.org/.

Shay, Ron. 1997, revised 2007. *Cavity Nesting Ducks.* U.S. Fish and Wildlife Service. 8 pages. http://www.woodlandfishandwildlife.org/publications.htm/.

Snags, Cavity Trees, and Downed Logs. Oklahoma Cooperative Extension Service. http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-5202/Snags%20L-270.pdf.

US Forest Service. 1988. *From the Forest to the Sea: The Story of Fallen Trees.* PNWGTR229, Pacific Northwest Research Station, US Dept. of Agriculture, Portland, OR. http://www.fs.fed.us/pnw/pubs/gtr229.

Washington Department of Fish and Wildlife. Backyard Wildlife Sanctuary Program. http://wdfw.wa.gov/wlm/backyard/. Note – in particular, see the link for "Nest Boxes for Birds" section for cavity diameter and related habitat specifics.

Organizations

International Society of Arboriculture, Pacific Northwest Chapter. (503) 874-8263. http://www.pnwisa.org/

Plant Amnesty. (206) 783-9813. http://www.plantamnesty.org/home/index.aspx



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Phil Anderson, Director, Washington Department of Fish and Wildlife. Miranda Wecker, Chair, Washington Fish and Wildlife Commission.

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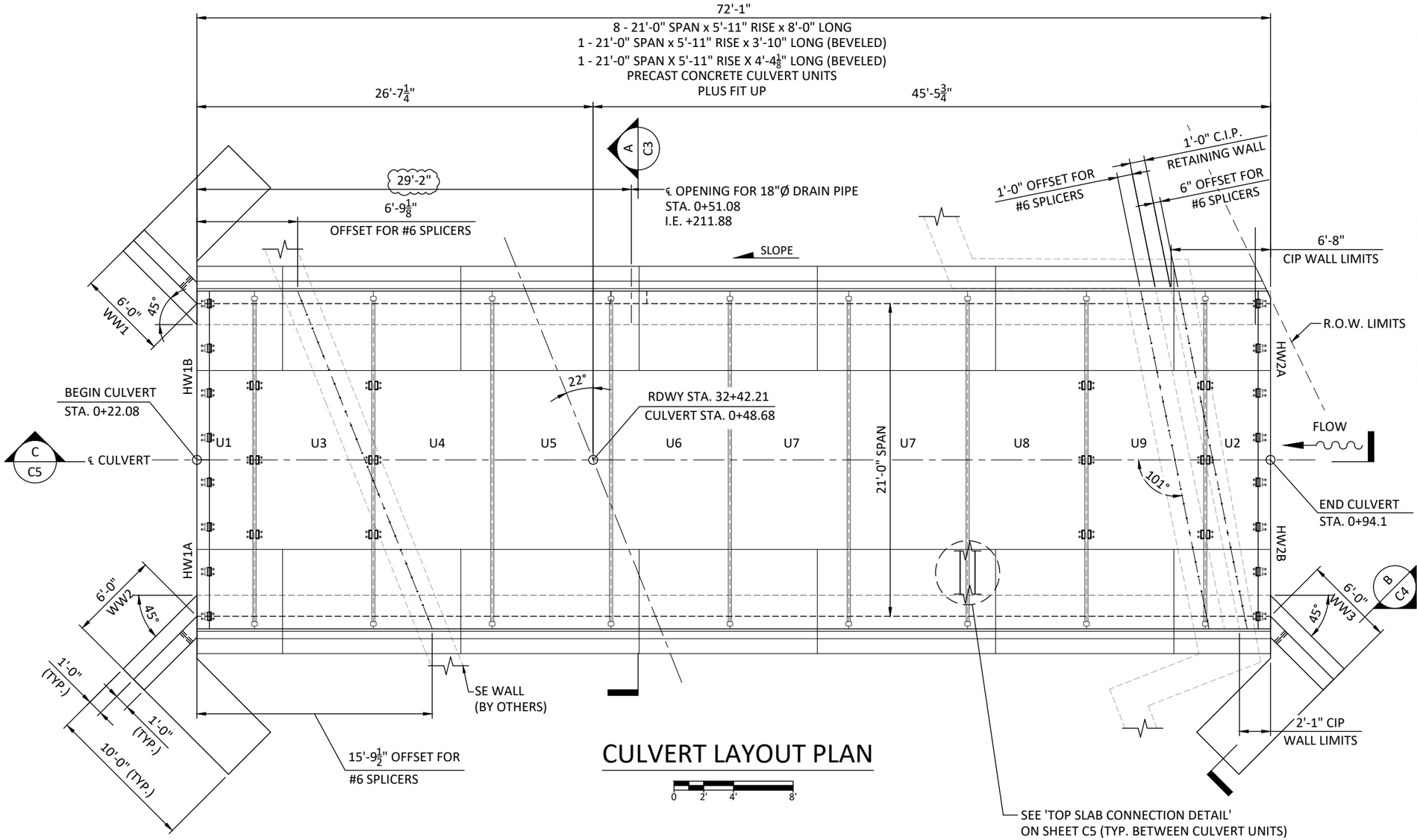
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APPENDIX H

TITAN CULVERT DRAWINGS

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

CITY OF DUVALL WASHINGTON



CULVERT LAYOUT PLAN

DESIGN NOTES

1. THIS STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS "LRFD BRIDGE DESIGN SPECIFICATIONS", 9TH EDITION AND INTERIM SPECIFICATIONS, PER WSDOT BRIDGE DESIGN MANUAL, AND WSDOT STANDARD SPECIFICATIONS TO DATE. DESIGN LOADS ARE AS FOLLOWS:

CULVERT UNITS: HL-93 + SEISMIC
SEISMIC PGA: 0.38
DESIGN FILL HEIGHT: 4'-0" MIN. TO 8'-0" MAX.
HEADWALLS: EARTH PRESSURE + SEISMIC
WINGWALLS: EARTH PRESSURE + LIVE LOAD SURCHARGE + SEISMIC

2.CULVERT:
SERVICE LIMIT STATE BEARING RESISTANCE: 13,800 PSF
(1" SETTLEMENT)
STRENGTH LIMIT STATE BEARING RESISTANCE: 8,900 PSF
EXTREME EVENT LIMIT STATE: 17,900 PSF

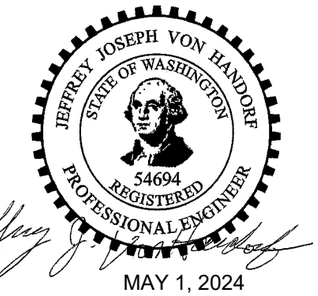
WINGWALLS:
SERVICE LIMIT STATE BEARING RESISTANCE: 6,250 PSF
(1" SETTLEMENT)
STRENGTH LIMIT STATE BEARING RESISTANCE: 8,250 PSF
EXTREME EVENT LIMIT STATE: 9,500 PSF

GEOTECHNICAL INFORMATION PER GEOTECHNICAL SUMMARY PROVIDED BY GEO ENGINEERS DATED FEBRUARY 15, 2024.

3. CONFORMANCE TO THESE DRAWINGS, SPECIFICATIONS, AND EXISTING CONDITIONS, INCLUDING HYDRAULIC CAPACITY, SCOUR, GRADING AND SOIL CONDITIONS SHALL BE VERIFIED BY OTHERS.

4. THE ENGINEER HAS NOT BEEN RETAINED OR COMPENSATED TO PROVIDE DESIGN AND/OR CONSTRUCTION REVIEW SERVICES RELATED TO THE CONTRACTOR'S SAFETY PRECAUTIONS OR TO MEANS, METHODS, TECHNIQUES OR PROCEDURES FOR THE CONTRACTOR TO PERFORM THE WORK. THE UNDERTAKING OF PERIODIC SITE VISITS BY THE ENGINEER SHALL NOT BE CONSTRUED AS SUPERVISION OF ACTUAL CONSTRUCTION NOR MAKE HIM RESPONSIBLE FOR PROVIDING A SAFE PLACE FOR THE PERFORMANCE OF THE WORK BY THE CONTRACTOR, SUB-CONTRACTOR OR ANY PERSON ON THE SITE.

NOTE:
ALL STRUCTURE LOCATIONS, STATIONING, ELEVATIONS, AND DIMENSIONS TO BE APPROVED BY OTHERS PRIOR TO POURING PRECAST.



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
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1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

LOCALE: CITY OF DUVALL **STATE:** WA

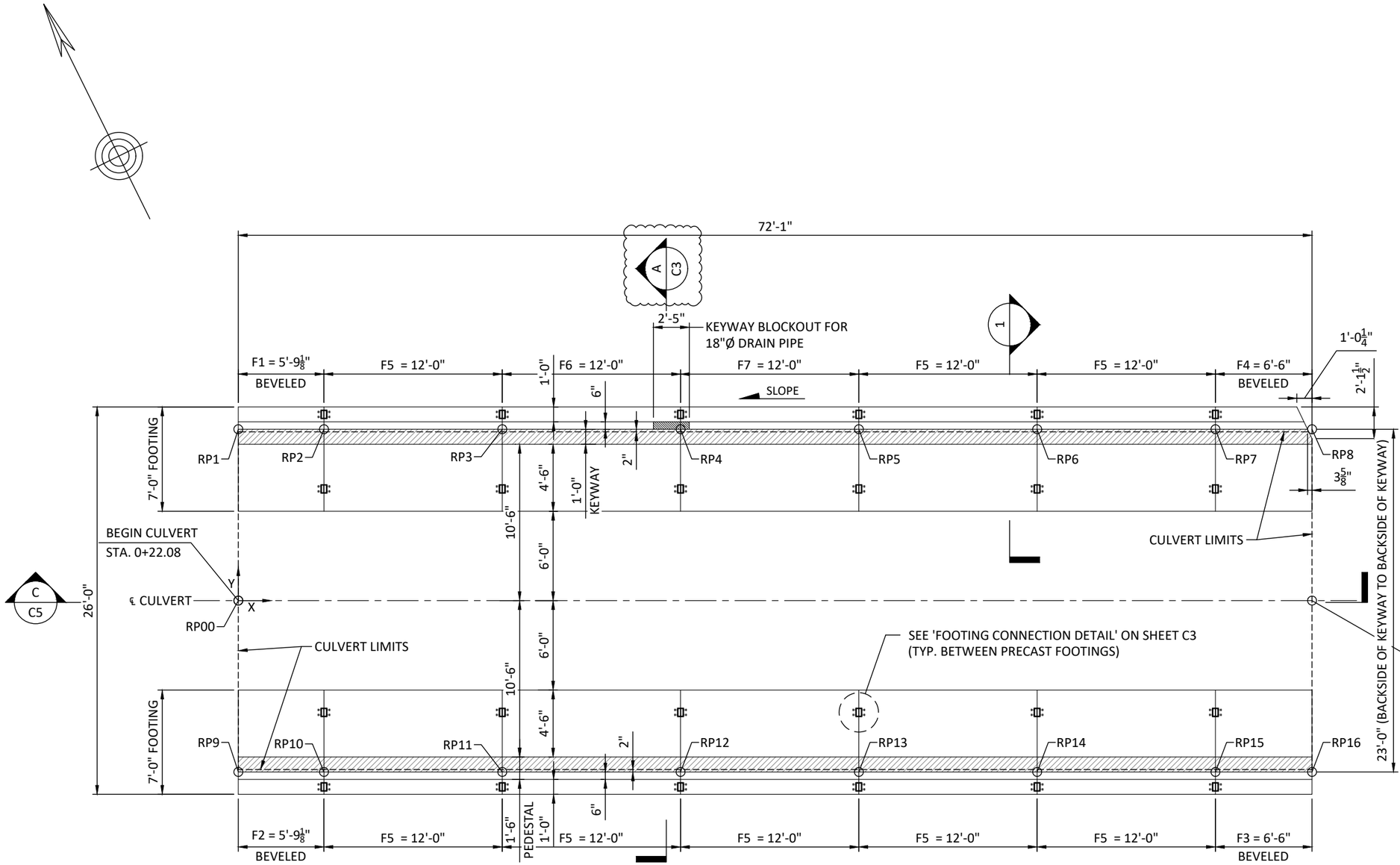
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DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

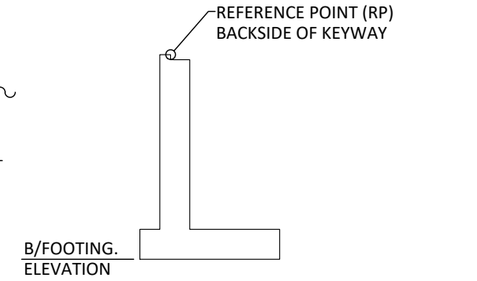
C1

REF POINT CHART (ORIGIN IS REF POINT 00)				
	REF	X-AXIS(FT)	Y-AXIS(FT)	B/FTG EL.
	RP00	0'-0"	0'-0"	---
SOUTH ABUTMENT	RP1	-0'-1 1/8"	10'-6"	199.66
	RP2	9'-4 1/8"	10'-6"	200.13
	RP3	18'-9 3/8"	10'-6"	200.99
	RP4	28'-2 5/8"	10'-6"	201.85
	RP5	37'-7 7/8"	10'-6"	202.72
	RP6	47'-1 1/8"	10'-6"	203.58
	RP7	47'-1 1/8"	10'-6"	204.44
	RP8	47'-1 1/8"	10'-6"	204.86
NORTH ABUTMENT	RP9	-0'-1 1/8"	10'-6"	199.66
	RP10	9'-4 1/8"	10'-6"	200.13
	RP11	18'-9 3/8"	10'-6"	200.99
	RP12	28'-2 5/8"	10'-6"	201.85
	RP13	37'-7 7/8"	10'-6"	202.72
	RP14	47'-1 1/8"	10'-6"	203.58
	RP15	47'-1 1/8"	10'-6"	204.44
	RP16	47'-1 1/8"	10'-6"	204.86



PRECAST CULVERT FOOTING PLAN

0 2' 4' 8'



SECTION 1

0 2' 4' 8'

JEFFREY JOSEPH VON HANDORF
STATE OF WASHINGTON
54694
REGISTERED
PROFESSIONAL ENGINEER

MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

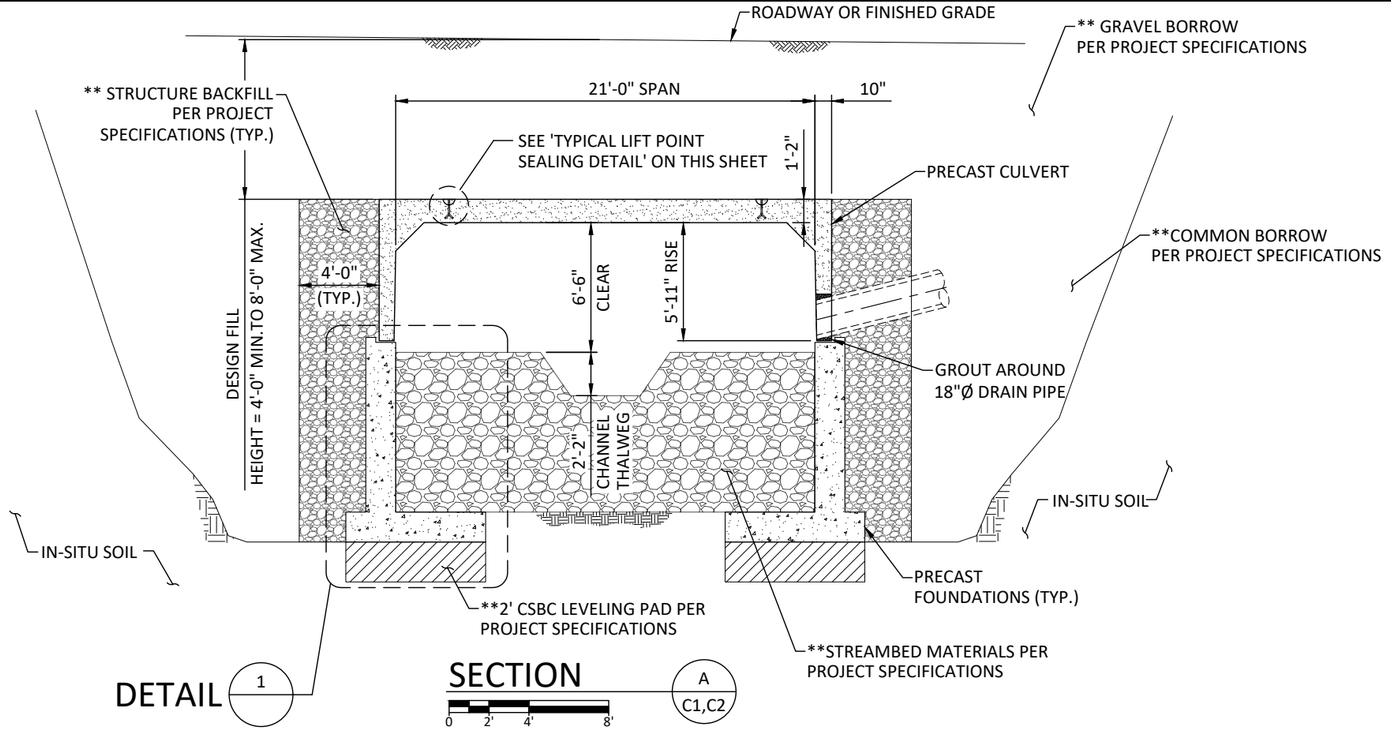
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

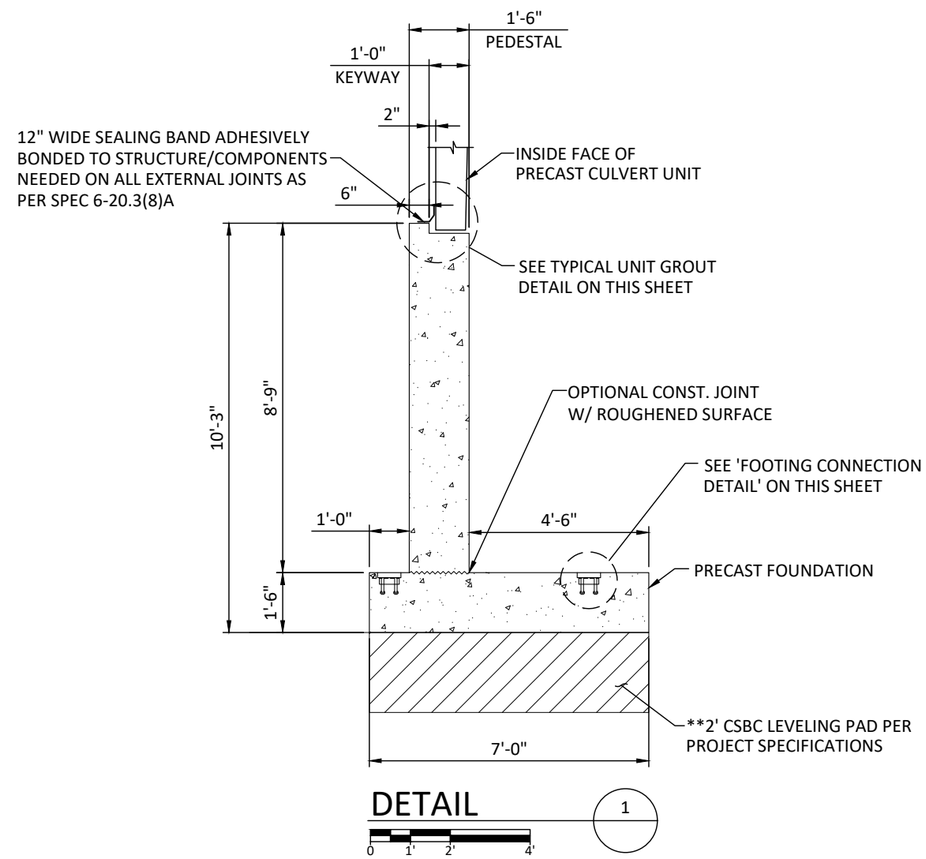
DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

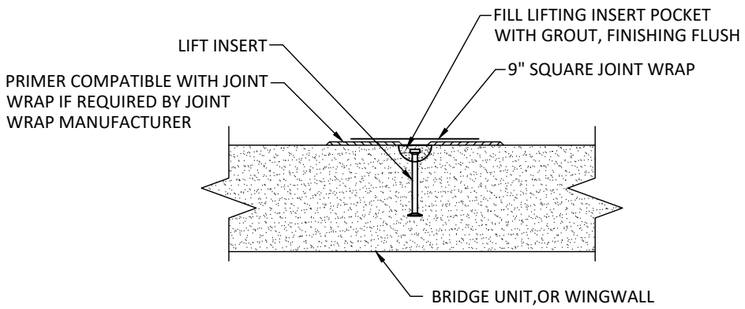
PROJECT NUMBER: 24-171
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C2



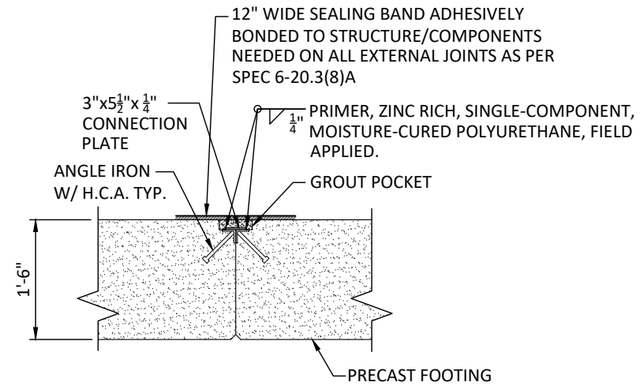
**NOTE:
ALL BACKFILL AND BEDDING MATERIAL SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE SPECIAL USE PROVISIONS.





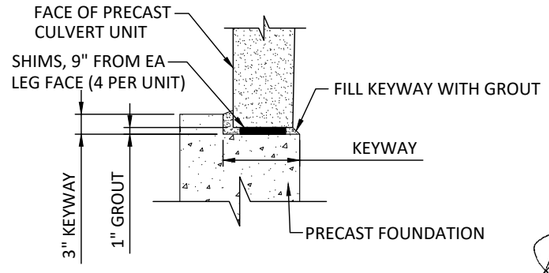
TYPICAL LIFT POINT SEALING DETAIL

NOT TO SCALE



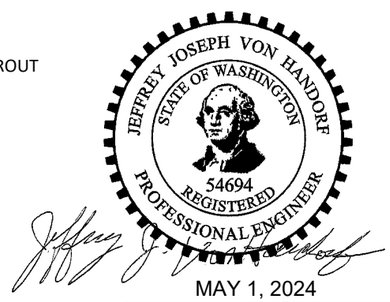
FOOTING CONNECTION DETAIL

NOT TO SCALE



UNIT GROUT DETAIL

NOT TO SCALE



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CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

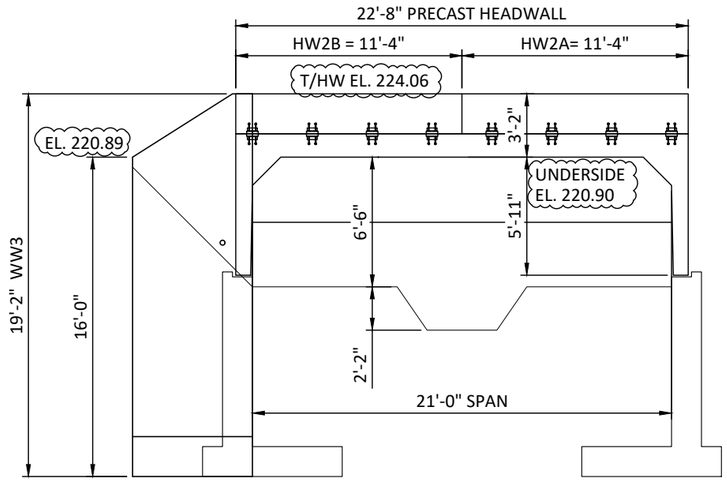
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
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PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
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800.241.0925

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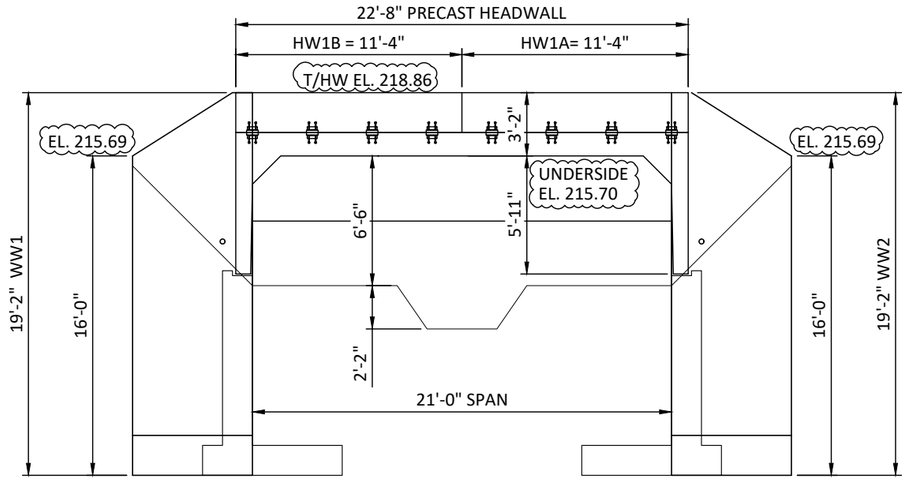
C3



EAST END ELEVATION

DRAWN ALONG FACE OF PRECAST

0 2' 4' 8'



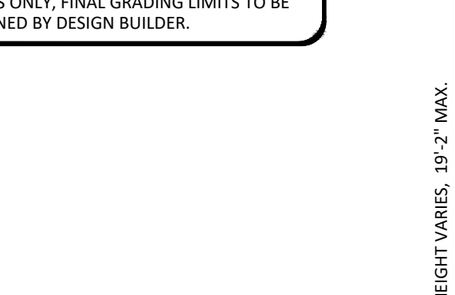
WEST END ELEVATION

DRAWN ALONG FACE OF PRECAST

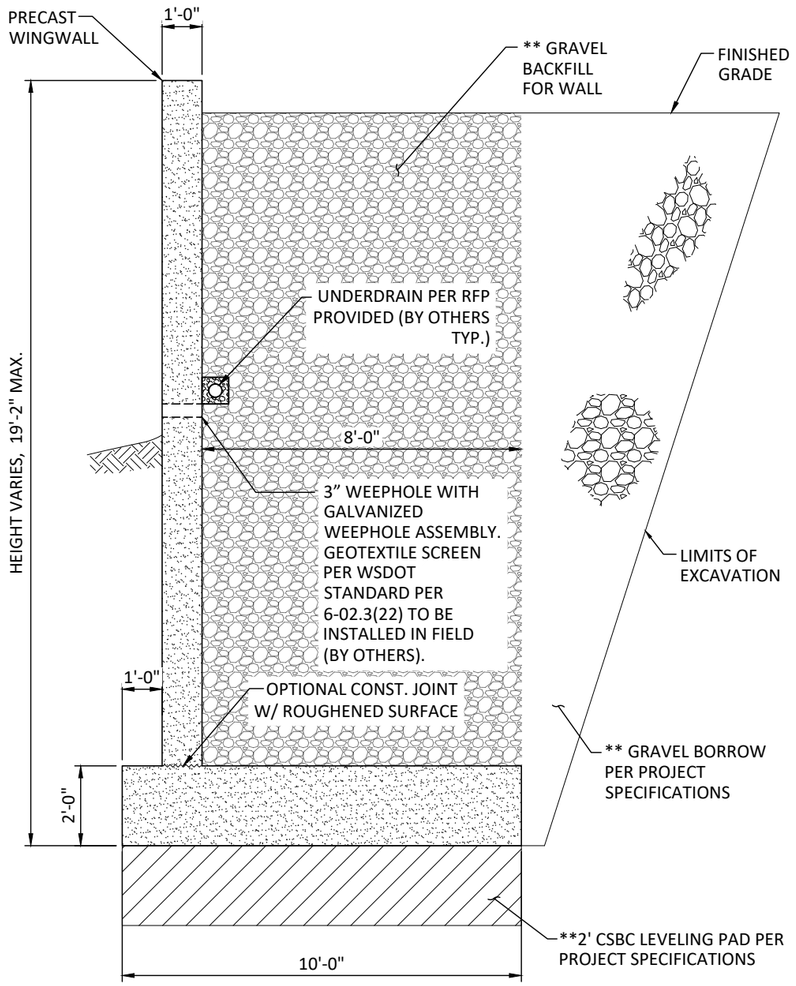
0 2' 4' 8'

NOTE:
STRUCTURE ELEVATIONS TO BE VERIFIED BY OTHERS.

NOTE:
GRADING LIMITS ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY, FINAL GRADING LIMITS TO BE DETERMINED BY DESIGN BUILDER.



WEEPHOLE ASSEMBLY



SECTION B C1

0 1' 2' 4'

**NOTE:
ALL BACKFILL SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE SPECIAL USE PROVISIONS.

JEFFREY JOSEPH VON HANDORF
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CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

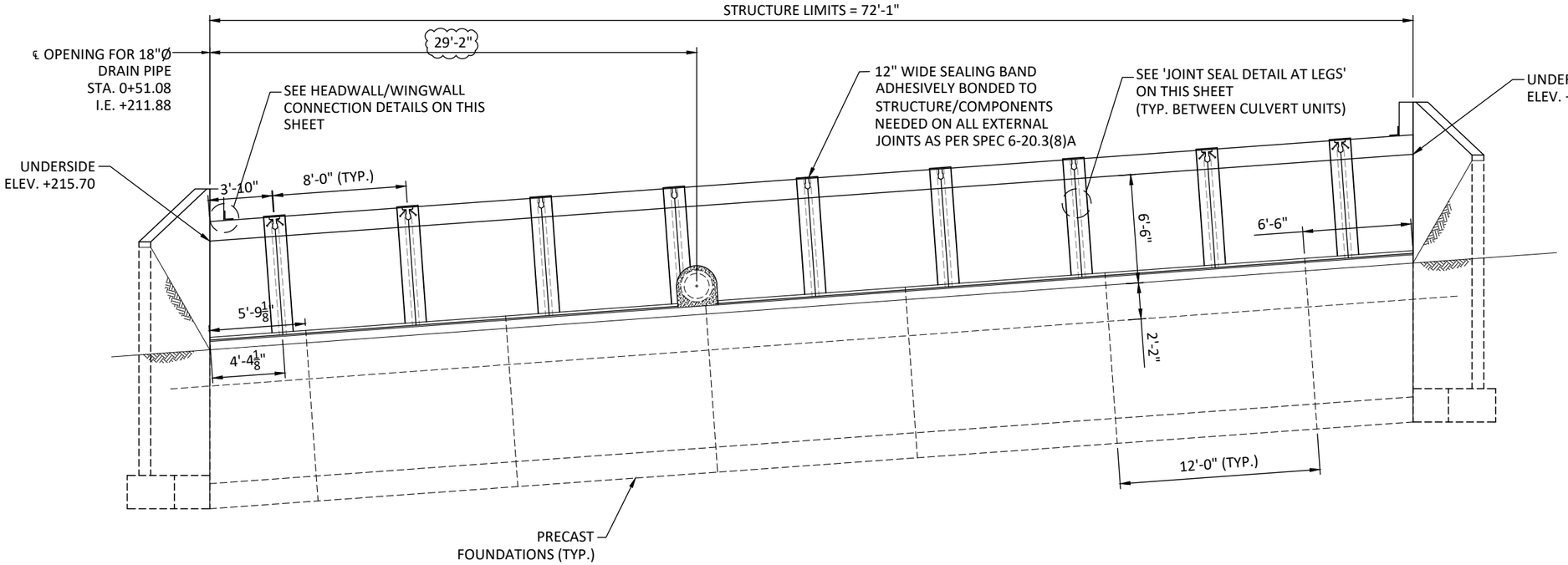
LOCALE: CITY OF DUVALL **STATE:** WA

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DESIGNED BY:
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BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
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C4

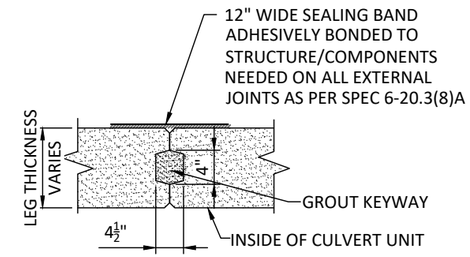


SECTION

C1,C2

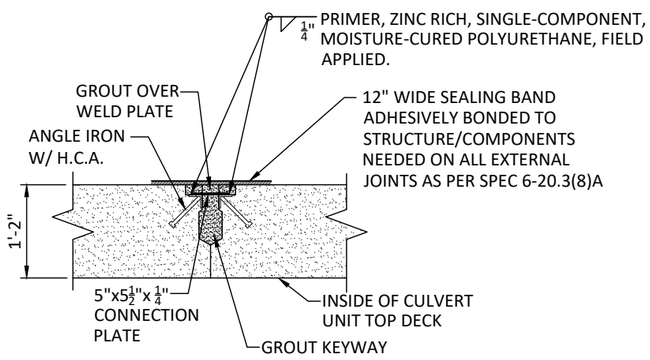
0 2' 4' 8'

NOTE:
ALL KEYWAYS, GROUT PORTS, AND RECESS POCKETS TO BE GROUTED WITH 5,000 PSI TYPE 2 NON-SHRINK GROUT.



JOINT SEAL DETAIL AT LEGS

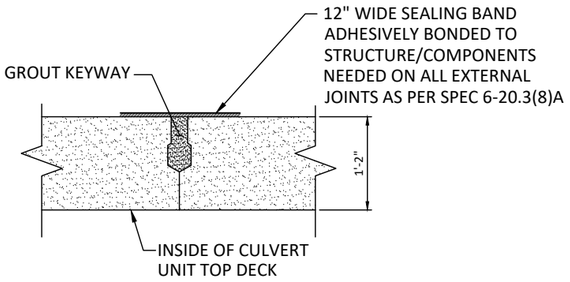
NOT TO SCALE **NOTE: OMIT KEY ON EXTERIOR FACES OF PIECES MARKED "U1" & "U2"**



TOP SLAB CONNECTION DETAIL

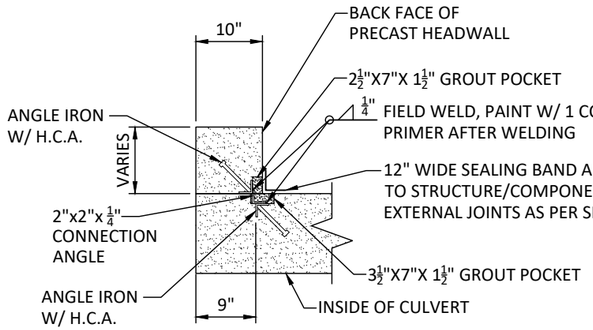
NOT TO SCALE EXTERIOR UNITS

NOTE: OMIT KEY ON EXTERIOR FACES OF PIECES MARKED "U1" & "U2"



TOP SLAB CONNECTION DETAIL

NOT TO SCALE INTERIOR UNITS



HEADWALL CONNECTION DETAIL

NOT TO SCALE

JEFFREY JOSEPH VON HANDORF
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CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

C5

CONSTRUCTION NOTES

WSDOT CULVERT INSTALLATION AND BACKFILL PROCEDURES

1. PRECAST ELEMENTS SHALL BE INSTALLED AS SHOWN ON THE PLANS AND SPECIAL CARE SHALL BE TAKEN TO VERIFY THAT ELEMENTS ARE PLACED TO FOLLOW THE DESIGNATED CENTERLINE OF THE STRUCTURE.
2. SEE CONTRACT DRAWINGS FOR STATIONING AND ALIGNMENT INFORMATION.
3. DIRECTION OF LAY IS DOWNSTREAM TO UPSTREAM.
4. BASES OF FOOTINGS AND WINGWALLS (IF APPLICABLE) SHALL BE PLACED FIRST, WELD AND PRIME CONNECTION POINTS, AND GROUT PER APPLICABLE DETAILS.
5. PARTIAL BACKFILL AND/OR INFILL MAY BE PERFORMED BEFORE TOPS ARE INSTALLED AS LONG AS DIFFERENTIAL FILL AND LIFT REQUIREMENTS ARE MAINTAINED.
   a. WSDOT QPL APPROVED CEMENT GROUT MUST MEET MINIMUM COMPRESSIVE STRENGTH OF 4,000PSI BEFORE BACKFILLING OR INSTALLING STREAMBED MATERIAL.
   b. MECHANICAL TAMPERS OR APPROVED COMPACTING EQUIPMENT SHALL BE USED.
   c. DURING BACKFILLING, AT NO TIME SHALL THERE BE MORE THAN 24" DIFFERENCE BETWEEN BACKFILL HEIGHT ON EACH SIDE OF THE CULVERT.
   d. AT NO TIME SHALL HEAVY CONSTRUCTION OR BACKFILLING EQUIPMENT IN EXCESS OF 8 TON BE PERMITTED OVER THE STRUCTURE OR WITHIN 3' OF ANY STRUCTURAL ELEMENT WITHOUT AT LEAST 2' OF COVER OVER THE STRUCTURE UNLESS THE STRUCTURE IS DESIGNED FOR LESS COVER.
   e. SPECIAL CARE IS TO BE TAKEN DURING BACKFILLING TO PROTECT THE PLACEMENT OF JOINT WRAP OR ANY WATERPROOFING MATERIAL.
6. TOP SLABS OR SECTIONS AND WINGWALLS/HEADWALLS (IF APPLICABLE) SHALL BE PLACED NEXT. WELD AND PRIME CONNECTION POINTS, GROUT, AND SEAL PER APPLICABLE DETAILS.
7. WELDED CONNECTIONS ARE TO BE PERFORMED IN ACCORDANCE WITH WSDOT SPEC 6-03.3(25).
   a. AFTER WELDING, EXPOSED METAL MUST BE COATED WITH A WSDOT QPL APPROVED PRIMER PER WSDOT SPEC 6-20.3(8)A AND 9-08.1(2)F
   b. IF WELDED CONNECTIONS ARE BELOW THE THE 100 YEAR MEAN 2 RECURRENCE INTERVAL WATER SURFACE, AN APPROVED TYPE IV EPOXY PER 9-26.1(1)A SHALL BE USED IN PLACE OF PRIMER
   c. ONCE PRIMER OR EPOXY IS CURED, WELDED CONNECTION VOIDS SHALL BE FILLED WITH TYPE 2 NON-SHRINK GROUT PER WSDOT 9-20.3(2)
8. PER 2023 STANDARD SPECIFICATION 6.20.3(2)A CALLS OUT “DEMONSTRATION HOW THE MINIMUM SERVICE LIFE OF 75-YEARS SHALL BE ACHIEVED”. THERE ARE TWO WAYS THAT THIS REQUIREMENT IS BEING MET. THE PRECAST CULVERT IS DESIGNED TO MEET ALL AASHTO LRFD DESIGN REQUIREMENTS. THE WSDOT SPECIFICATION MENTIONS “THE DESIGN OF BURIED STRUCTURES SHALL BE IN ACCORDANCE WITH THE REQUIREMENT OF CURRENT EDITION OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.” THE DESIGN CALCULATIONS WERE ALL COMPLETED USING THE MOST RECENT AASTHO LRFD 9TH EDITION. THE DESIGN CALCULATIONS AND SHOP DRAWINGS NOTE THAT THE DESIGN CRITERIA IN AASHTO LRFD HAS BEEN MET. THE CONCRETE MIX DESIGN MEETS ACI 318 DESIGN FOR DURABILITY. MIX DESIGNS ARE WSDOT APPROVED MIX DESIGNS MEETING THE DURABILITY REQUIREMENTS OF ACI 318 CHAPTER 19. ACI 318 TABLE 19.3.2.1 GIVES THE REQUIREMENTS FOR MIX DESIGN DURABILITY. THE MIX DESIGNS SUBMITTED MEET THE REQUIREMENTS OF WSDOT SPECIFICATIONS, AS WELL AS THE ACI 318 SPECIFICATION.

CONTRACTOR SUPPLIED INSTALLATION MATERIALS:

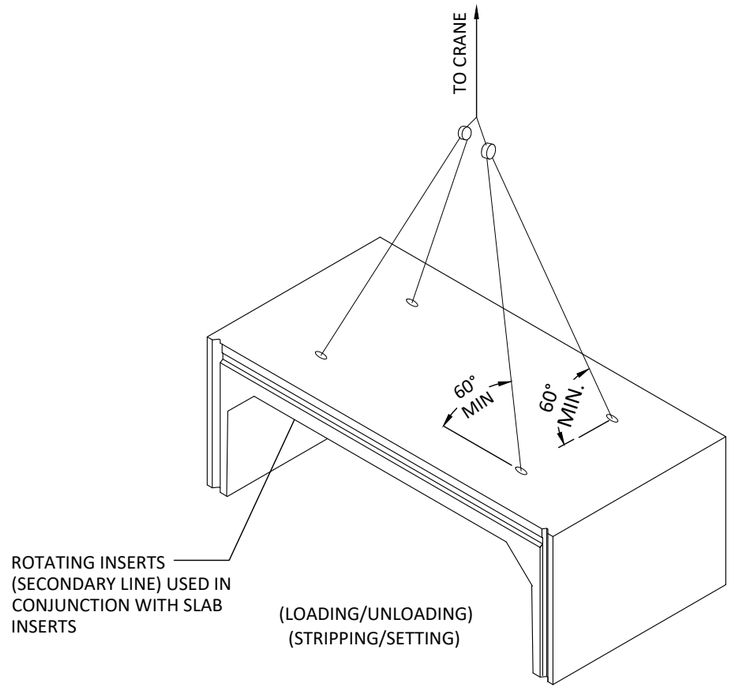
1. WSDOT QPL APPROVED ZINC-RICH SINGLE-COMPONENT MOISTURE-CURED POLYURETHANE PRIMER
2. WSDOT QPL APPROVED TYPE IV EPOXY
3. 5000 PSI WSDOT QPL APPROVED TYPE 2 NON-SHRINK GROUT
4. ALL WELDING MATERIALS AND SERVICES

JENSEN SUPPLIED INSTALLATION MATERIALS:

1. 12” CONSEAL CS-212 (OR EQUIVALENT) BUTYL JOINT SEALANT PER WSDOT SPEC 6-20.3(8)A (AS REQUIRED)
2. ¾” CONSEAL CS-102 (OR EQUIVALENT) BUTYL ROPE JOINT SEALANT (AS REQUIRED)
3. STEEL CONNECTION ANGLES FOR HEADWALL/WINGWALL CONNECTIONS PER WSDOT SPEC 9-06.1 (AS REQUIRED)
4. STEEL CONNECTION PLATES FOR BASE DECK AND/OR WINGWALL CONNECTIONS PER WSDOT SPEC 9-06.1 (AS REQUIRED)
5. STEEL CONNECTION PLATES FOR TOP DECK CONNECTIONS PER WSDOT SPEC 9-06.1 (AS REQUIRED)

RECOMMENDED CULVERT INSTALLATION PROCEDURE:

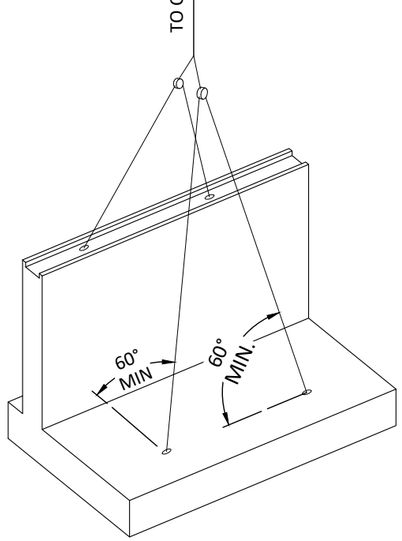
- CRANE MUST BE EQUIPPED WITH AN AUXILIARY OR WHIP LINE.
- ALL LIFTING CABLES REQUIRE A MINIMUM 60° ANGLE FROM HORIZONTAL.
- THE SPREADER BAR SHALL BE USED IF MINIMUM 60° ANGLE FROM HORIZONTAL IS NOT REACHED.
- ALL LIFT INSERTS SHALL SEE EQUAL LOADING AT ALL TIMES.
- THIS IS A SUGGESTED LIFTING PLAN ONLY. ACTUAL ERECTION DETAILS IS BY GENERAL CONTRACTOR.
- ALL SAFETY PRACTICES ARE THE RESPONSIBILITY OF THE CRANE OPERATOR.
- ALL CABLES & RIGGING IS DESIGNED AND SUPPLIED BY OTHERS.
- LIFTING SHACKLES WILL BE SUPPLIED BY THE CONTRACTOR.



NOTE:
LIFTING INSERTS SHALL SEE EQUAL LOADING AT ALL TIMES AND MAINTAIN A 60° MINIMUM ANGLE IN BOTH DIRECTIONS OF THE CABLE.

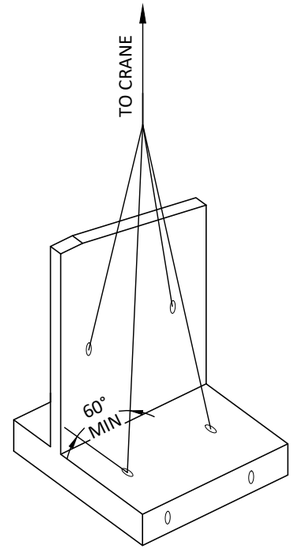
4 POINT CULVERT RIGGING

PRECAST PIECE CHART		
MARK	WEIGHT (LBS. PER PIECE)	QTY.
U1	22,433	1
U2	24,047	1
U3	45,525	1
U4	45,525	1
U5	45,464	1
U6	45,032	1
U7	45,525	2
U8	45,525	1
U9	45,525	1
HW1A	2,727	1
HW1B	2,727	1
HW2A	2,812	1
HW2B	2,812	1
WW1	26,444	1
WW2	26,444	1
WW3	26,444	1



4-POINT FOUNDATION RIGGING

(LOADING/UNLOADING & MOVING)



4-POINT WALL RIGGING

(LOADING/UNLOADING & MOVING)

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CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

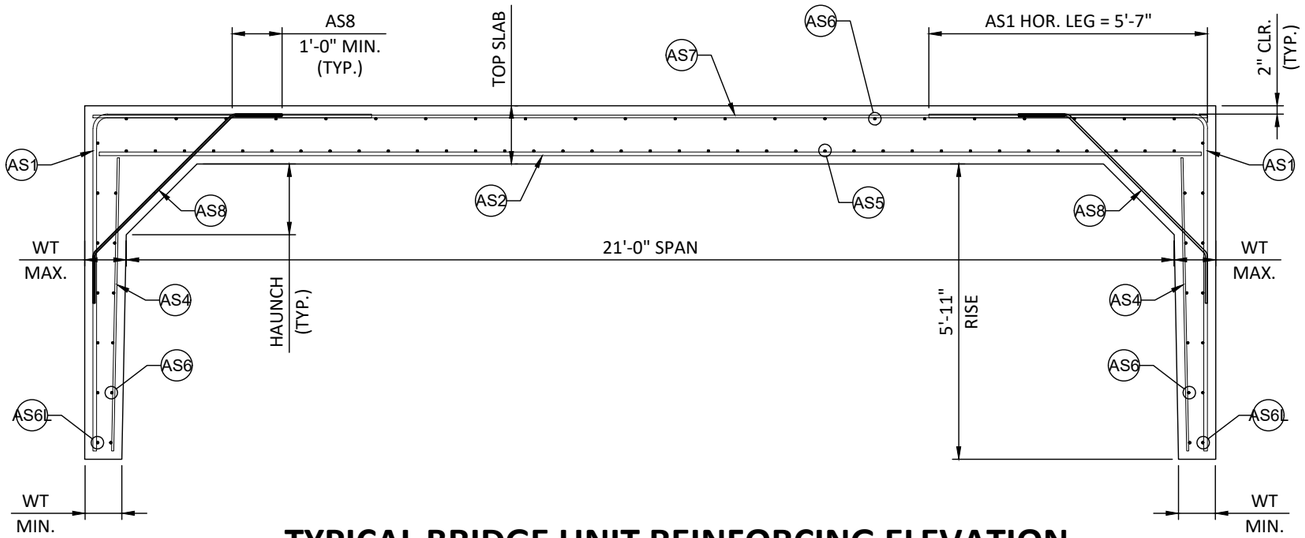
LOCALE: CITY OF DUVALL **STATE:** WA

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CHECKED BY: JJV

C6



TYPICAL BRIDGE UNIT REINFORCING ELEVATION

DESIGN DATA:

1. CORE STRENGTH OF CONCRETE SHALL BE 7,000 PSI MINIMUM AT 28 DAYS. (CLASS 7,000)
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615 OR A706 AND HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. DESIGN LOAD: HL-93
4. ROADWAY SKEW ANGLE: ≈22°
5. 2" REINFORCING CLR. ON ALL SURFACES
6. DEPTH OF EARTH COVER = 4'-0" MIN. TO 8'-0" MAX.

SECTION CHARACTERISTICS:

SPAN: 21'-0''
RISE: 5'-11"
WT: VARIES (WALL THICKNESS) TOP = 10" BOTTOM = 9"
TS: 14" (TOP SLAB)
HAUNCH: 17"

AREA OF STEEL REQUIRED (IN²/FT):

As1 = 1.80 (#7 @ 4" O.C.)
As2 = 1.80 (#7 @ 4" O.C.)
As4 = 0.34 (#4 @ 7" O.C.)
As5 = 0.34 (#4 @ 7" O.C.)
As6 = 0.20 (#4 @ 1'-0" O.C.)
AS6L = 0.20 (#4 @ 1'-0" O.C.)
As7 = 0.47 (#5 @ 8" O.C.)
As8 = 0.30 (#4 @ 8" O.C.)

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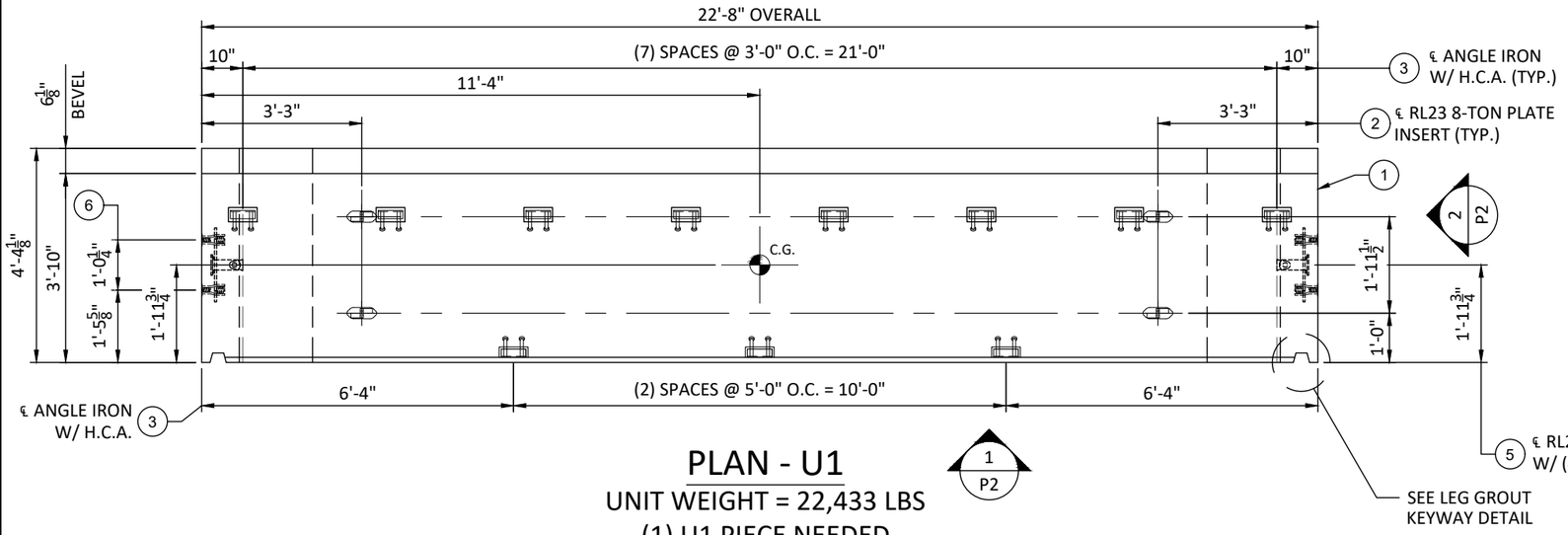
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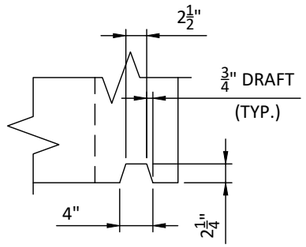
P1



PLAN - U1

UNIT WEIGHT = 22,433 LBS

(1) U1 PIECE NEEDED



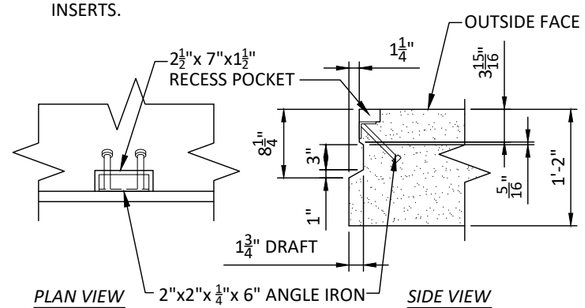
LEG GROUT KEYWAY DETAIL

PLAN VIEW

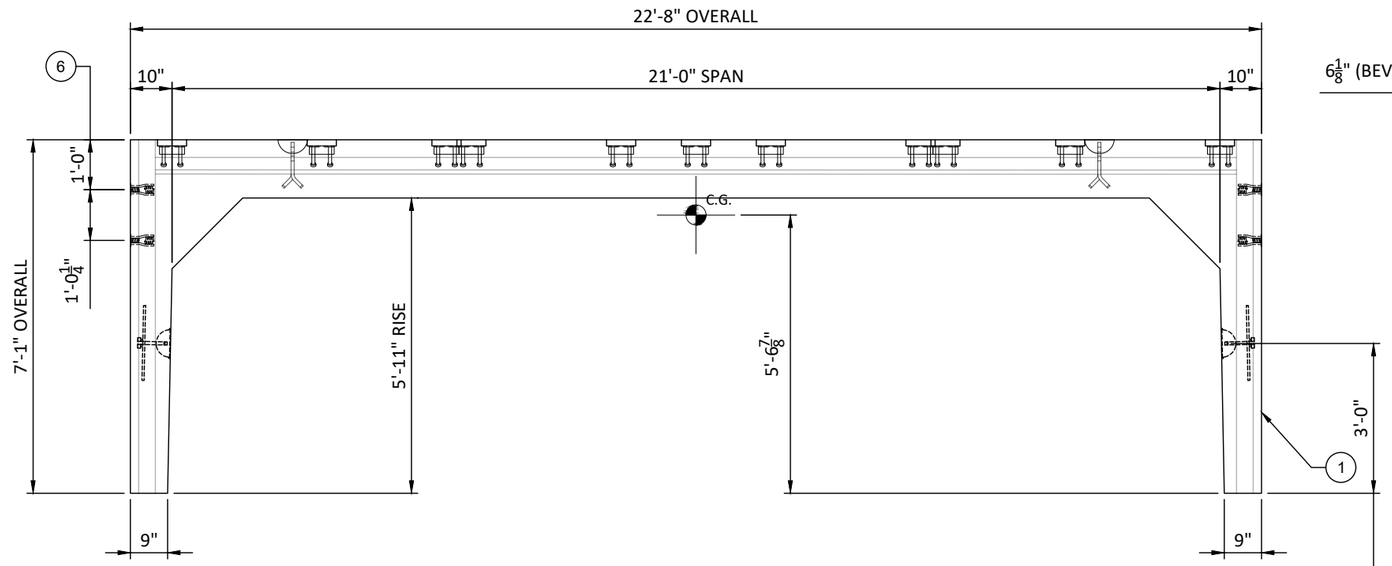
BILL OF MATERIALS PER PIECE (U1)		
ITEM	QTY	DESCRIPTION
①	5.5 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	4	RL23 8-TON SPREAD ANCHOR (79119)
③	11	ANGLE IRON: 2"x 2" W/ (2) 1/2"Ø x 6" H.C.A.
⑤	2	RL24 8-T PLATE INSERT (79042) (WITH REBAR)
⑥	8	F-56 E.C.(PLAIN)DAYTON INS. 2 STRUT 1"Øx5 1/2"

DESIGN NOTES

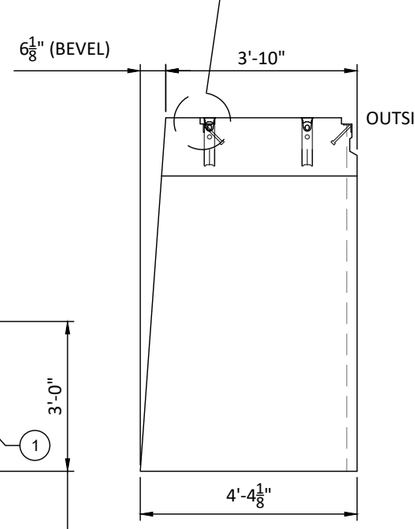
1. SEE SHEET P1 FOR UNIT STEEL REINFORCING.
2. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
3. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
4. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN ALL 4 INSERTS.



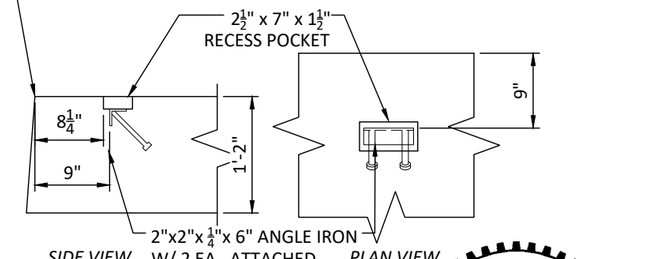
TOP DECK CONNECTION & GROUT KEYWAY DETAIL



ELEVATION 1 P2



ELEVATION 2 P2



TOP DECK HW CONNECTION DETAIL

JEFFREY JOSEPH VON HANDORF
STATE OF WASHINGTON
54694
REGISTERED
PROFESSIONAL ENGINEER

MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

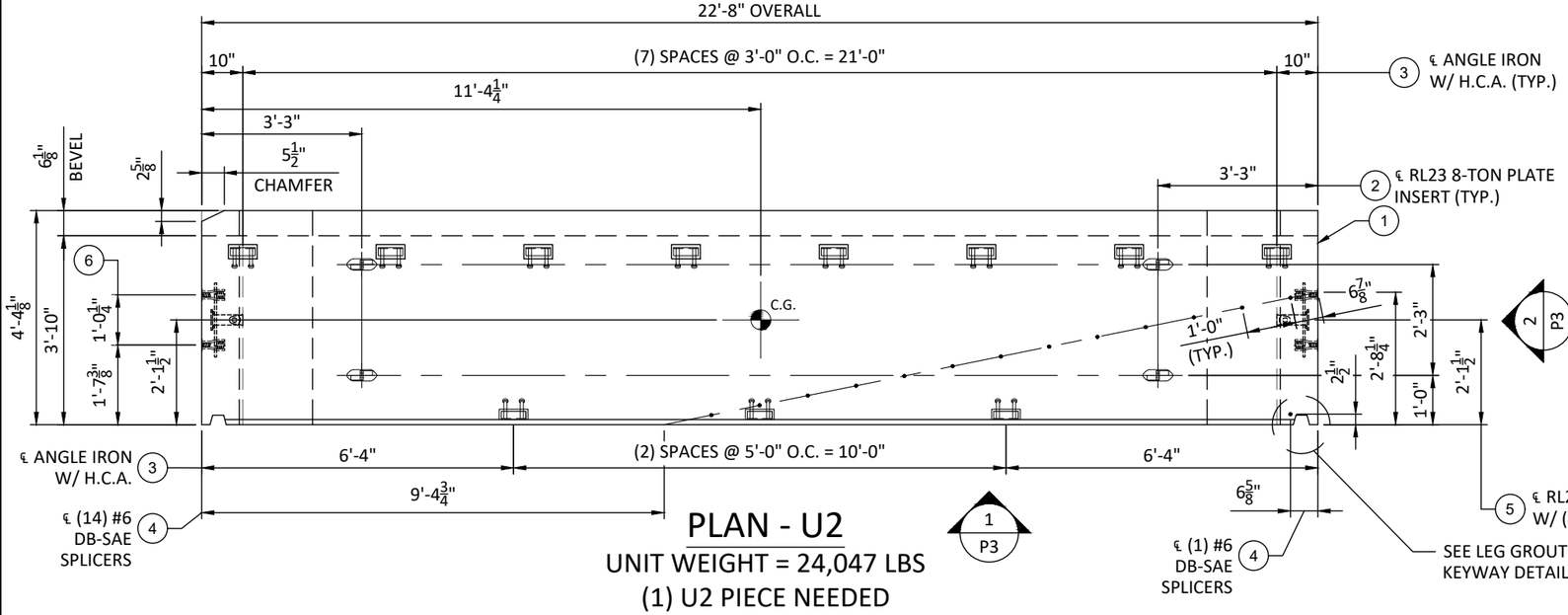
PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P2

BILL OF MATERIALS PER PIECE (U2)		
ITEM	QTY	DESCRIPTION
①	5.9 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	4	RL23 8-TON SPREAD ANCHOR (79119)
③	11	ANGLE IRON: 2"x 2" W/ (2) $\frac{1}{2}$"Ø x 6" H.C.A.
④	14	#6 - 6" x 12" SPLICERS (COORDINATE W/ DOWELS)
⑤	2	RL24 8-T PLATE INSERT (79042) (WITH REBAR)
⑥	8	F-56 E.C.(PLAIN)DAYTON INS. 2 STRUT 1"Øx5$\frac{1}{2}$"

DESIGN NOTES

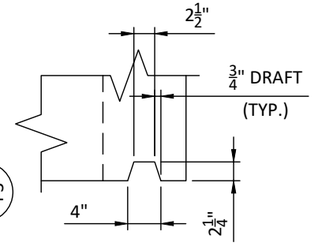
1. SEE SHEET P1 FOR UNIT STEEL REINFORCING.
2. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
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PLAN - U2

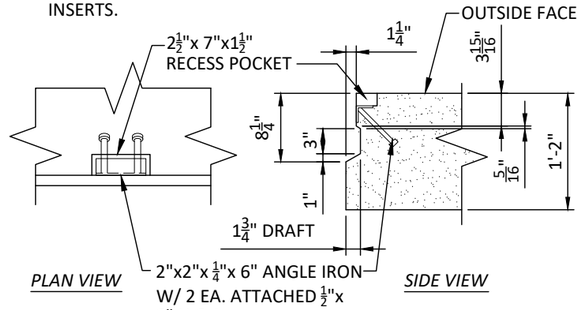
UNIT WEIGHT = 24,047 LBS

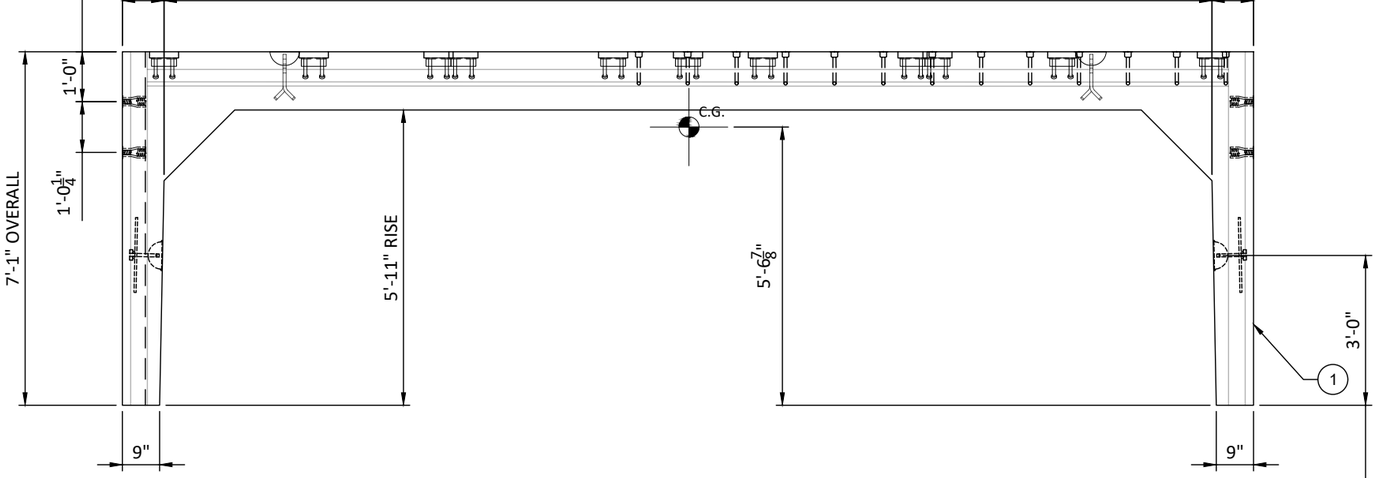
(1) U2 PIECE NEEDED



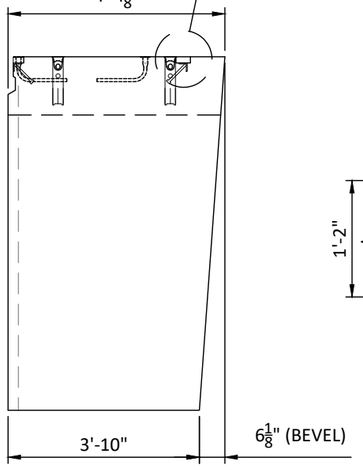
LEG GROUT KEYWAY DETAIL

PLAN VIEW



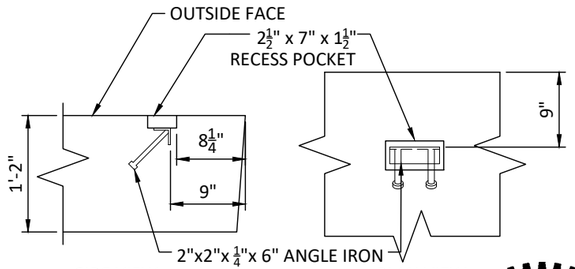


ELEVATION 1/P3



ELEVATION 2/P3

TOP DECK CONNECTION & GROUT KEYWAY DETAIL



TOP DECK HW CONNECTION DETAIL

JEFFREY JOSEPH VON HANDORF
STATE OF WASHINGTON
54694
REGISTERED
PROFESSIONAL ENGINEER

MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

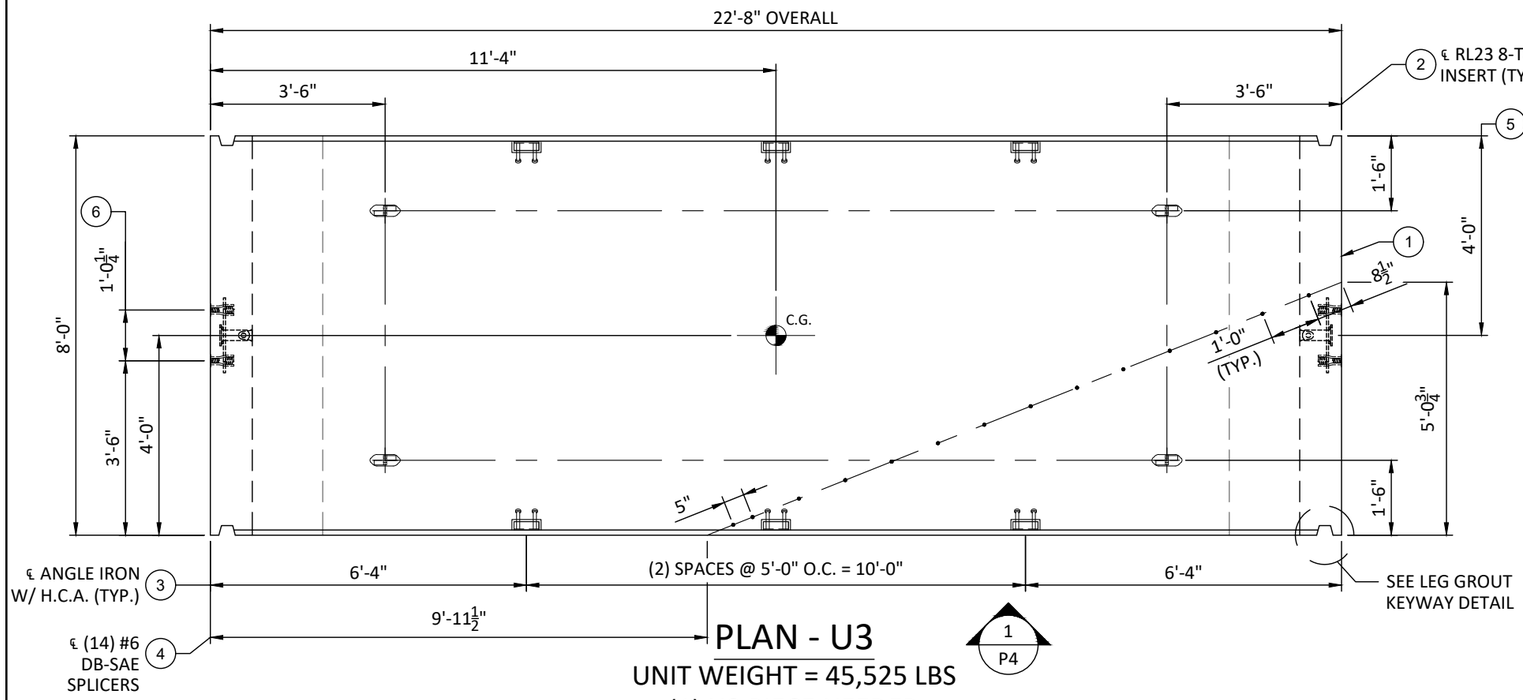
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

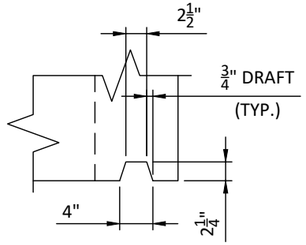
P3



PLAN - U3

UNIT WEIGHT = 45,525 LBS

(1) U3 PIECE NEEDED



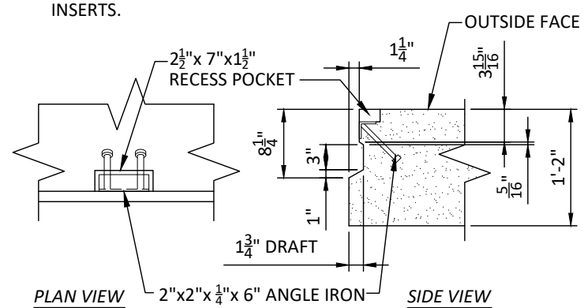
LEG GROUT KEYWAY DETAIL

PLAN VIEW

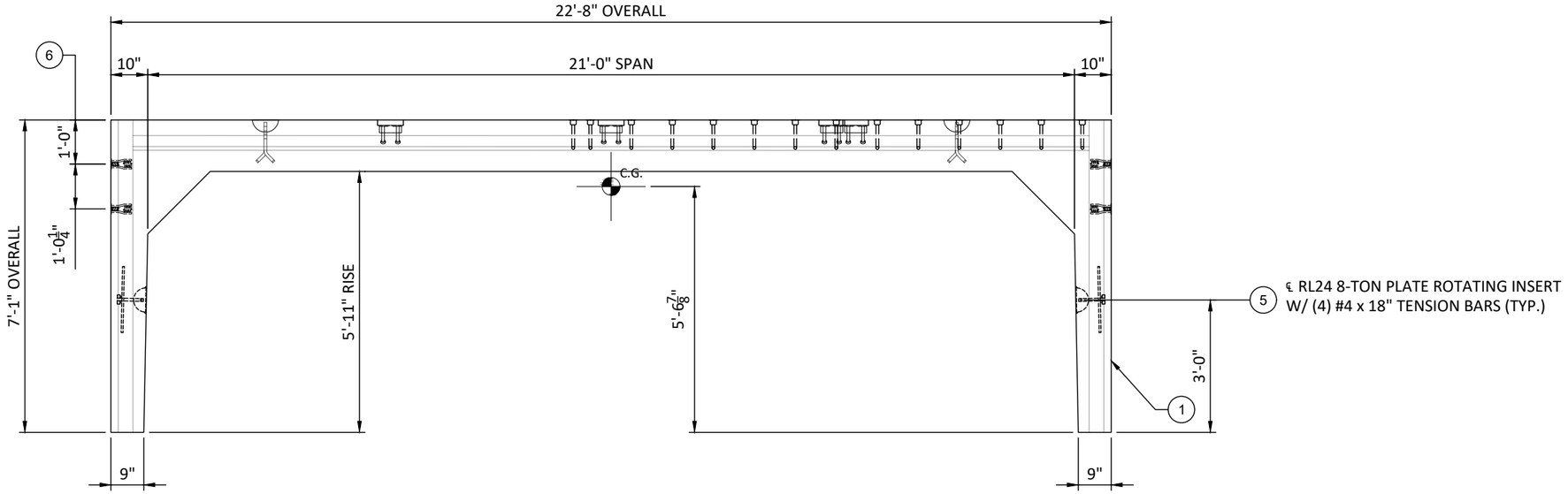
BILL OF MATERIALS PER PIECE (U3)		
ITEM	QTY	DESCRIPTION
①	11.2 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	4	RL23 8-TON SPREAD ANCHOR (79119)
③	6	ANGLE IRON: 2"x 2" W/ (2) ½"Ø x 6" H.C.A.
④	14	#6 - 6" x 12" SPLICERS (COORDINATE W/ DOWELS)
⑤	2	RL24 8-T PLATE INSERT (79042) (WITH REBAR)
⑥	8	F-56 E.C.(PLAIN)DAYTON INS. 2 STRUT 1"Øx5½"

DESIGN NOTES

1. SEE SHEET P1 FOR UNIT STEEL REINFORCING.
2. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
3. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
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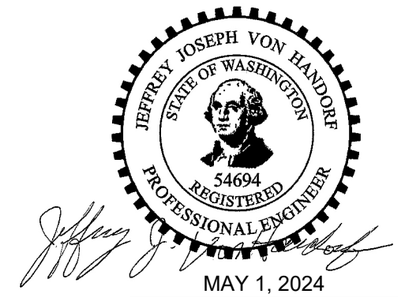


TOP DECK CONNECTION & GROUT KEYWAY DETAIL



ELEVATION

1
P4



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

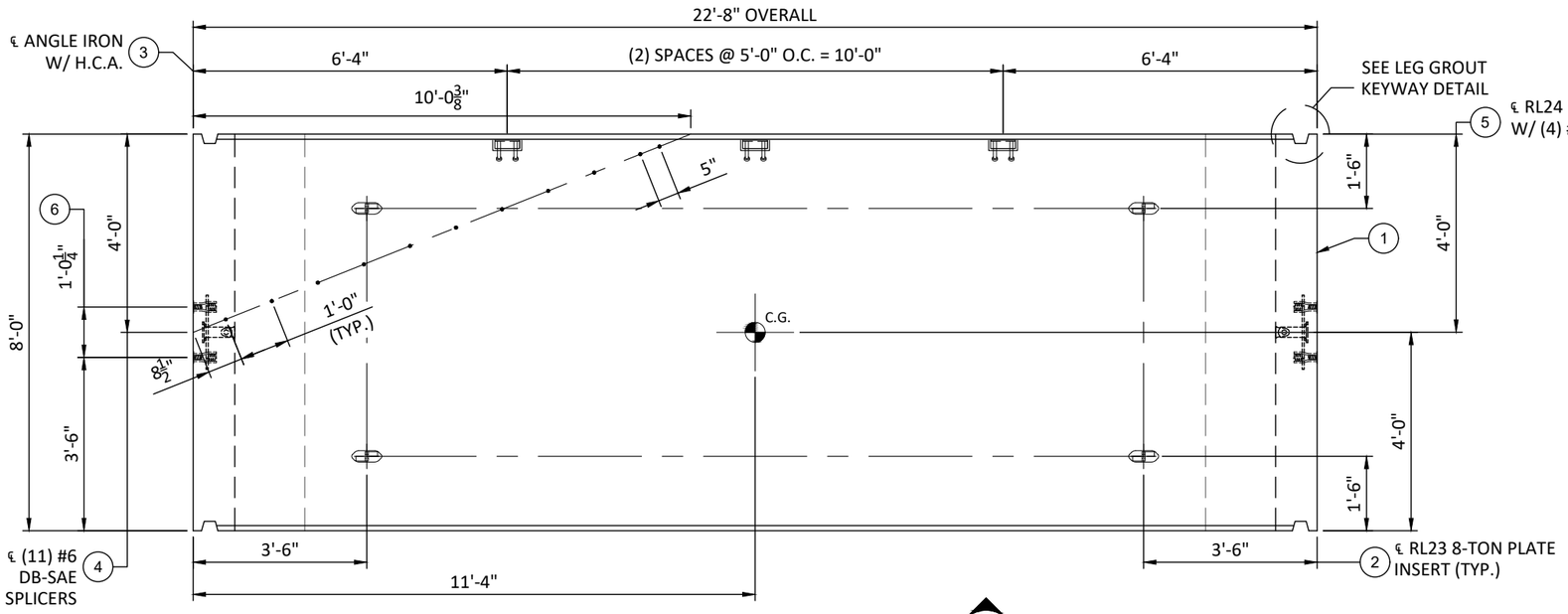
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P4

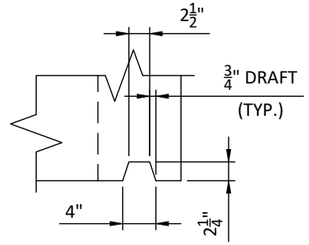


PLAN - U4

UNIT WEIGHT = 45,525 LBS

(1) U4 PIECE NEEDED

1 / P5



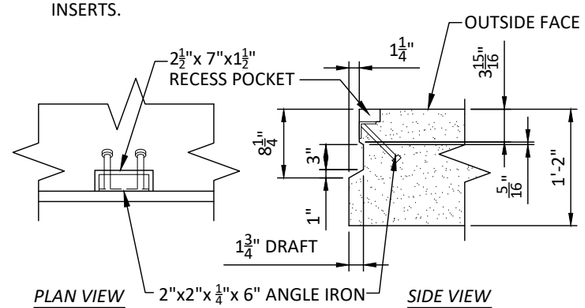
LEG GROUT KEYWAY DETAIL

PLAN VIEW

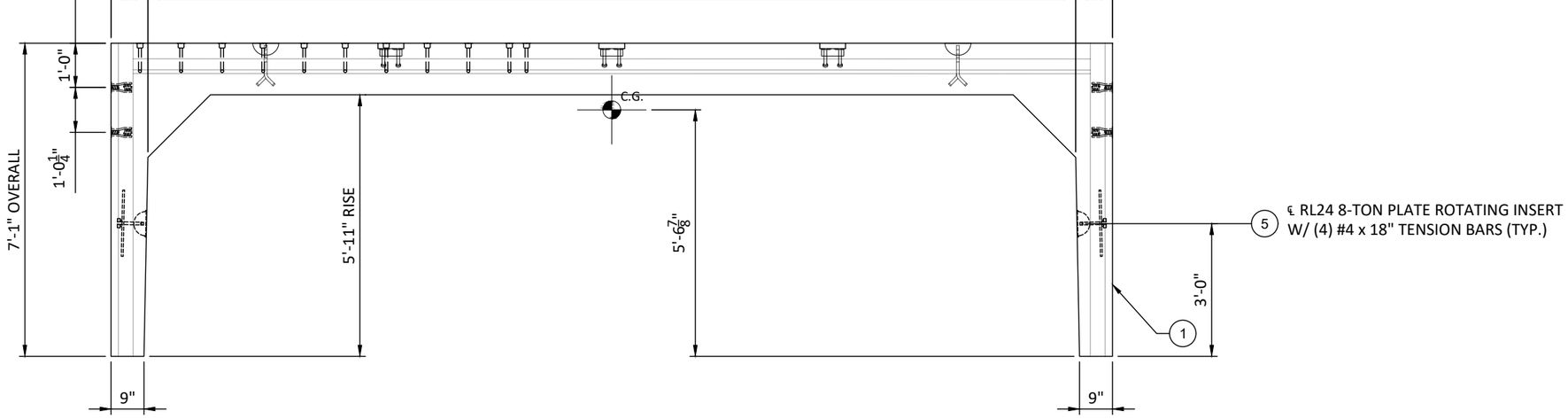
BILL OF MATERIALS PER PIECE (U4)		
ITEM	QTY	DESCRIPTION
①	11.2 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	4	RL23 8-TON SPREAD ANCHOR (79119)
③	3	ANGLE IRON: 2"x 2" W/ (2) ½"Ø x 6" H.C.A.
④	11	#6 - 6" x 12" SPLICERS (COORDINATE W/ DOWELS)
⑤	2	RL24 8-T PLATE INSERT (79042) (WITH REBAR)
⑥	8	F-56 E.C.(PLAIN)DAYTON INS. 2 STRUT 1"Øx5½"

DESIGN NOTES

1. SEE SHEET P1 FOR UNIT STEEL REINFORCING.
2. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
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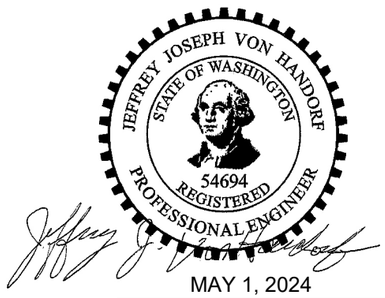


TOP DECK CONNECTION & GROUT KEYWAY DETAIL



ELEVATION

1 / P5



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

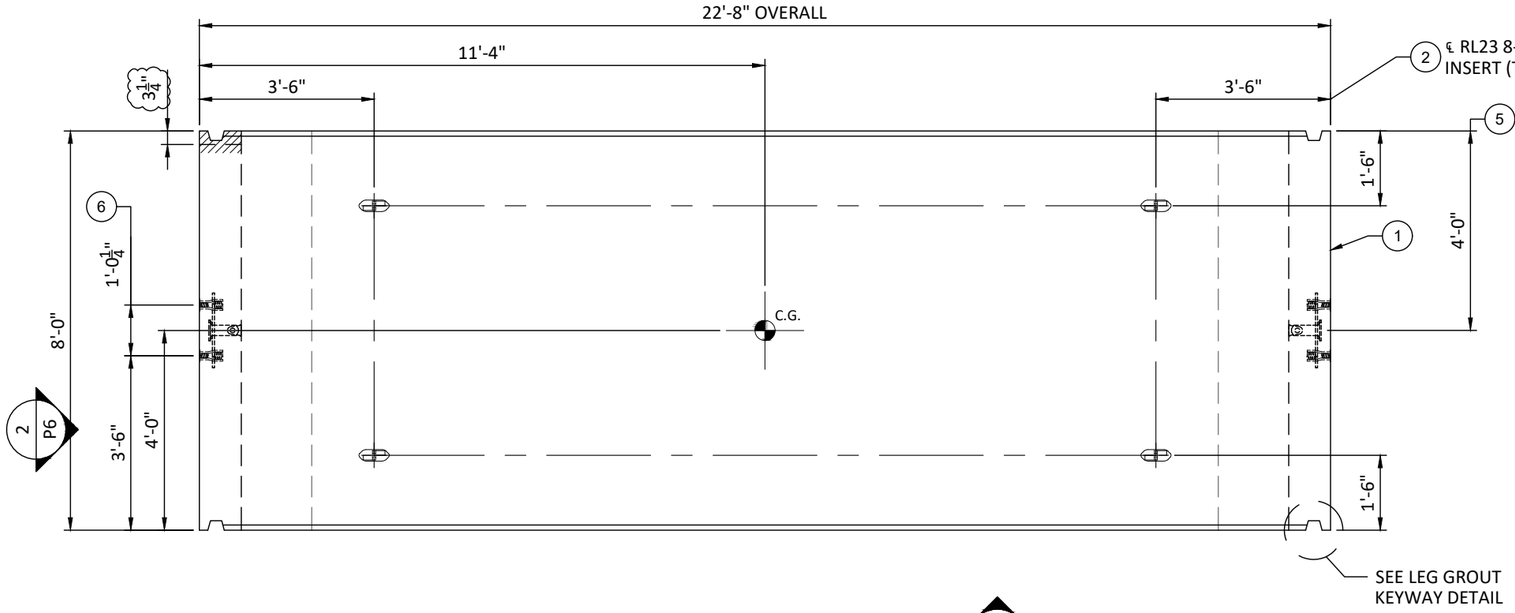
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P5



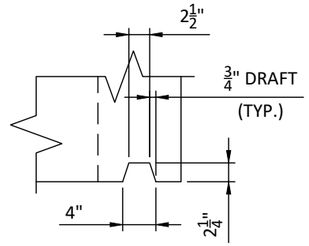
PLAN - U5

UNIT WEIGHT = 45,464 LBS

(1) U5 PIECE NEEDED

1 / P6

BILL OF MATERIALS PER PIECE (U5)		
ITEM	QTY	DESCRIPTION
①	11.2 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	4	RL23 8-TON SPREAD ANCHOR (79119)
⑤	2	RL24 8-T PLATE INSERT (79042) (WITH REBAR)
⑥	8	F-56 E.C.(PLAIN)DAYTON INS. 2 STRUT 1"Øx5½"

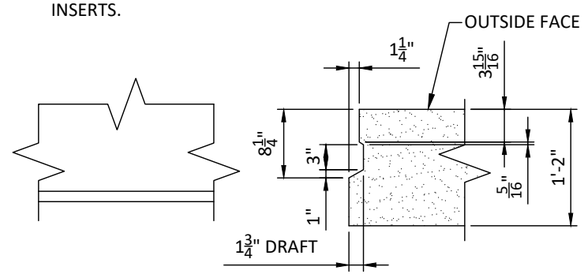


LEG GROUT KEYWAY DETAIL

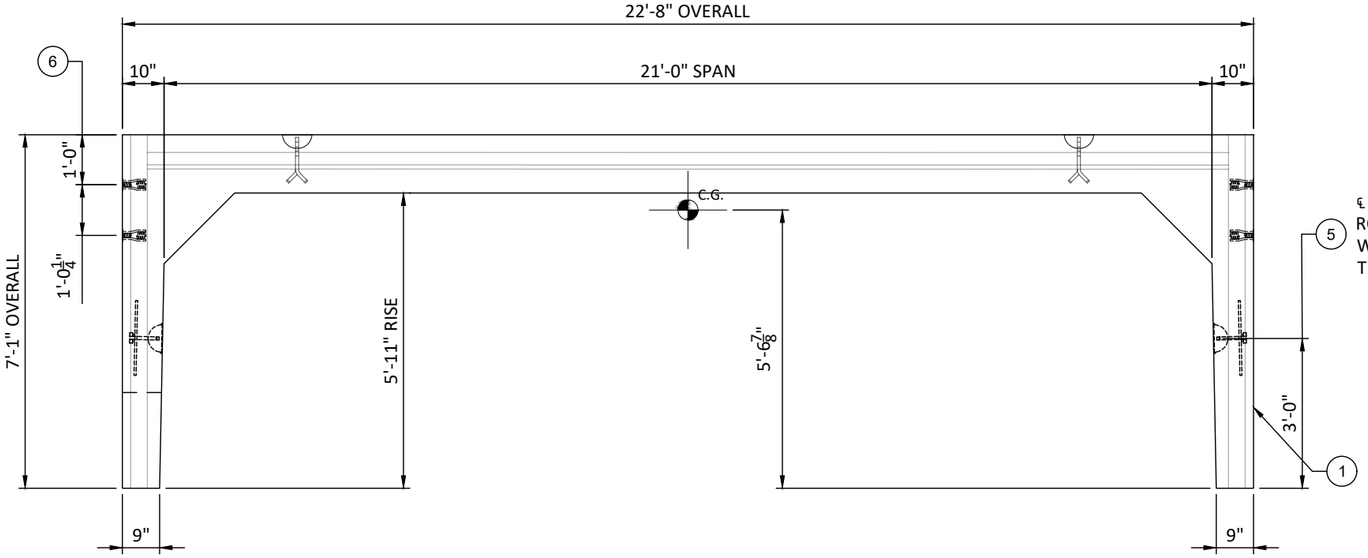
PLAN VIEW

DESIGN NOTES

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2. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
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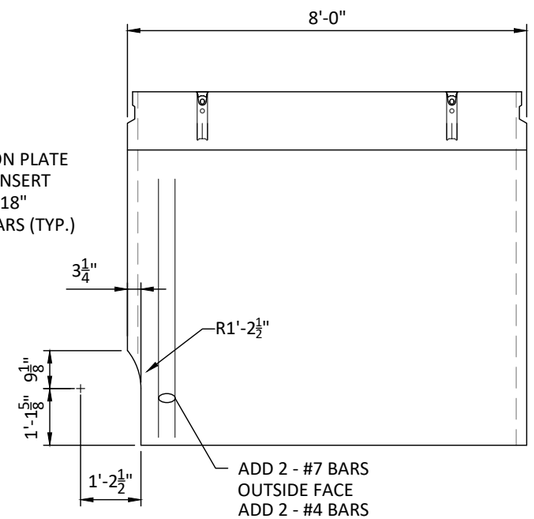


PLAN VIEW *SIDE VIEW*



ELEVATION

1 / P6



TOP DECK GROUT KEYWAY DETAIL

ELEVATION

2 / P6

JEFFREY JOSEPH VON HANDORF
STATE OF WASHINGTON
54694
REGISTERED
PROFESSIONAL ENGINEER

MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

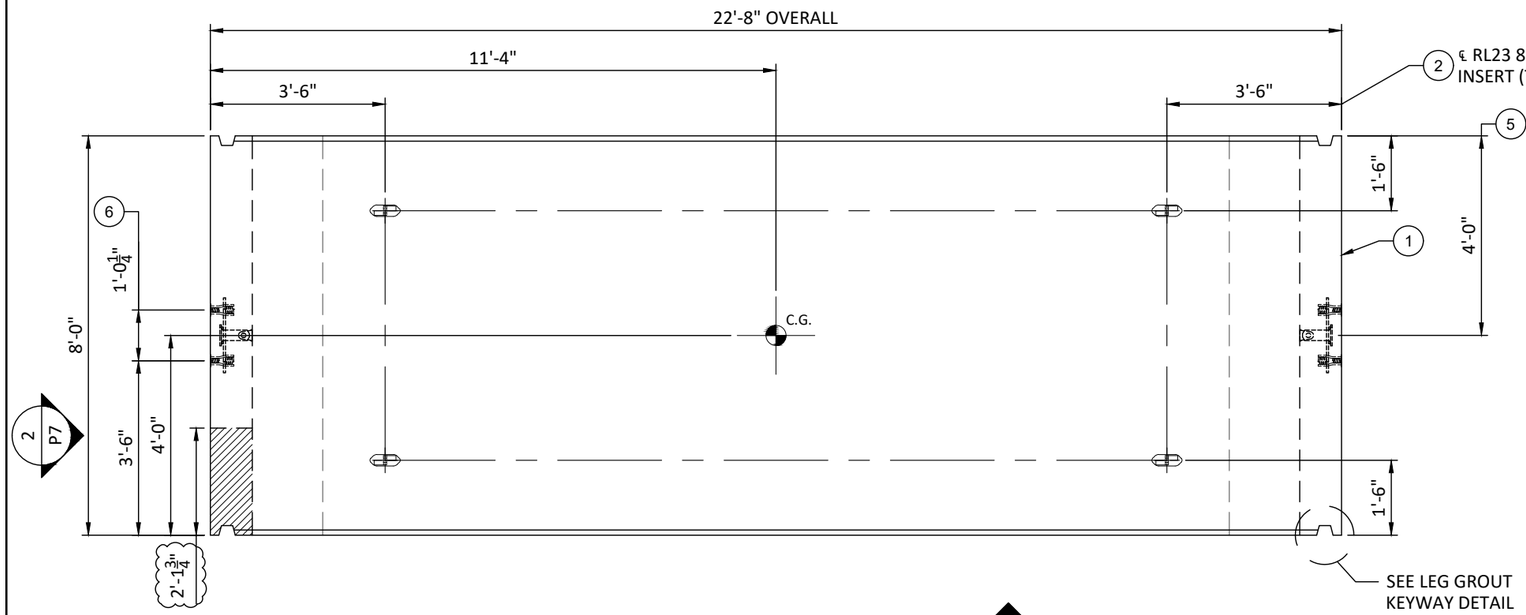
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P6



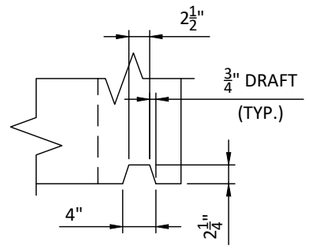
PLAN - U6

UNIT WEIGHT = 45,032 LBS

(1) U6 PIECE NEEDED

1 P7

BILL OF MATERIALS PER PIECE (U6)		
ITEM	QTY	DESCRIPTION
①	11.1 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	4	RL23 8-TON SPREAD ANCHOR (79119)
⑤	2	RL24 8-T PLATE INSERT (79042) (WITH REBAR)
⑥	8	F-56 E.C.(PLAIN)DAYTON INS. 2 STRUT 1"Øx5½"

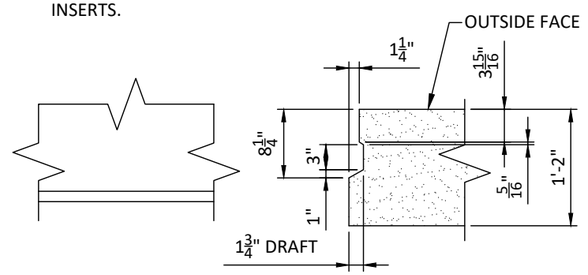


LEG GROUT KEYWAY DETAIL

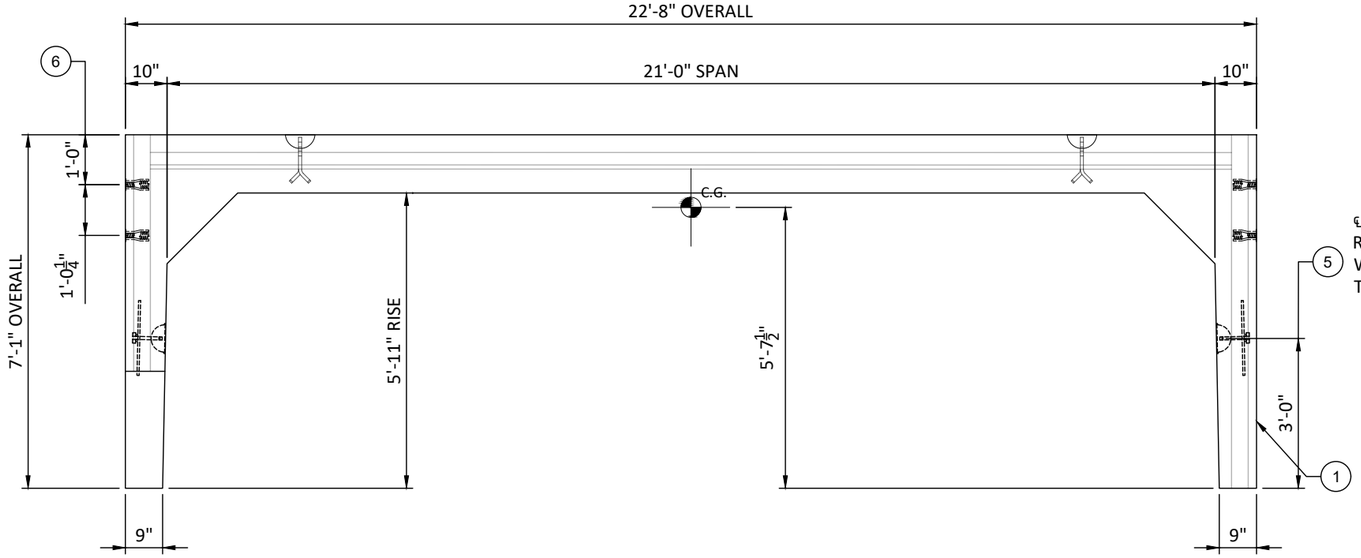
PLAN VIEW

DESIGN NOTES

1. SEE SHEET P1 FOR UNIT STEEL REINFORCING.
2. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
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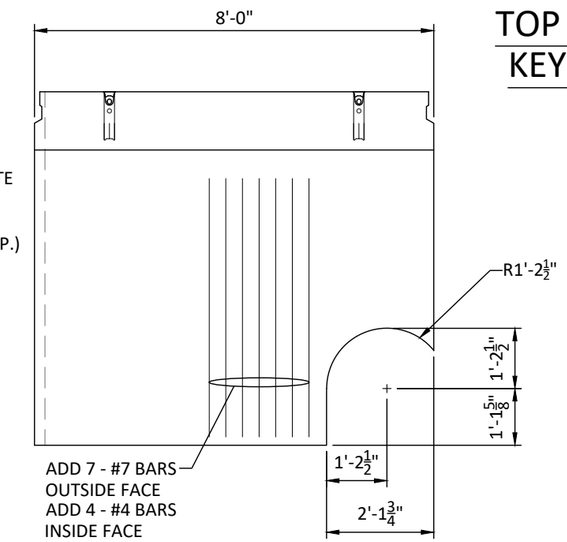


PLAN VIEW *SIDE VIEW*



ELEVATION

1 P7



ELEVATION

2 P7

TOP DECK GROUT KEYWAY DETAIL

JEFFREY JOSEPH VON HANDORF
STATE OF WASHINGTON
54694
REGISTERED
PROFESSIONAL ENGINEER

MAY 1, 2024

FOR APPROVAL

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CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

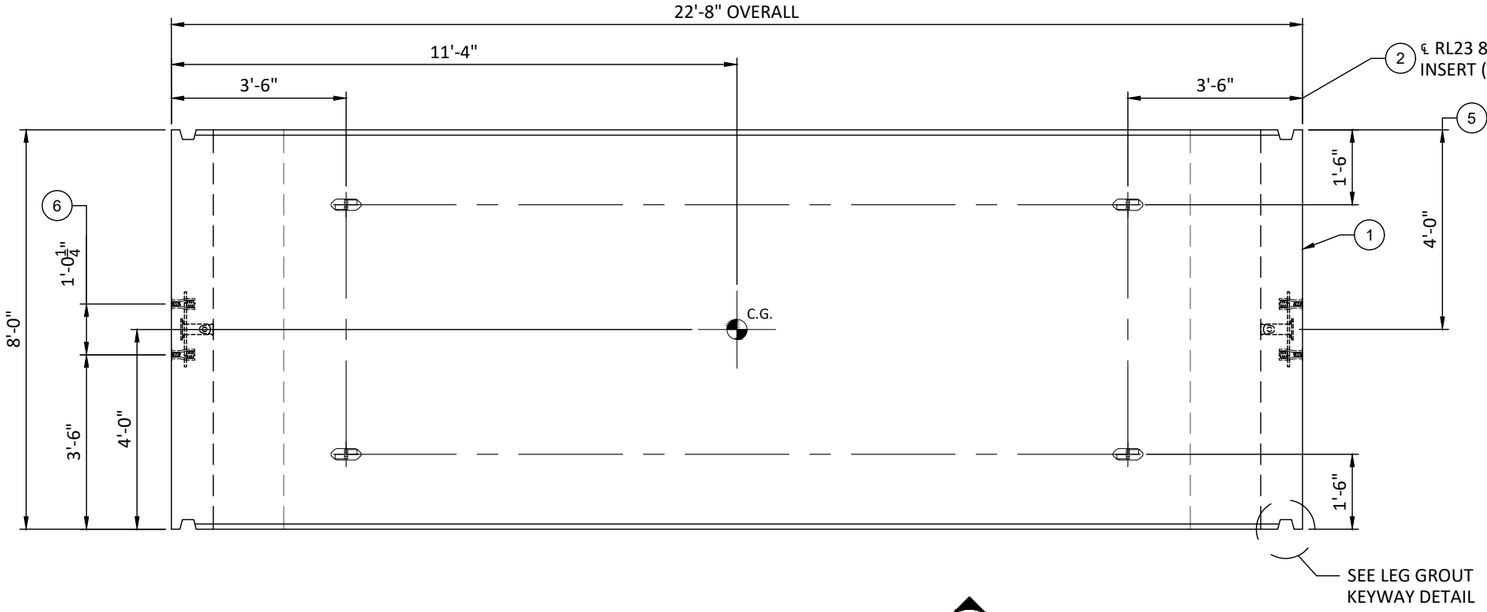
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
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PHONE 253-929-1818

DESIGNED BY:
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800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P7

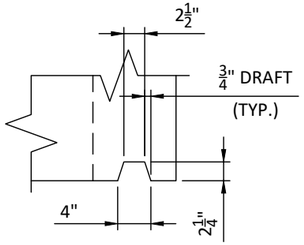


PLAN - U7

UNIT WEIGHT = 45,525 LBS

(2) U7 PIECES NEEDED

1 / P8



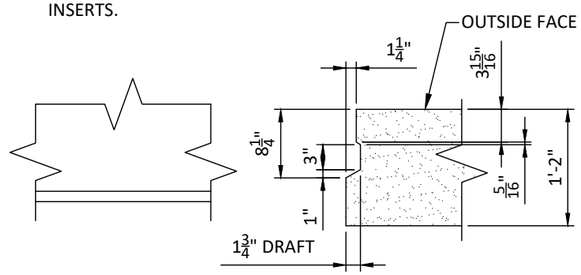
LEG GROUT KEYWAY DETAIL

PLAN VIEW

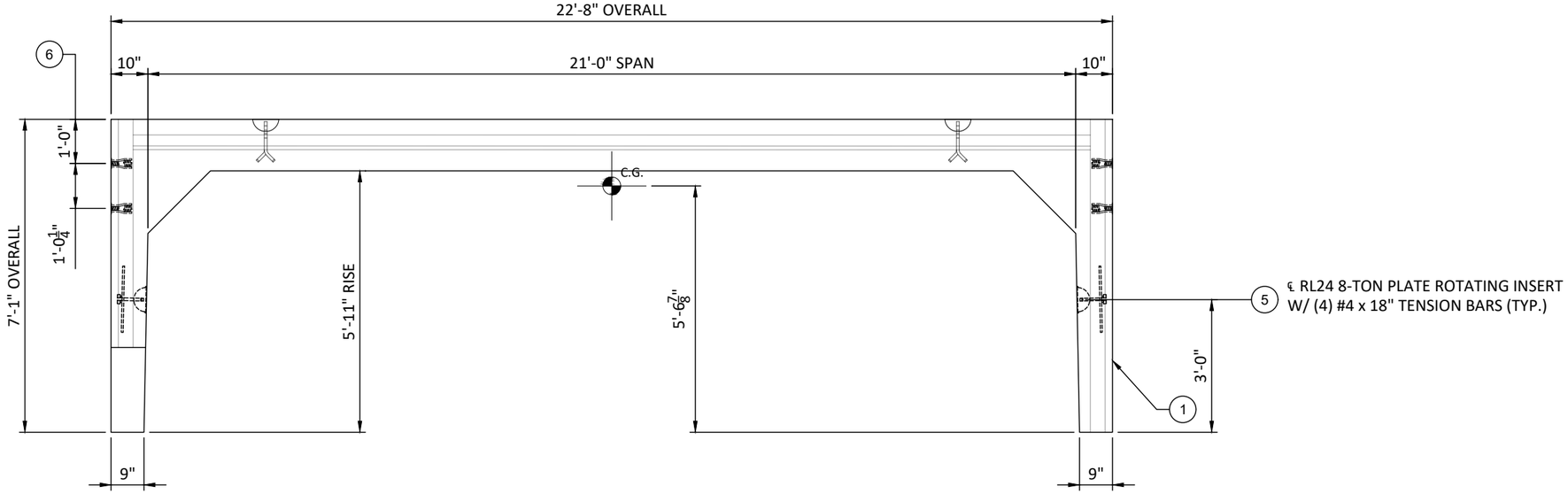
8BILL OF MATERIALS PER PIECE (U7)		
ITEM	QTY	DESCRIPTION
①	11.2 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	4	RL23 8-TON SPREAD ANCHOR (79119)
⑤	2	RL24 8-T PLATE INSERT (79042) (WITH REBAR)
⑥	8	F-56 E.C.(PLAIN)DAYTON INS. 2 STRUT 1"Øx5½"

DESIGN NOTES

1. SEE SHEET P1 FOR UNIT STEEL REINFORCING.
2. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
3. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
4. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN ALL 4 INSERTS.



PLAN VIEW *SIDE VIEW*



ELEVATION

1 / P8

TOP DECK GROUT KEYWAY DETAIL

JEFFREY JOSEPH VON HANDORF
STATE OF WASHINGTON
54694
REGISTERED
PROFESSIONAL ENGINEER

MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

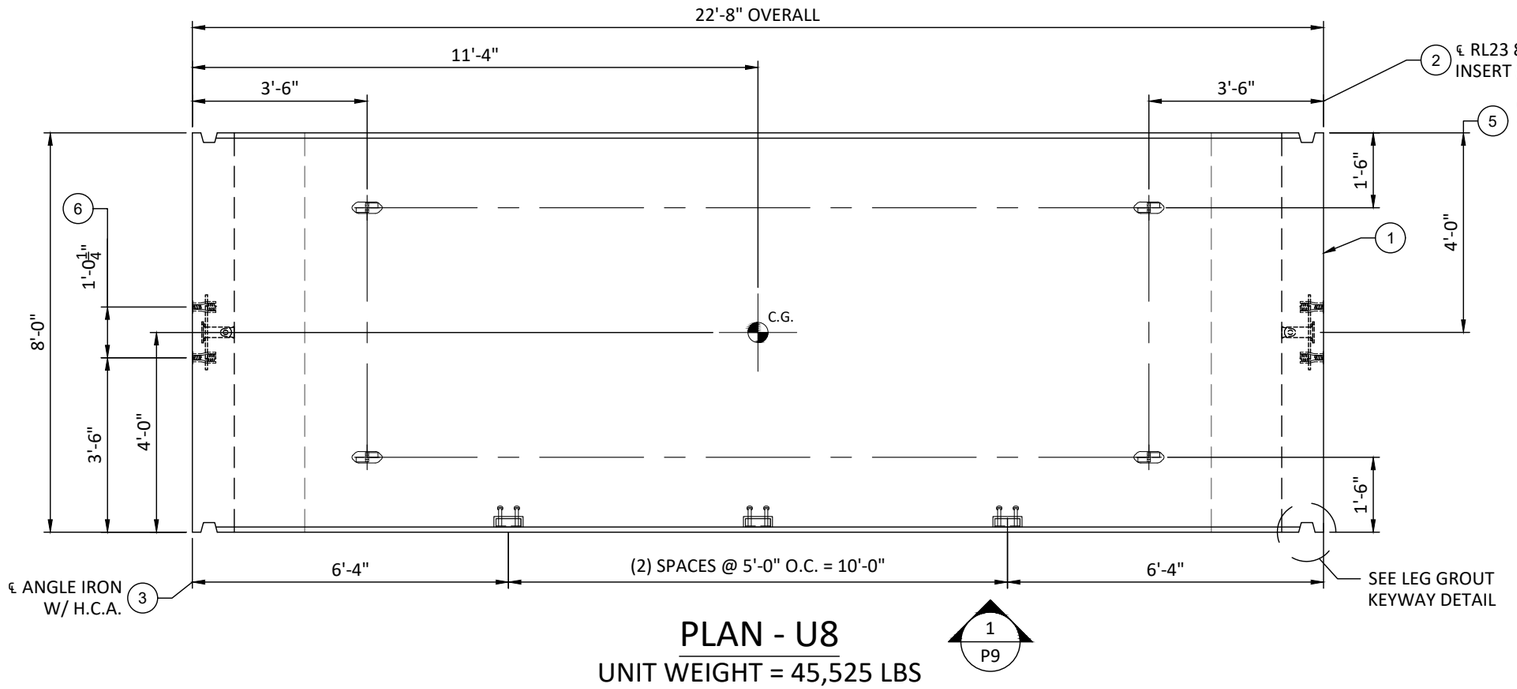
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P8

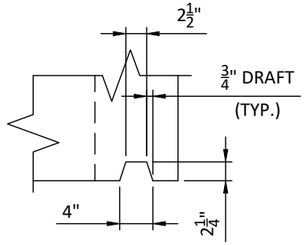


PLAN - U8

UNIT WEIGHT = 45,525 LBS

(1) U8 PIECE NEEDED

1 / P9



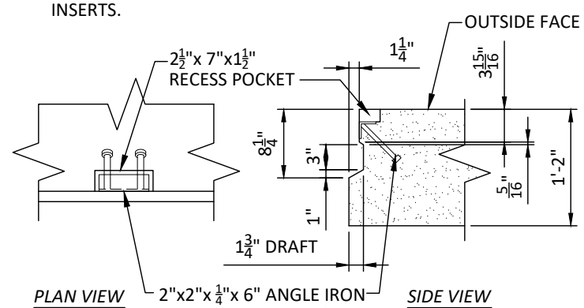
LEG GROUT KEYWAY DETAIL

PLAN VIEW

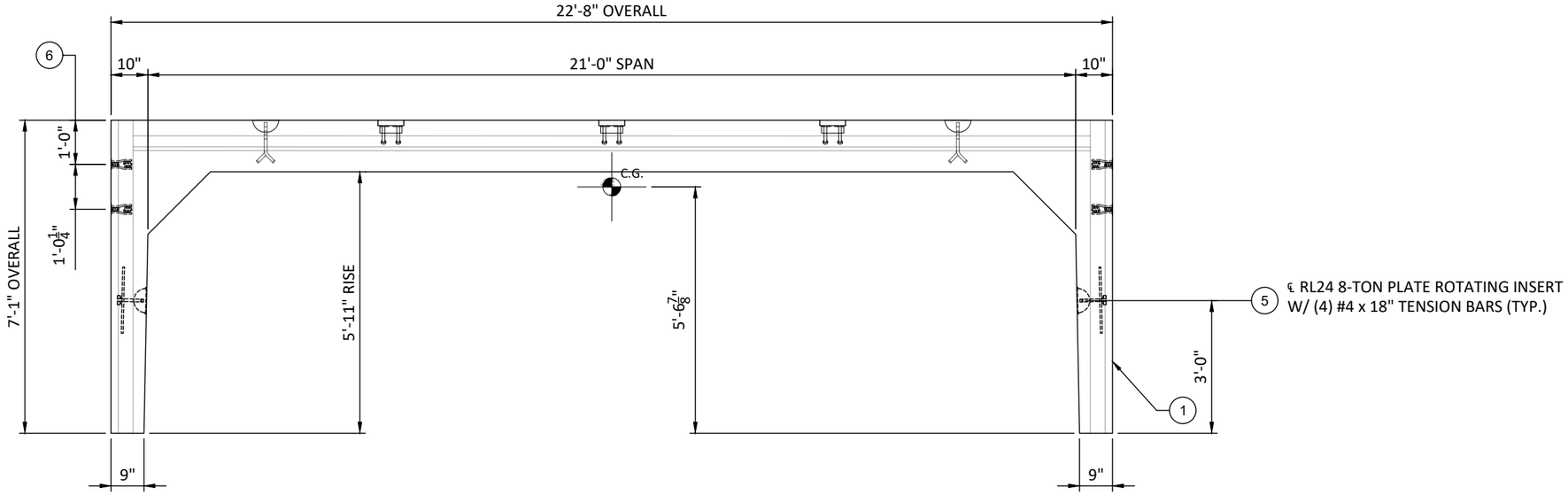
BILL OF MATERIALS PER PIECE (U8)		
ITEM	QTY	DESCRIPTION
①	11.2 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	4	RL23 8-TON SPREAD ANCHOR (79119)
③	3	ANGLE IRON: 2"x 2" W/ (2) ½"Ø x 6" H.C.A.
⑤	2	RL24 8-T PLATE INSERT (79042) (WITH REBAR)
⑥	8	F-56 E.C.(PLAIN)DAYTON INS. 2 STRUT 1"Øx5½"

DESIGN NOTES

1. SEE SHEET P1 FOR UNIT STEEL REINFORCING.
2. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
3. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
4. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN ALL 4 INSERTS.



TOP DECK CONNECTION & GROUT KEYWAY DETAIL



ELEVATION

1 / P9

JEFFREY JOSEPH VON HANDORF
STATE OF WASHINGTON
54694
REGISTERED
PROFESSIONAL ENGINEER

MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

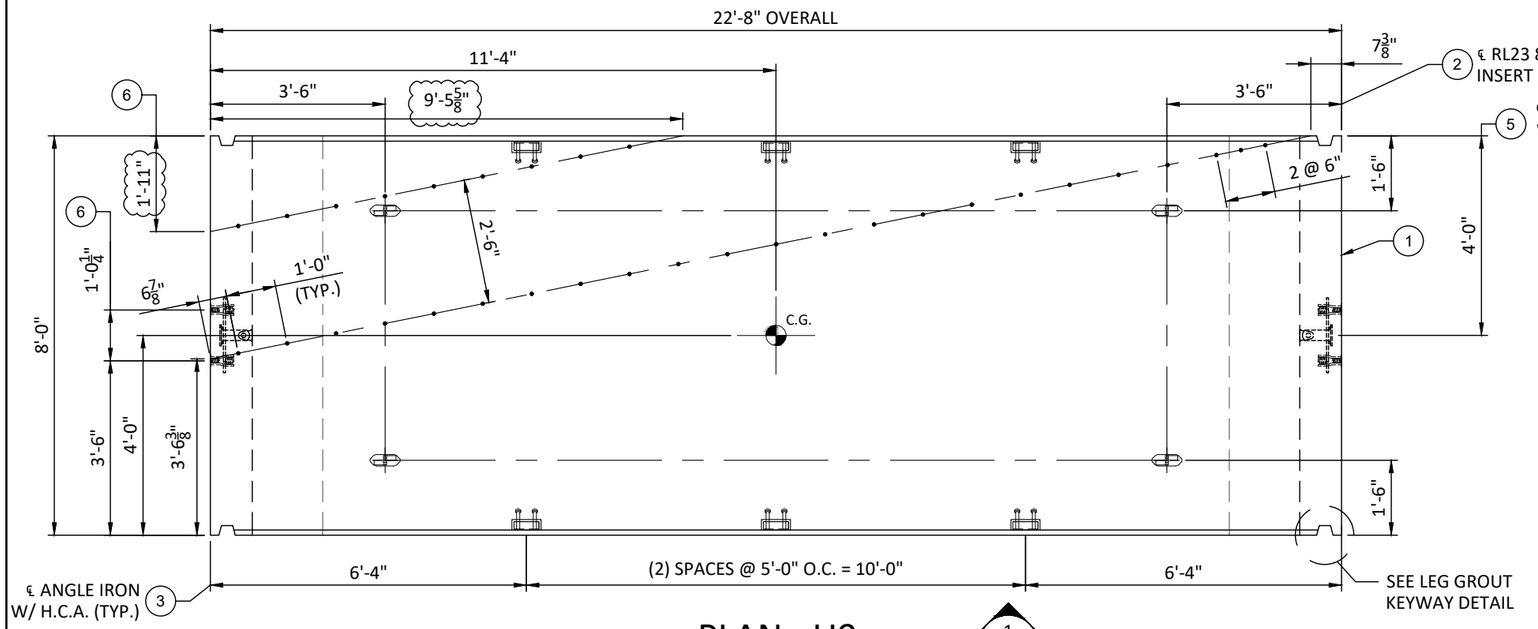
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P9

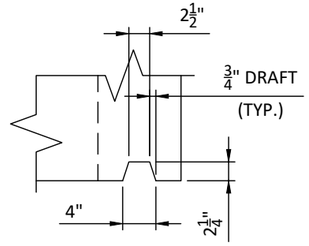


PLAN - U9

UNIT WEIGHT = 45,525 LBS

(1) U9 PIECE NEEDED

1 / P10



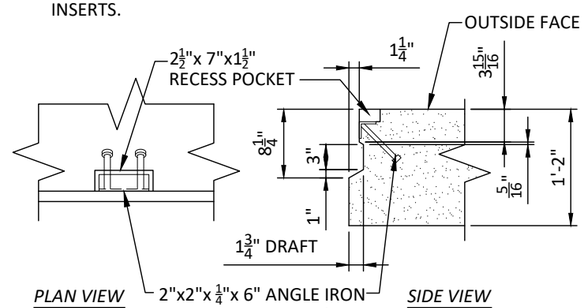
LEG GROUT KEYWAY DETAIL

PLAN VIEW

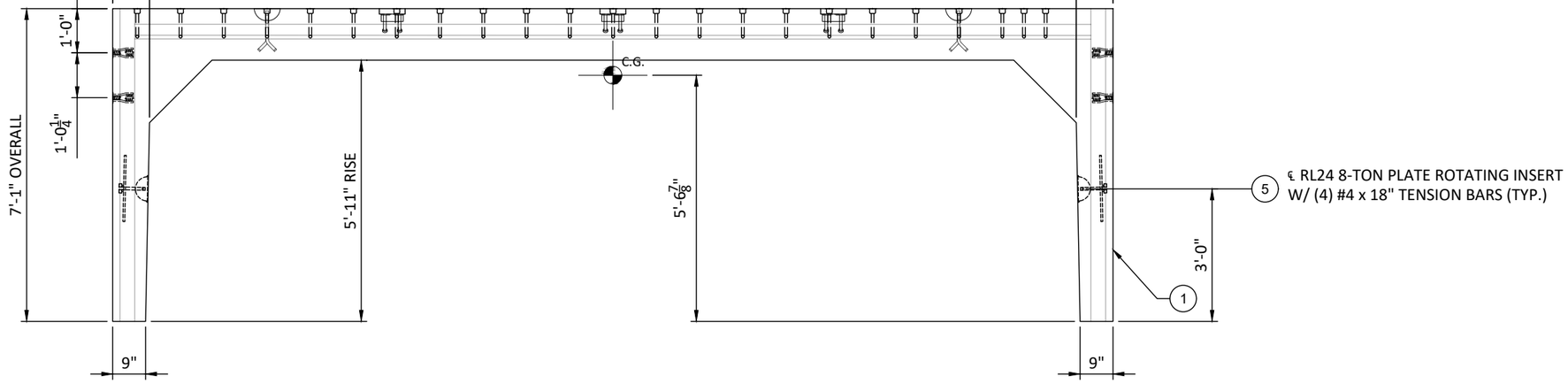
BILL OF MATERIALS PER PIECE (U9)		
ITEM	QTY	DESCRIPTION
①	11.2 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	4	RL23 8-TON SPREAD ANCHOR (79119)
③	6	ANGLE IRON: 2"x 2" W/ (2) ½"Ø x 6" H.C.A.
④	32	#6 - 6" x 12" SPLICERS (COORDINATE W/ DOWELS)
⑤	2	RL24 8-T PLATE INSERT (79042) (WITH REBAR)
⑥	8	F-56 E.C.(PLAIN)DAYTON INS. 2 STRUT 1"Øx5½"

DESIGN NOTES

1. SEE SHEET P1 FOR UNIT STEEL REINFORCING.
2. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
3. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
4. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN ALL 4 INSERTS.

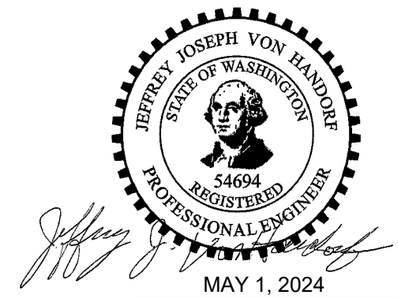


TOP DECK CONNECTION & GROUT KEYWAY DETAIL



ELEVATION

1 / P10



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

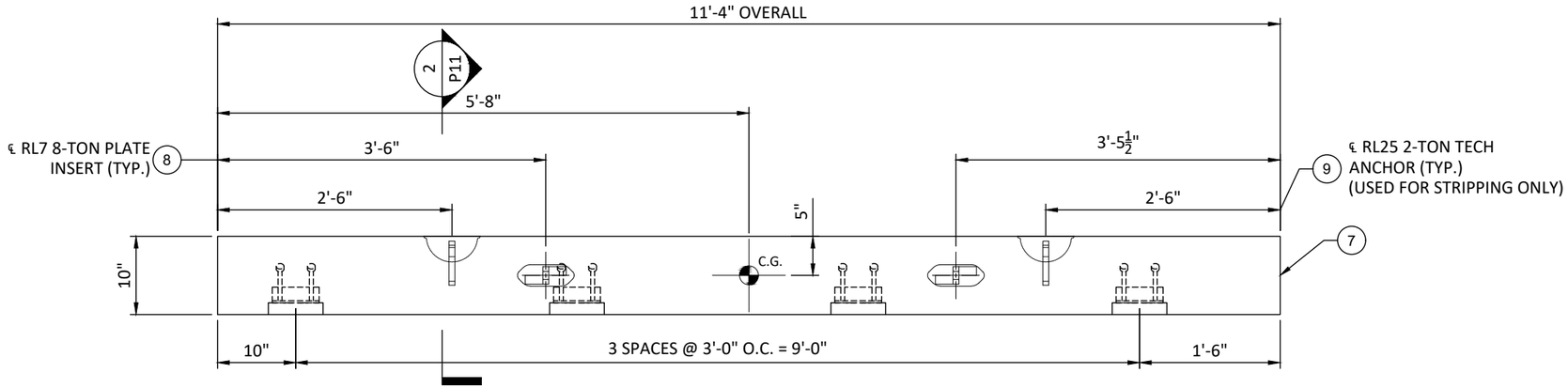
PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P10

BILL OF MATERIALS PER PIECE (HW1A)		
ITEM	QTY	DESCRIPTION
⑦	0.7 YD³	CONCRETE 5,000 PSI MIX (3,500 PSI STRIP)
⑧	2	RL7 8-TON SPREAD ANCHOR (79149)
③	4	ANGLE IRON: 2"x 2" W/ (2) $\frac{1}{2}$"Ø x 6" H.C.A.
⑨	2	RL-25 2-TON TECH ANCHOR (79524) (STRIP ONLY)

DESIGN NOTES

1. F'c = 5,000 PSI (28-DAY), F'c = 3,500 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
2. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
3. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN BOTH INSERTS.
4. ELEVATION LOOKING AT BACK FACE OF HEADWALL.

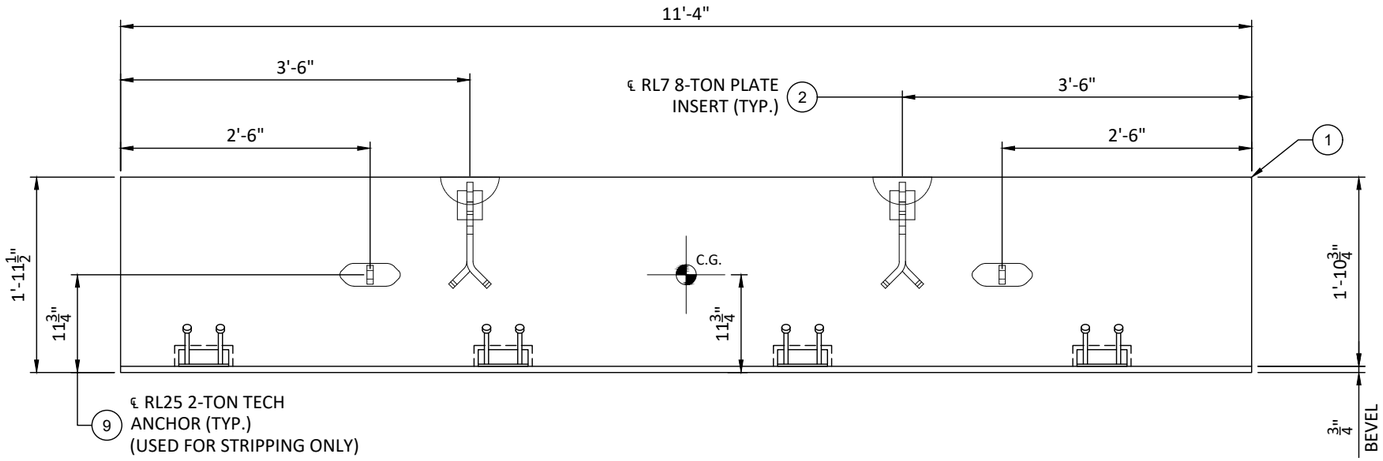


PLAN - HW1A

UNIT WEIGHT = 2,727 LBS

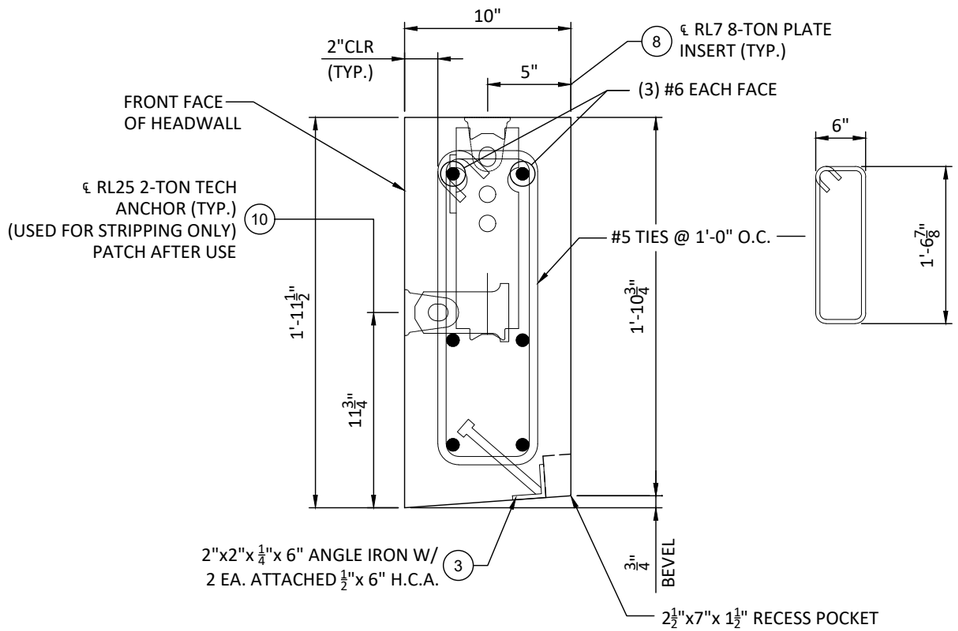
(1) HW1A PIECE NEEDED

1
P11



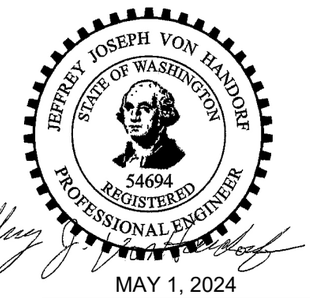
ELEVATION

1
P11



SECTION

2
P11



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
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2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

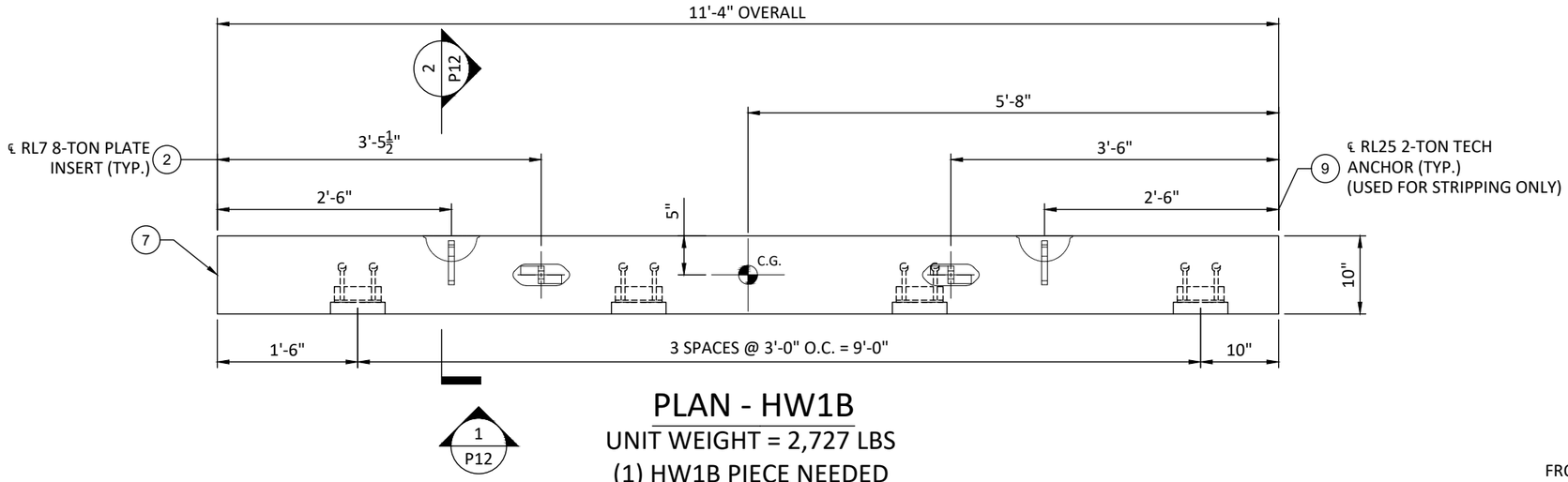
PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P11

BILL OF MATERIALS PER PIECE (HW1B)		
ITEM	QTY	DESCRIPTION
⑦	0.7 YD³	CONCRETE 5,000 PSI MIX (3,500 PSI STRIP)
⑧	2	RL7 8-TON SPREAD ANCHOR (79149)
③	4	ANGLE IRON: 2"x 2" W/ (2) $\frac{1}{2}$"Ø x 6" H.C.A.
⑨	2	RL-25 2-TON TECH ANCHOR (79524) (STRIP ONLY)

DESIGN NOTES

1. F'c = 5,000 PSI (28-DAY), F'c = 3,500 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
2. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
3. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN BOTH INSERTS.
4. ELEVATION LOOKING AT BACK FACE OF HEADWALL.

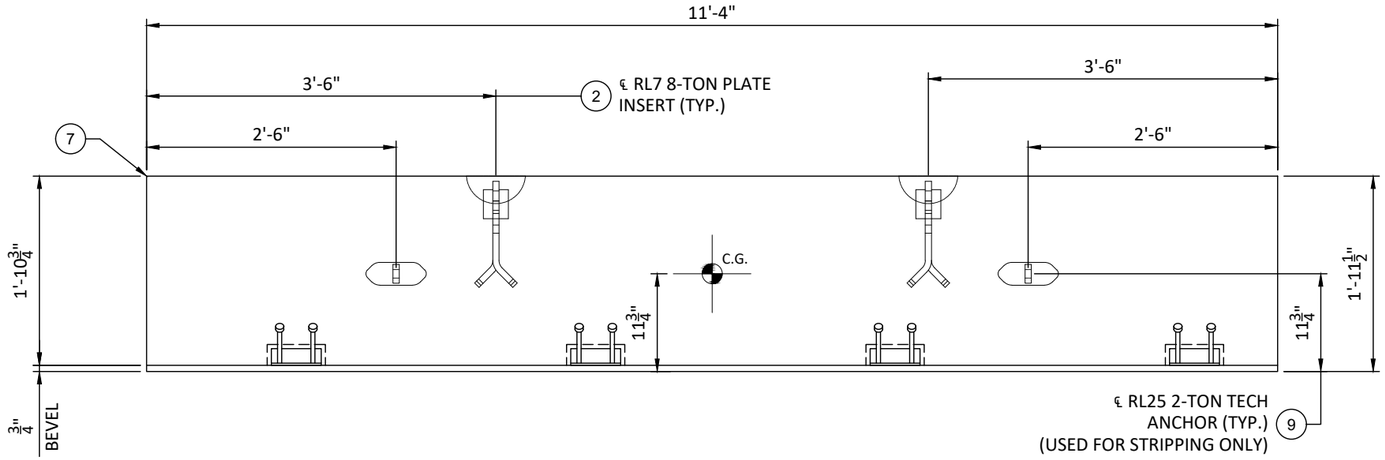


PLAN - HW1B

UNIT WEIGHT = 2,727 LBS

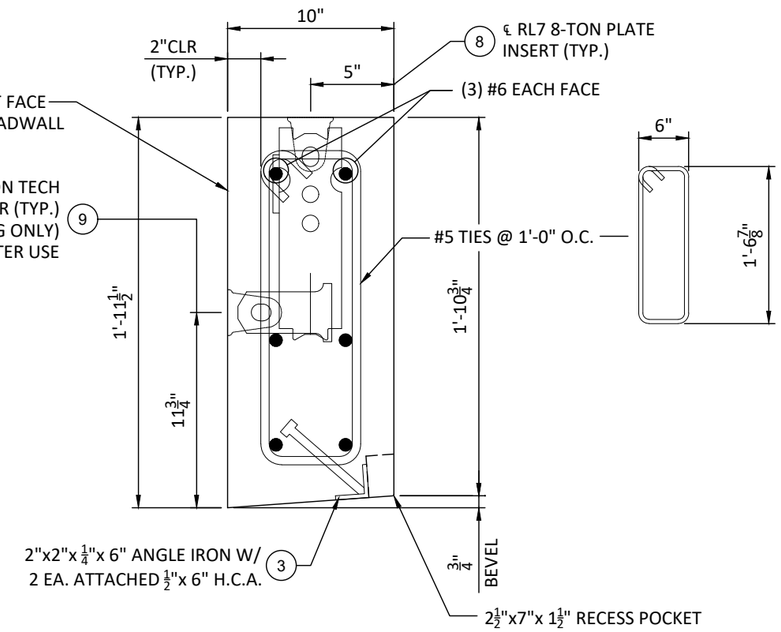
(1) HW1B PIECE NEEDED

1
P12



ELEVATION

1
P12



SECTION

2
P12

JEFFREY JOSEPH VON HANDORF
STATE OF WASHINGTON
54694
REGISTERED
PROFESSIONAL ENGINEER

MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

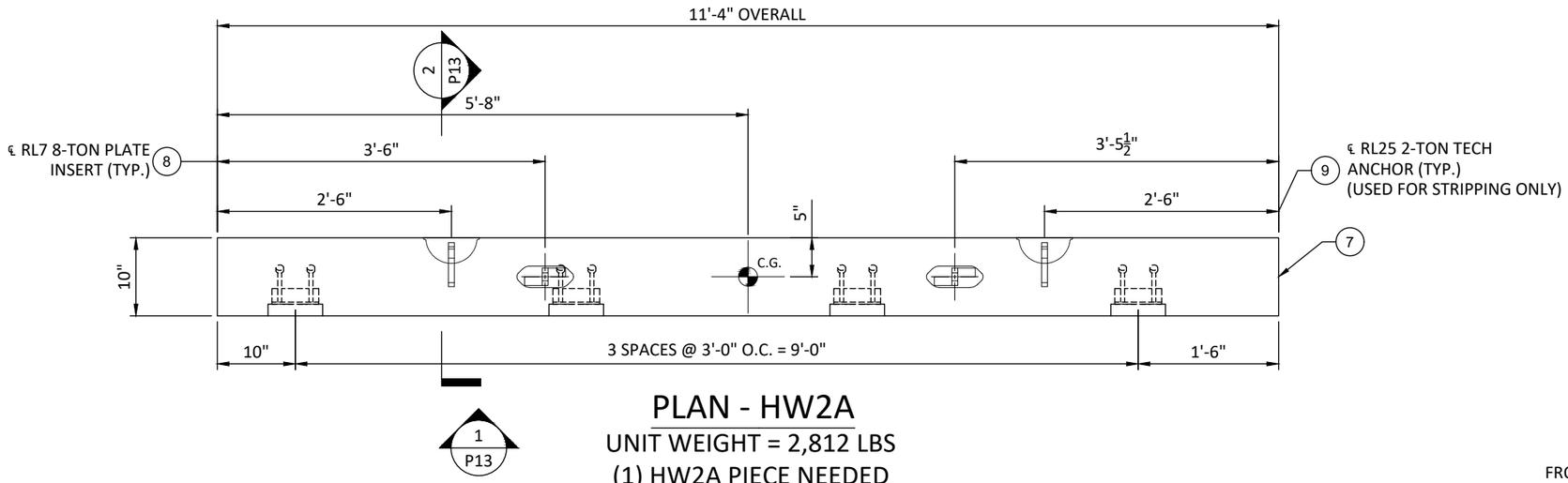
PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P12

BILL OF MATERIALS PER PIECE (HW2A)		
ITEM	QTY	DESCRIPTION
⑦	0.7 YD³	CONCRETE 5,000 PSI MIX (3,500 PSI STRIP)
⑧	2	RL7 8-TON SPREAD ANCHOR (79149)
③	4	ANGLE IRON: 2"x 2" W/ (2) $\frac{1}{2}$"Ø x 6" H.C.A.
⑨	2	RL-25 2-TON TECH ANCHOR (79524) (STRIP ONLY)

DESIGN NOTES

1. F'c = 5,000 PSI (28-DAY), F'c = 3,500 PSI (MIN. STRIPPING STRENGTH) REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
2. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
3. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN BOTH INSERTS.
4. ELEVATION LOOKING AT BACK FACE OF HEADWALL.

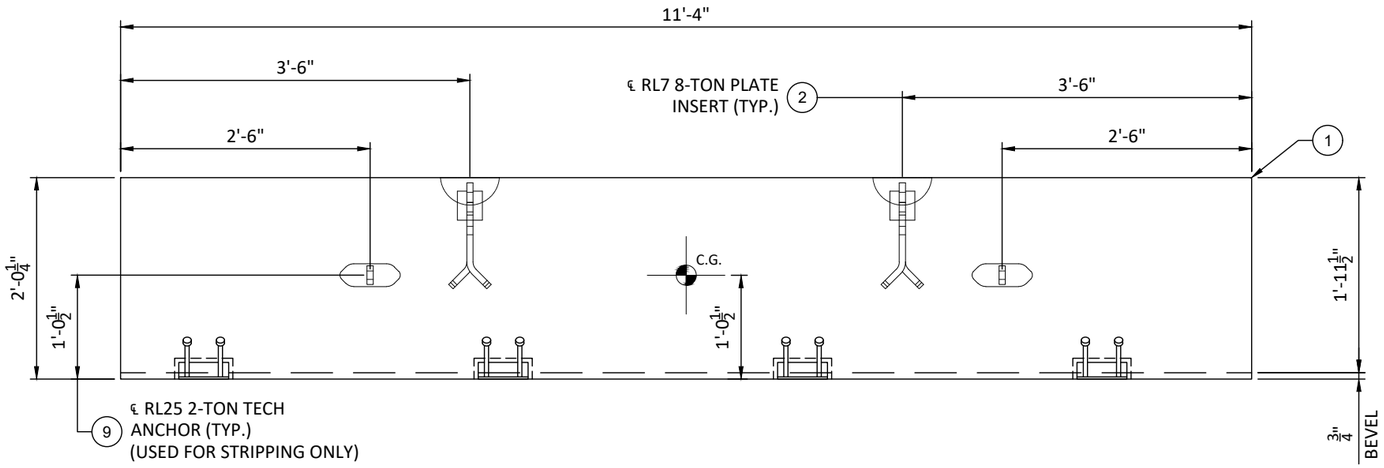


PLAN - HW2A

UNIT WEIGHT = 2,812 LBS

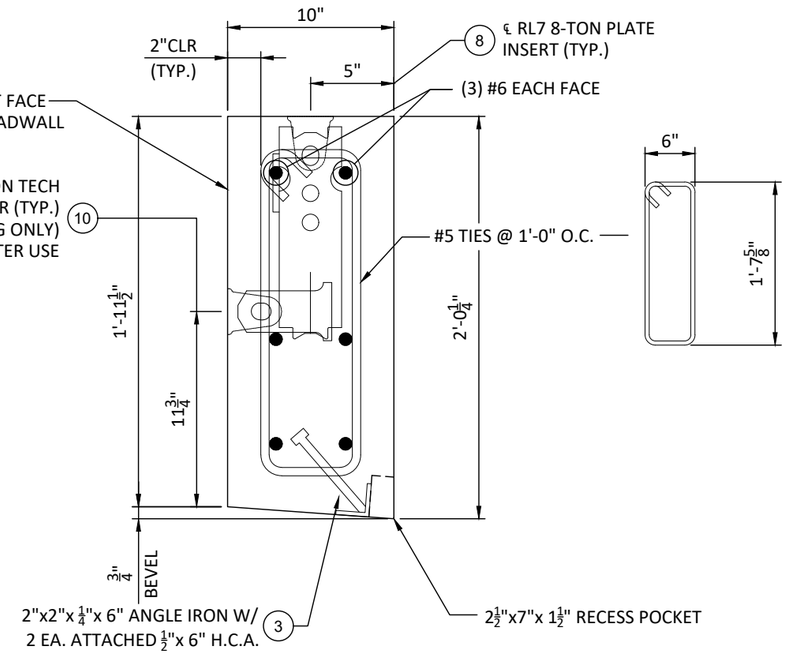
(1) HW2A PIECE NEEDED

1
P13



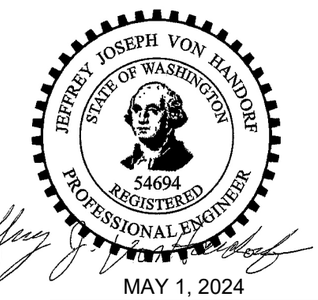
ELEVATION

1
P13



SECTION

2
P13



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
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4			
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1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

LOCALE: CITY OF DUVALL **STATE:** WA

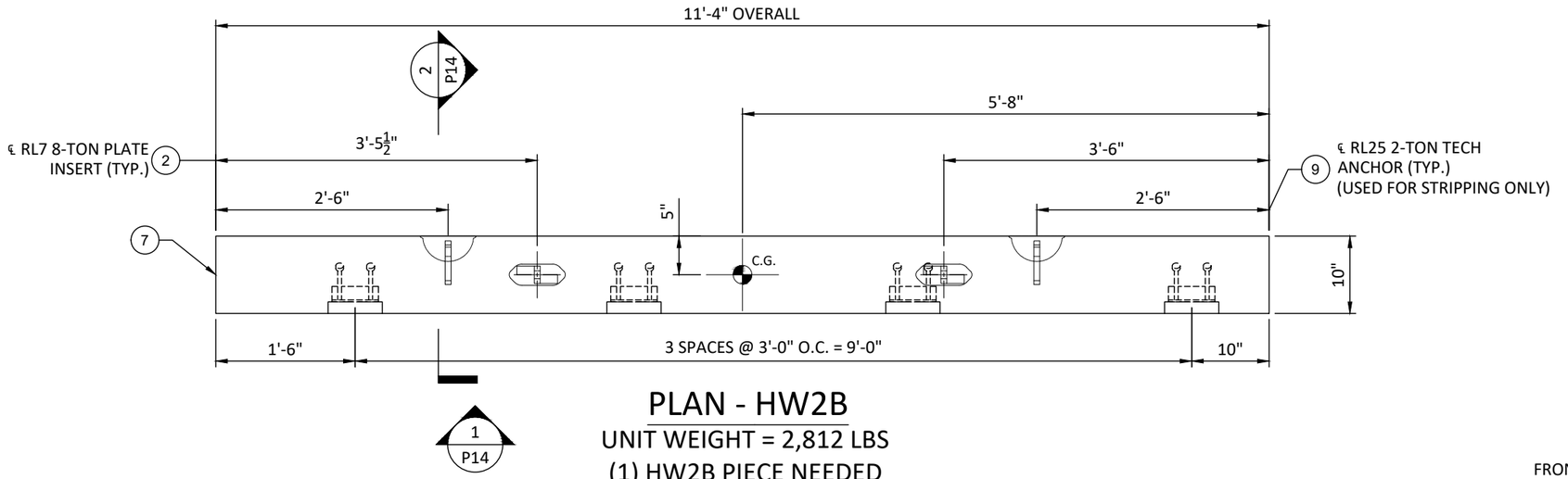
PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P13

BILL OF MATERIALS PER PIECE (HW2B)		
ITEM	QTY	DESCRIPTION
⑦	0.7 YD³	CONCRETE 5,000 PSI MIX (3,500 PSI STRIP)
⑧	2	RL7 8-TON SPREAD ANCHOR (79149)
③	4	ANGLE IRON: 2"x 2" W/ (2) $\frac{1}{2}$"Ø x 6" H.C.A.
⑨	2	RL-25 2-TON TECH ANCHOR (79524) (STRIP ONLY)

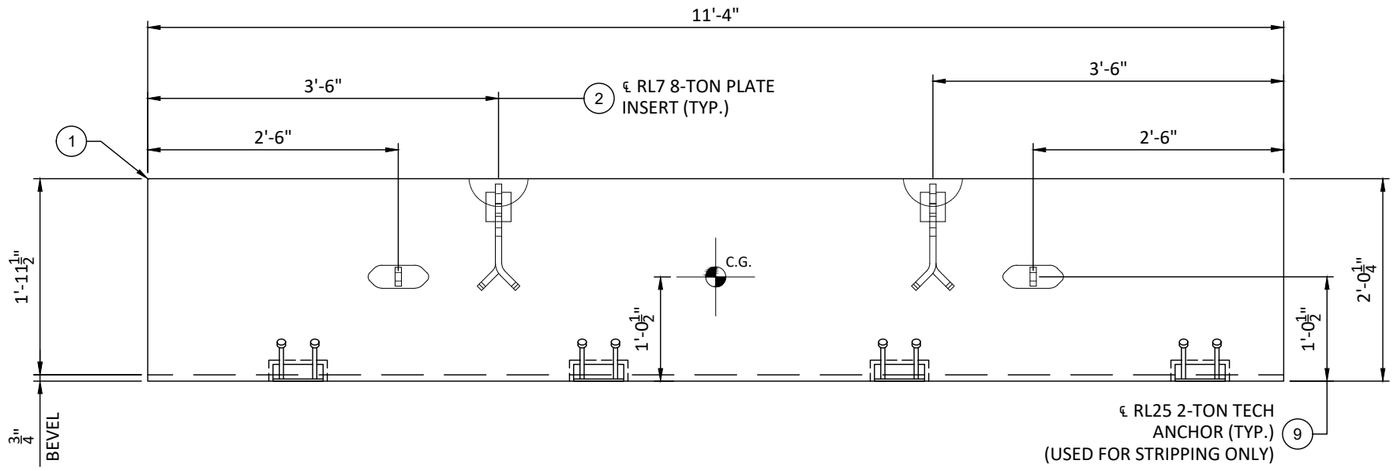


PLAN - HW2B

UNIT WEIGHT = 2,812 LBS

(1) HW2B PIECE NEEDED

1
P14

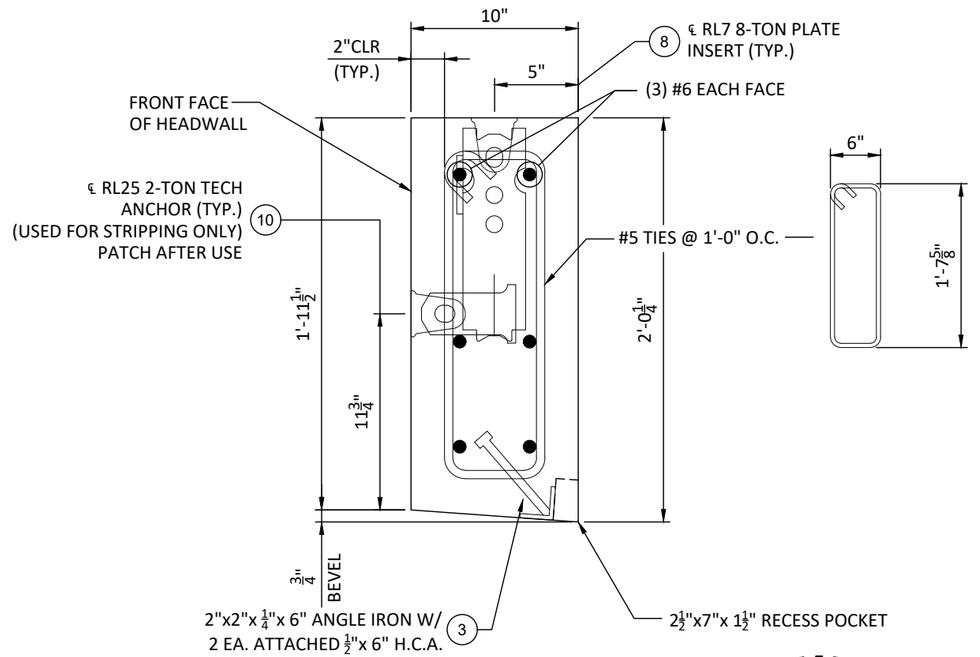


ELEVATION

1
P14

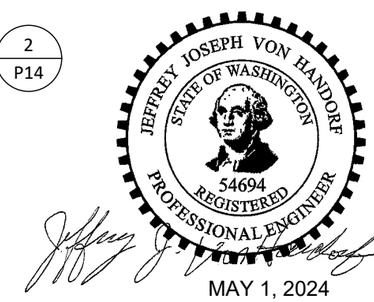
DESIGN NOTES

1. F'c = 5,000 PSI (28-DAY), F'c = 3,500 PSI (MIN. STRIPPING STRENGTH REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI. AND SHALL CONFORM TO ASTM A615 OR A706.
2. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
3. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN BOTH INSERTS.
4. ELEVATION LOOKING AT BACK FACE OF HEADWALL.



SECTION

2
P14



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
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1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

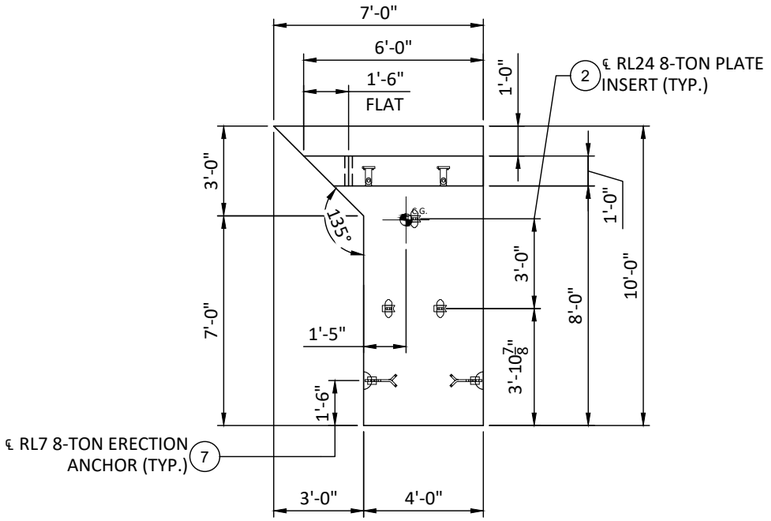
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

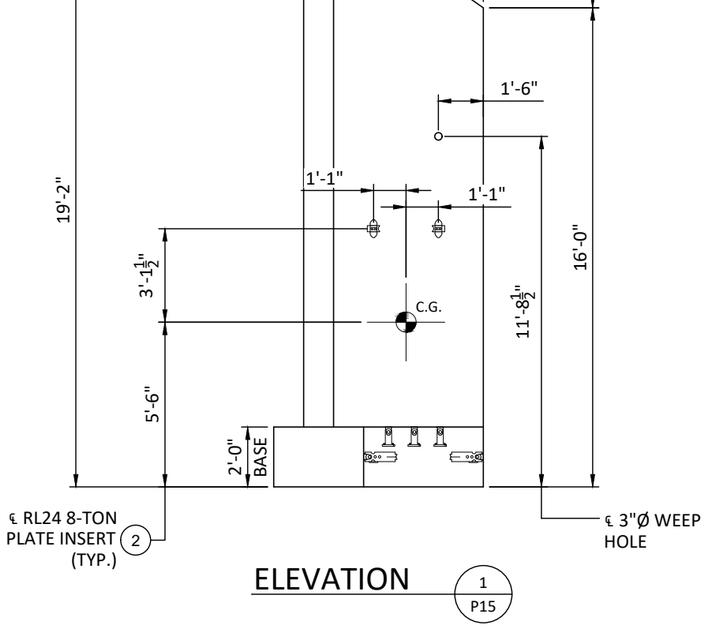
P14



PLAN - WINGWALL WW1

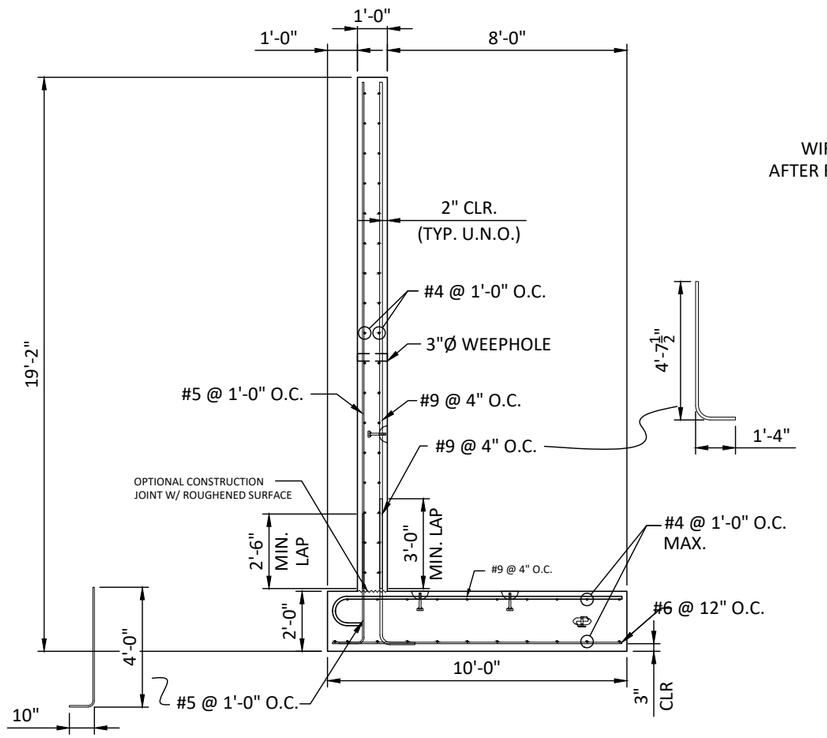
TOTAL WEIGHT = 26,444 LBS

(1) PIECE NEEDED



ELEVATION

1
P15

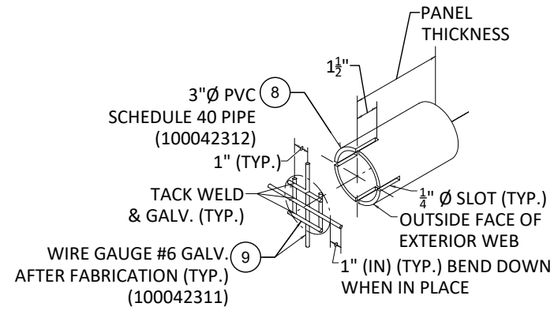


REINFORCING SECTION

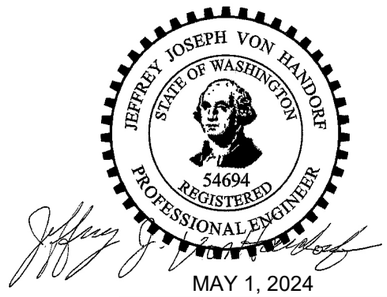
BILL OF MATERIALS PER PIECE (WW1)		
ITEM	QTY	DESCRIPTION
①	14.7 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
⑤	5	RL24 8-TON PLATE LIFTING INSERT(79042)
⑧	2	RL7 8-TON SPREAD ANCHOR (79149)
⑨	1	PIPE PVC SCH 40 3"Ø - 10" - (4) 1.5" SLOTS (100042312)
⑩	1	GRATE WEEPHOLE 3" STEEL GALV (100042311)

DESIGN NOTES

1. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN STRIPPING STRENGTH)
2. REINFORCING STEEL SHALL BE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. WALL PANEL WILL NOT HANG LEVEL, ADJUST LIFTING CABLES AS REQUIRED
4. ELEVATION LOOKING AT BACK FACE OF WINGWALL
5. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
6. CRANE IS STATIONARY AND WILL NOT EXERT IMPACT LOADING ON PRECAST.
7. RIGGING WILL UTILIZE EQUALIZERS TO ALLOW LOAD TO BE EVENLY DISTRIBUTED TO ALL 4 LIFT INSERTS.



WEEPHOLE ASSEMBLY



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

LOCALE: CITY OF DUVALL

STATE: WA

PROVIDED BY:

JENSEN PRECAST

5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

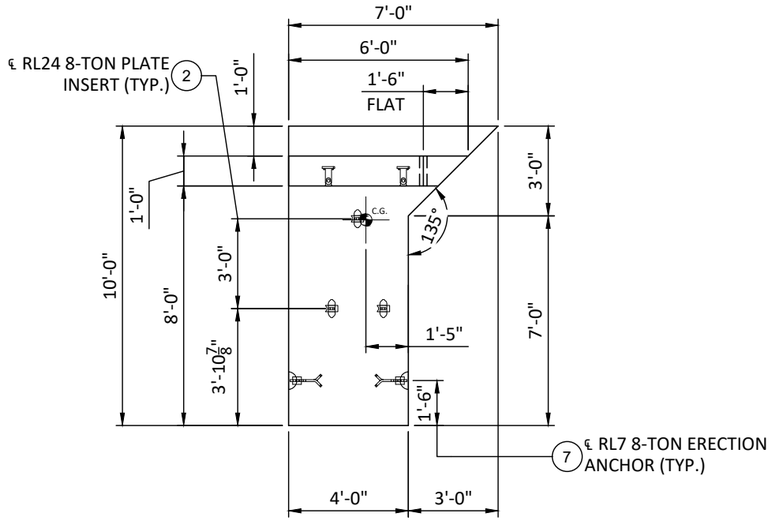
DESIGNED BY:

PRETEK GROUP

P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P15

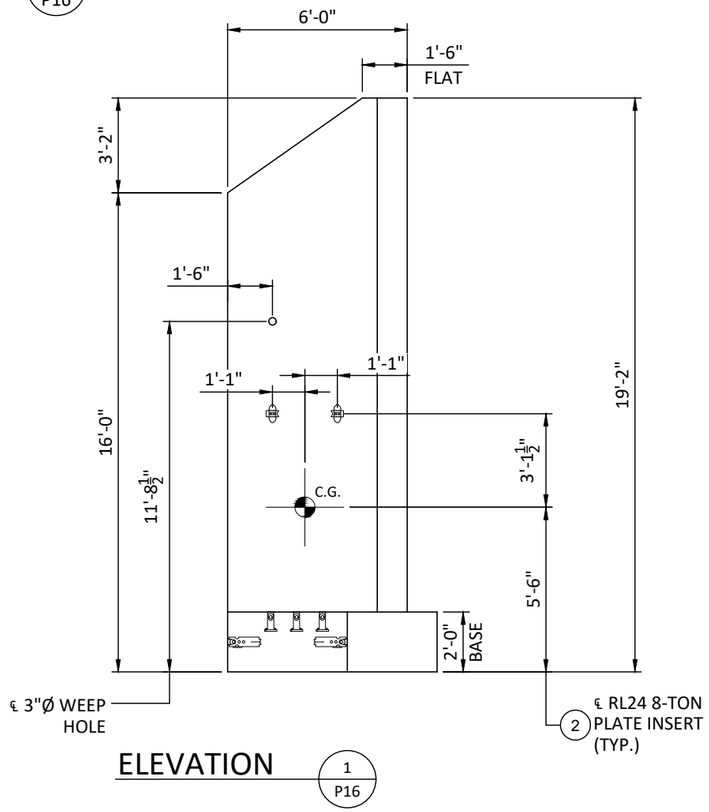


PLAN - WINGWALL WW2

TOTAL WEIGHT = 26,444 LBS

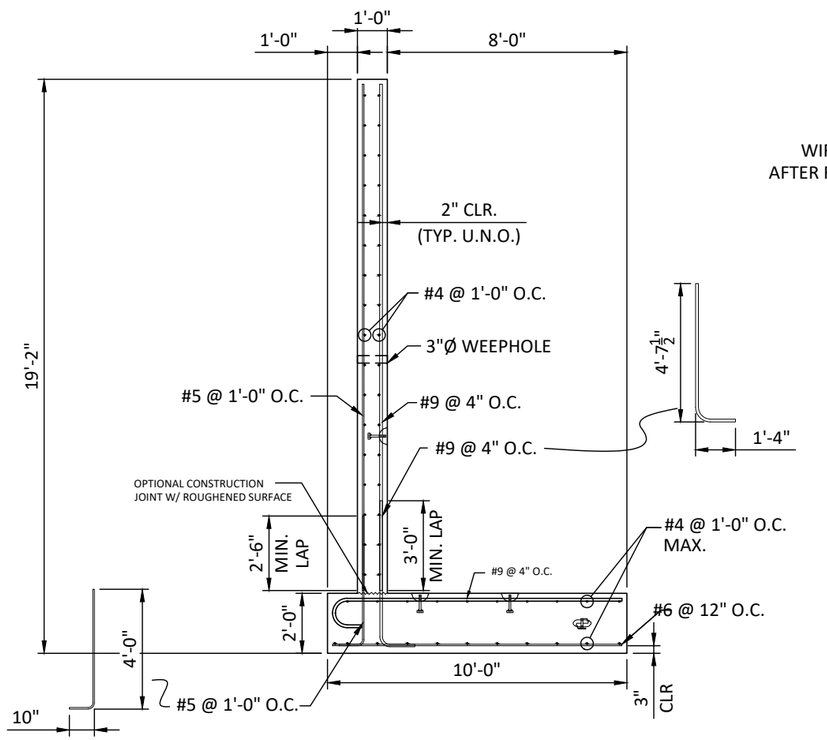
(1) PIECE NEEDED

1 / P16



ELEVATION

1 / P16

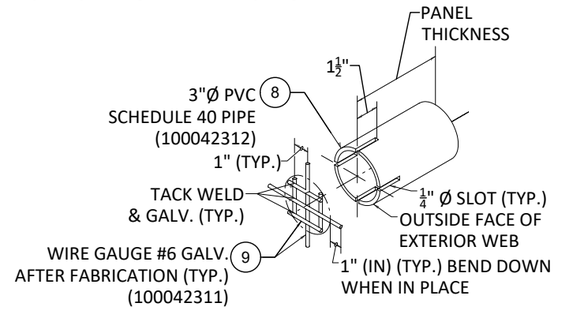


REINFORCING SECTION

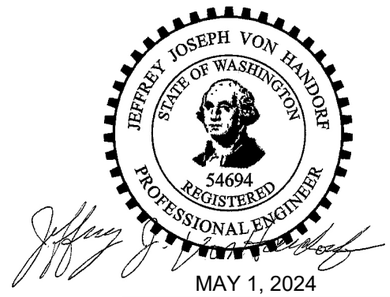
BILL OF MATERIALS PER PIECE (WW2)		
ITEM	QTY	DESCRIPTION
①	14.7 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
⑤	5	RL24 8-TON PLATE LIFTING INSERT(79042)
⑧	2	RL7 8-TON SPREAD ANCHOR (79149)
⑨	1	PIPE PVC SCH 40 3"Ø - 10" - (4) 1.5" SLOTS (100042312)
⑩	1	GRATE WEEPHOLE 3" STEEL GALV (100042311)

DESIGN NOTES

1. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN STRIPPING STRENGTH)
2. REINFORCING STEEL SHALL BE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. WALL PANEL WILL NOT HANG LEVEL, ADJUST LIFTING CABLES AS REQUIRED
4. ELEVATION LOOKING AT BACK FACE OF WINGWALL
5. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
6. CRANE IS STATIONARY AND WILL NOT EXERT IMPACT LOADING ON PRECAST.
7. RIGGING WILL UTILIZE EQUALIZERS TO ALLOW LOAD TO BE EVENLY DISTRIBUTED TO ALL 4 LIFT INSERTS.



WEEPHOLE ASSEMBLY



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

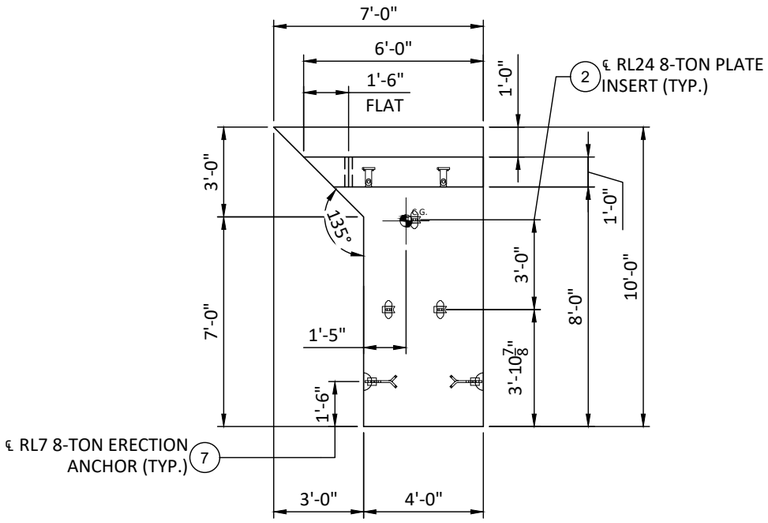
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P16

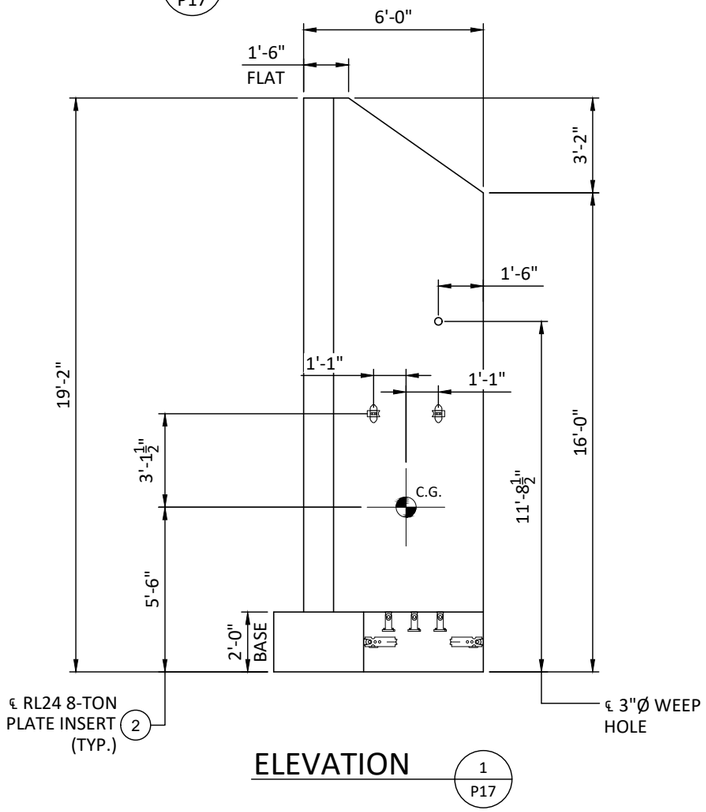


PLAN - WINGWALL WW3

TOTAL WEIGHT = 26,444 LBS

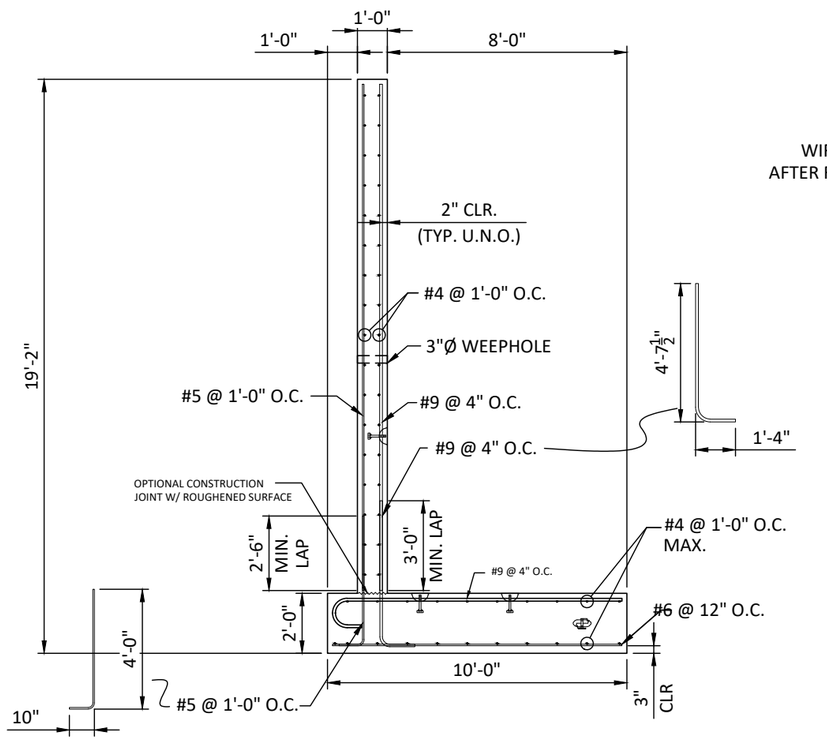
(1) PIECE NEEDED

1 / P17



ELEVATION

1 / P17

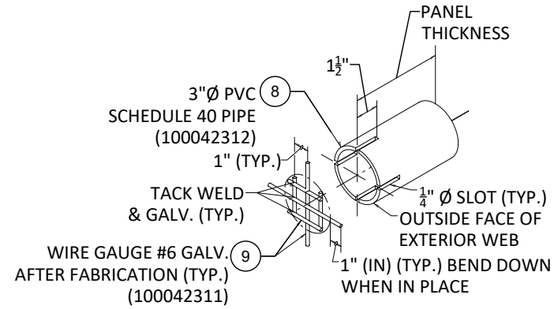


REINFORCING SECTION

BILL OF MATERIALS PER PIECE (WW3)		
ITEM	QTY	DESCRIPTION
①	14.7 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
⑤	5	RL24 8-TON PLATE LIFTING INSERT(79042)
⑧	2	RL7 8-TON SPREAD ANCHOR (79149)
⑨	1	PIPE PVC SCH 40 3"Ø - 10" - (4) 1.5" SLOTS (100042312)
⑩	1	GRATE WEEPHOLE 3" STEEL GALV (100042311)

DESIGN NOTES

1. F'c = 7,000 PSI (28-DAY), F'c = 4,900 PSI (MIN STRIPPING STRENGTH)
2. REINFORCING STEEL SHALL BE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. WALL PANEL WILL NOT HANG LEVEL, ADJUST LIFTING CABLES AS REQUIRED
4. ELEVATION LOOKING AT BACK FACE OF WINGWALL
5. LIFT INSERT SHALL BE INSTALLED AND USED PER MANUFACTURES RECOMMENDATIONS.
6. CRANE IS STATIONARY AND WILL NOT EXERT IMPACT LOADING ON PRECAST.
7. RIGGING WILL UTILIZE EQUALIZERS TO ALLOW LOAD TO BE EVENLY DISTRIBUTED TO ALL 4 LIFT INSERTS.



WEEPHOLE ASSEMBLY

JEFFREY JOSEPH VON HANDORF
STATE OF WASHINGTON
54694
REGISTERED
PROFESSIONAL ENGINEER

MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

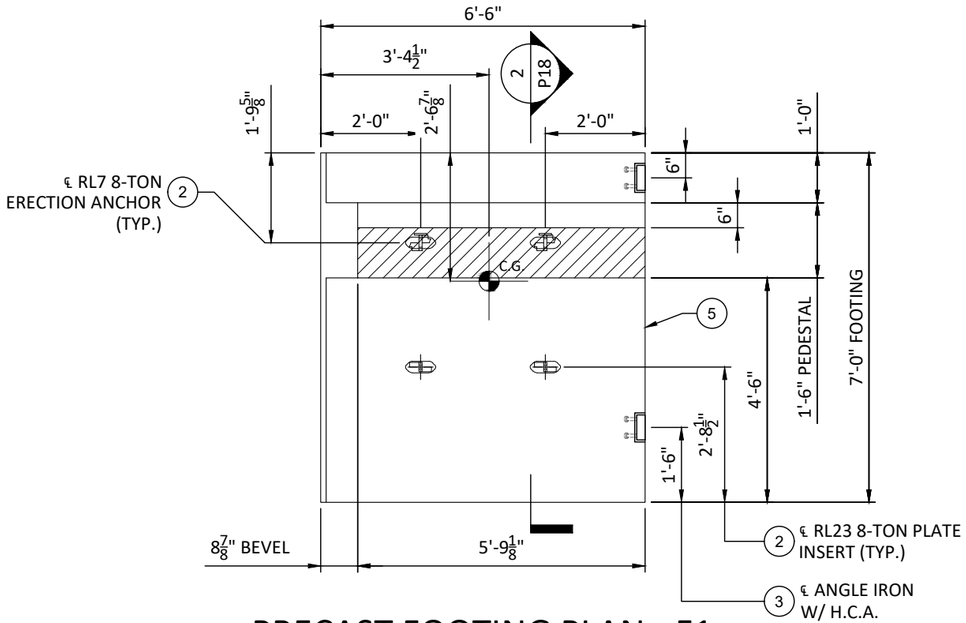
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

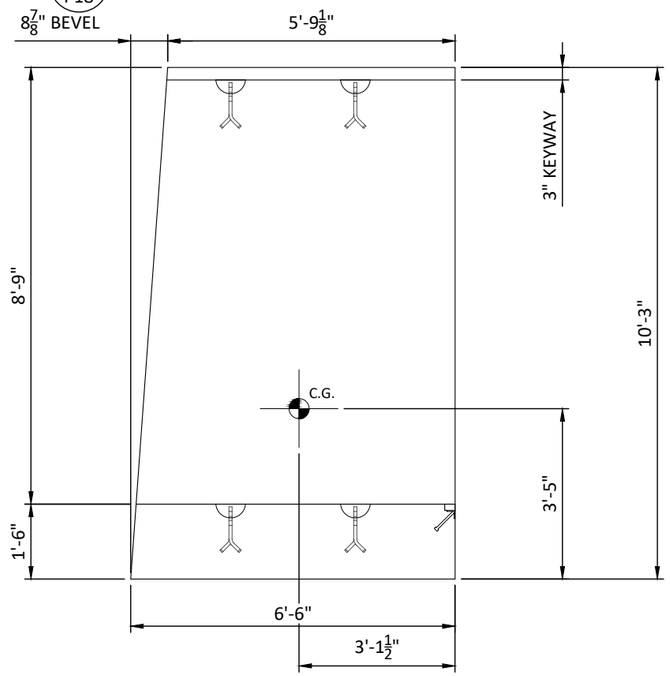
P17



PRECAST FOOTING PLAN - F1

UNIT WEIGHT = 21,939 LBS

(1) F1 PIECE NEEDED

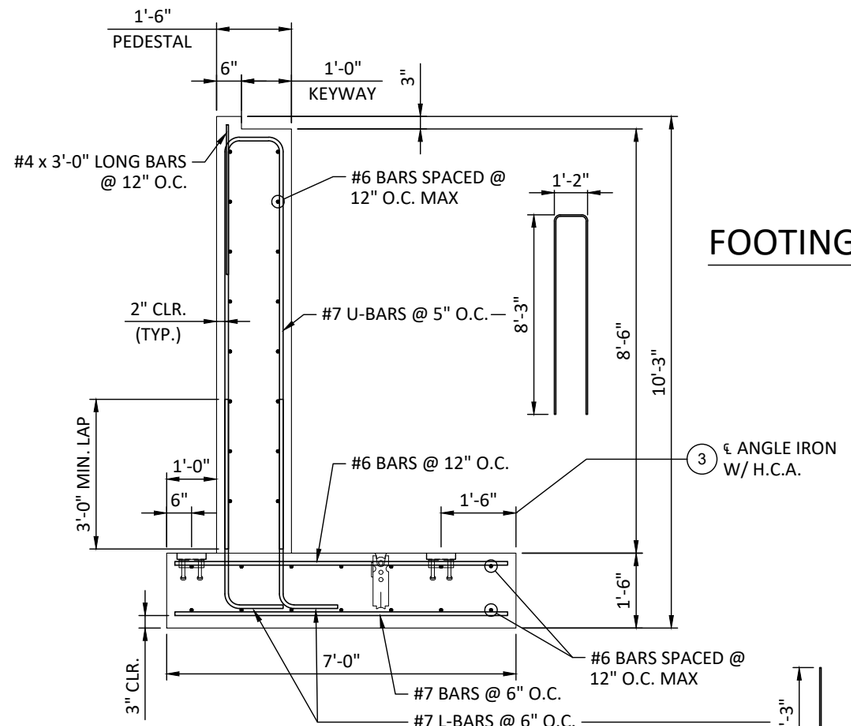


ELEVATION 1 P18

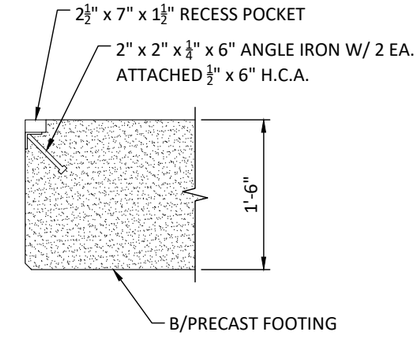
BILL OF MATERIALS PER PIECE (F1)		
ITEM	QTY	DESCRIPTION
5	5.4 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	2	RL23 8-TON SPREAD ANCHOR (79119)
③	4	ANGLE IRON: 2"x 2" W/ (2) ½"Ø x 6" H.C.A.
④	2	RL7 8-TON ERECTION ANCHOR (79149) W/ TENSION ANCHOR

DESIGN NOTES

1. F'c = 7,000 PSI (28-DAY),
   F'c = 4,900 PSI (MIN STRIPPING STRENGTH)
2. REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. LIFT INSERTS SHALL BE INSTALLED AND USED PER MANUFACTURER'S RECOMMENDATIONS.
4. FOUNDATIONS WILL NOT HANG LEVEL, ADJUST LIFT CABLES AS REQUIRED.
6. CRANE IS STATIONARY AND WILL NOT EXERT IMPACT LOADING ON PRECAST.
7. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN ALL 4 INSERTS.

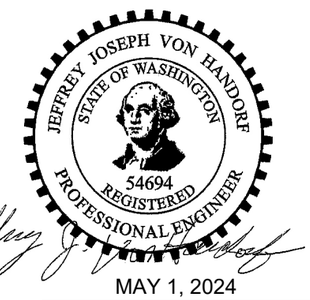


SECTION REINFORCING 2 P18



FOOTING CONNECTION DETAIL

SIDE VIEW



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

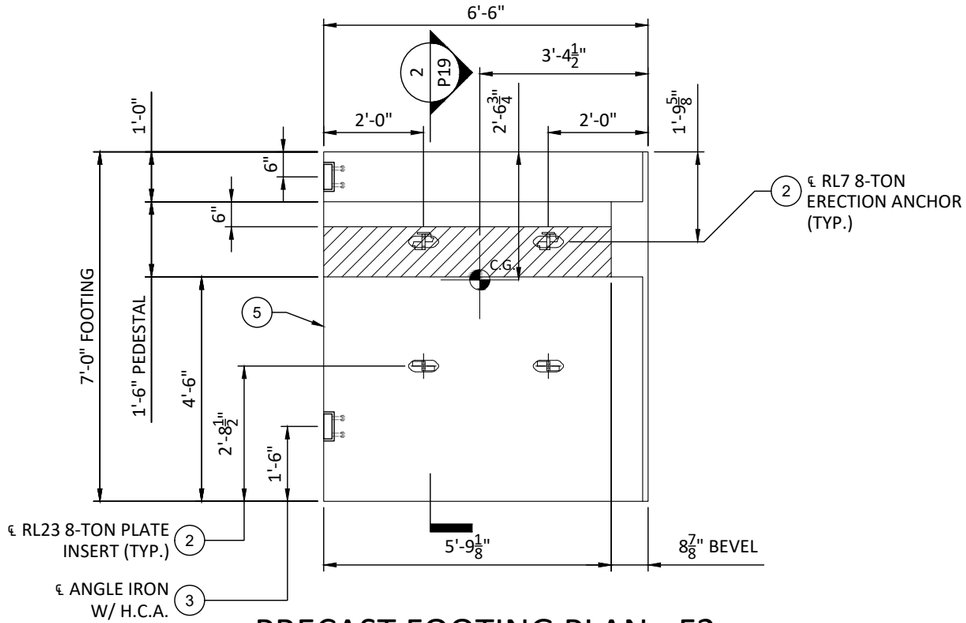
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

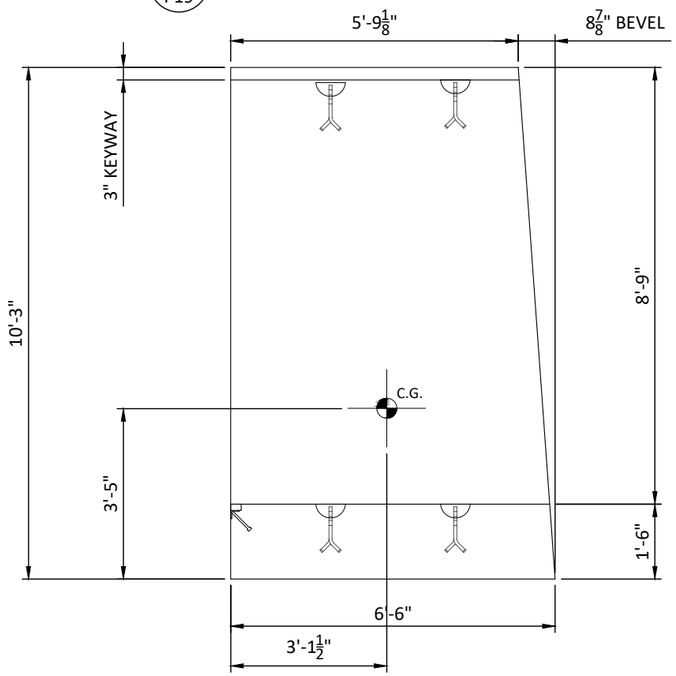
P18



PRECAST FOOTING PLAN - F2

UNIT WEIGHT = 21,939 LBS

(1) F2 PIECE NEEDED

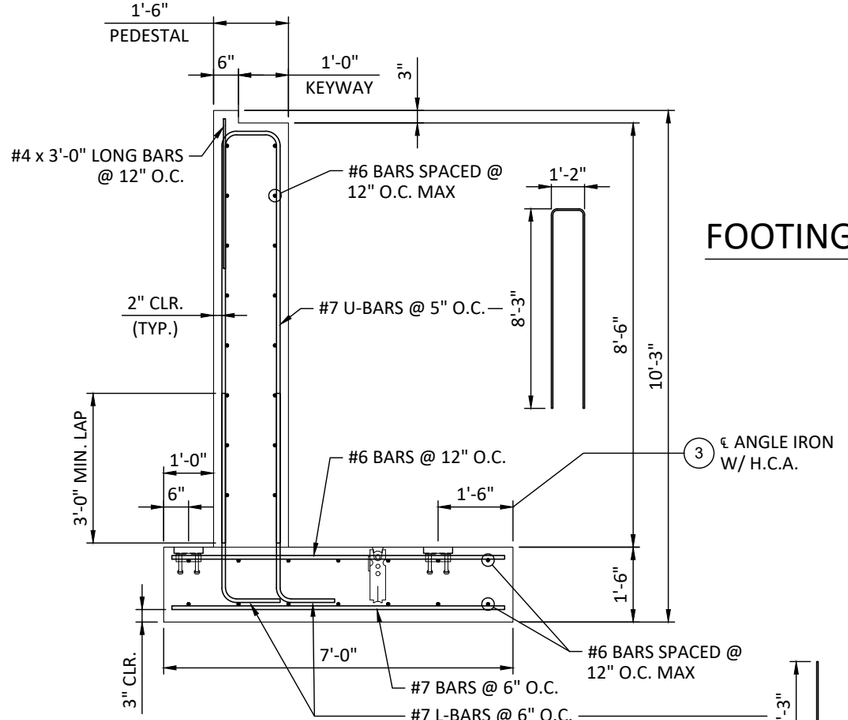


ELEVATION 1 / P19

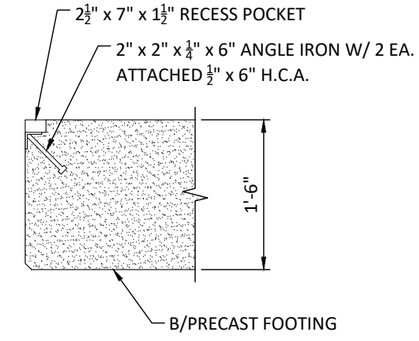
BILL OF MATERIALS PER PIECE (F2)		
ITEM	QTY	DESCRIPTION
5	5.4 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	2	RL23 8-TON SPREAD ANCHOR (79119)
③	4	ANGLE IRON: 2"x 2" W/ (2) ½"Ø x 6" H.C.A.
④	2	RL7 8-TON ERECTION ANCHOR (79149) W/ TENSION ANCHOR

DESIGN NOTES

1. F'c = 7,000 PSI (28-DAY),
   F'c = 4,900 PSI (MIN STRIPPING STRENGTH)
2. REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. LIFT INSERTS SHALL BE INSTALLED AND USED PER MANUFACTURER'S RECOMMENDATIONS.
4. FOUNDATIONS WILL NOT HANG LEVEL, ADJUST LIFT CABLES AS REQUIRED.
6. CRANE IS STATIONARY AND WILL NOT EXERT IMPACT LOADING ON PRECAST.
7. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN ALL 4 INSERTS.



SECTION REINFORCING 2 / P19



FOOTING CONNECTION DETAIL

SIDE VIEW

JEFFREY JOSEPH VON HANDORF
STATE OF WASHINGTON
54694
REGISTERED
PROFESSIONAL ENGINEER

MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

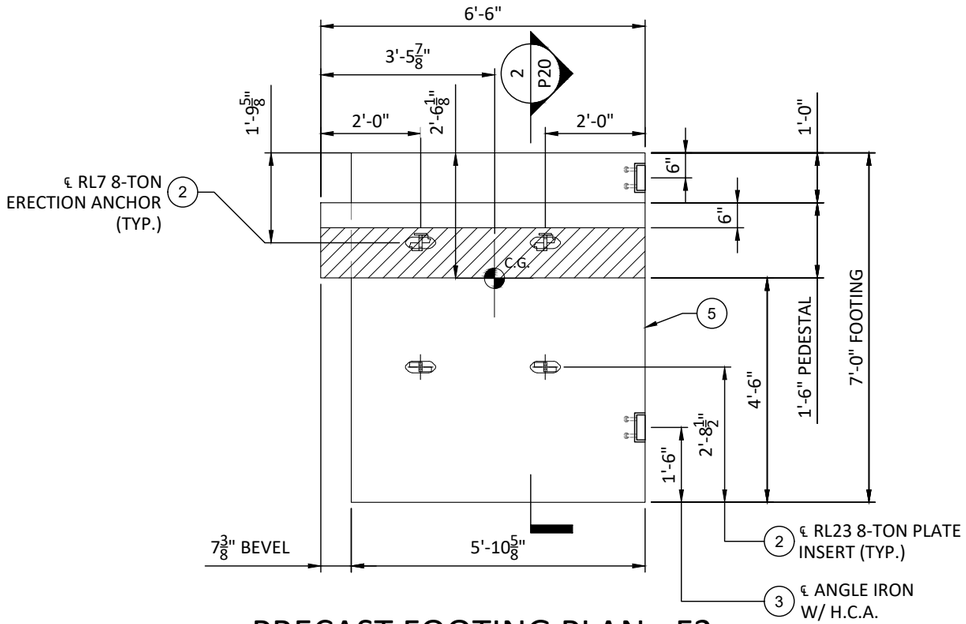
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

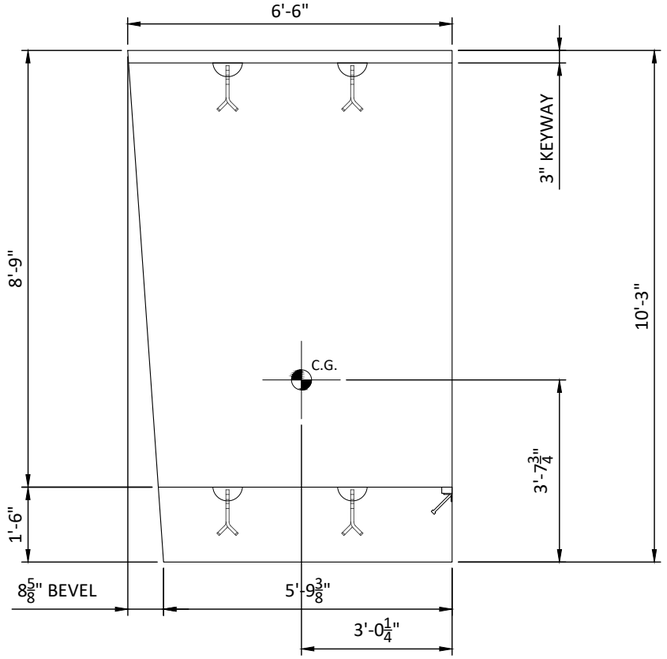
P19



PRECAST FOOTING PLAN - F3

UNIT WEIGHT = 21,183 LBS

(1) F3 PIECE NEEDED



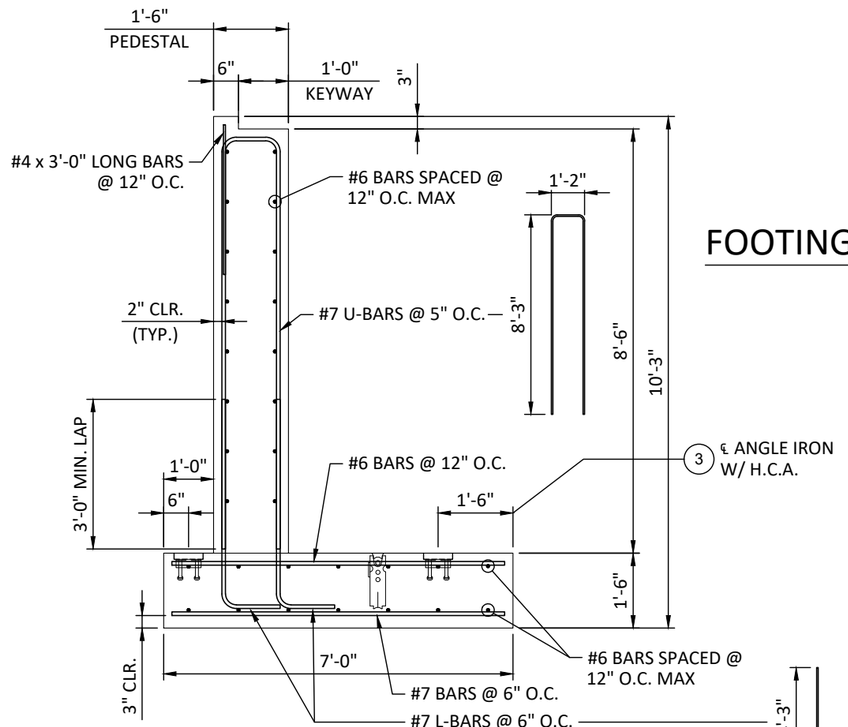
ELEVATION

1 / P20

BILL OF MATERIALS PER PIECE (F3)		
ITEM	QTY	DESCRIPTION
5	5.2 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	2	RL23 8-TON SPREAD ANCHOR (79119)
③	4	ANGLE IRON: 2"x 2" W/ (2) ½"Ø x 6" H.C.A.
④	2	RL7 8-TON ERECTION ANCHOR (79149) W/ TENSION ANCHOR

DESIGN NOTES

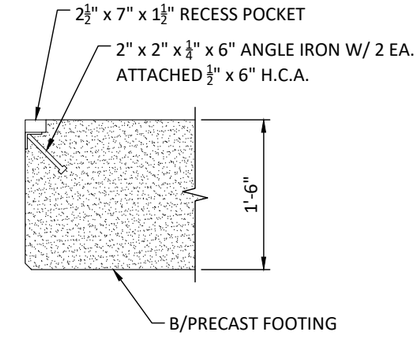
1. F'c = 7,000 PSI (28-DAY),
   F'c = 4,900 PSI (MIN STRIPPING STRENGTH)
2. REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. LIFT INSERTS SHALL BE INSTALLED AND USED PER MANUFACTURER'S RECOMMENDATIONS.
4. FOUNDATIONS WILL NOT HANG LEVEL, ADJUST LIFT CABLES AS REQUIRED.
6. CRANE IS STATIONARY AND WILL NOT EXERT IMPACT LOADING ON PRECAST.
7. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN ALL 4 INSERTS.



SECTION

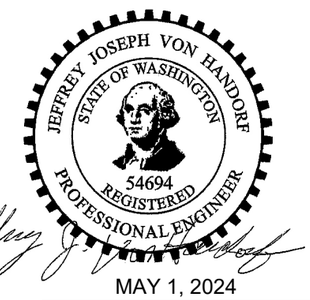
REINFORCING

2 / P20



FOOTING CONNECTION DETAIL

SIDE VIEW



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

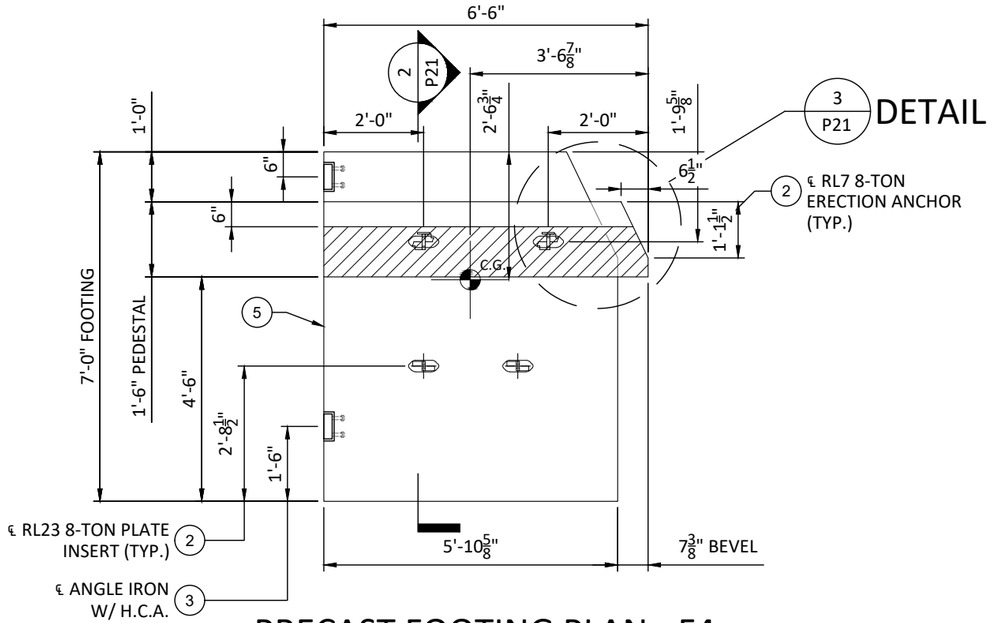
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

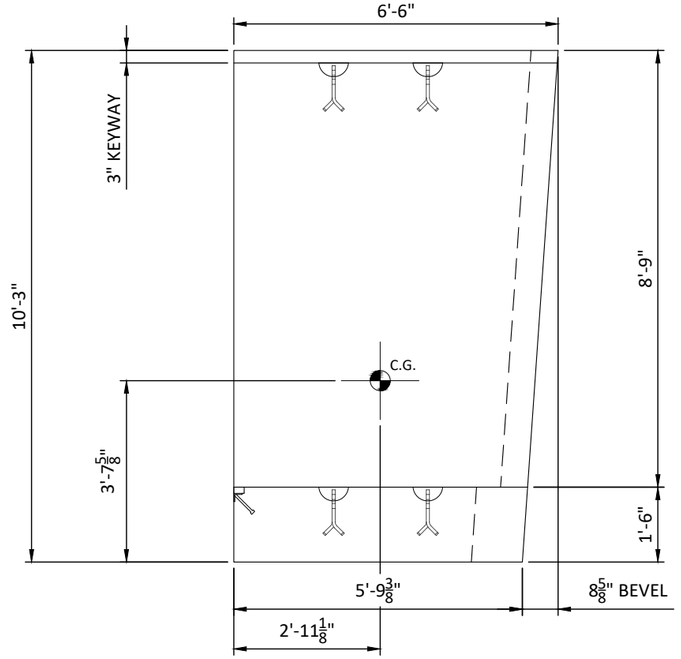
P20



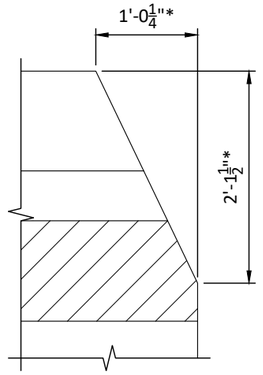
PRECAST FOOTING PLAN - F4

UNIT WEIGHT = 20,541 LBS

(1) F4 PIECE NEEDED



ELEVATION 1 / P21



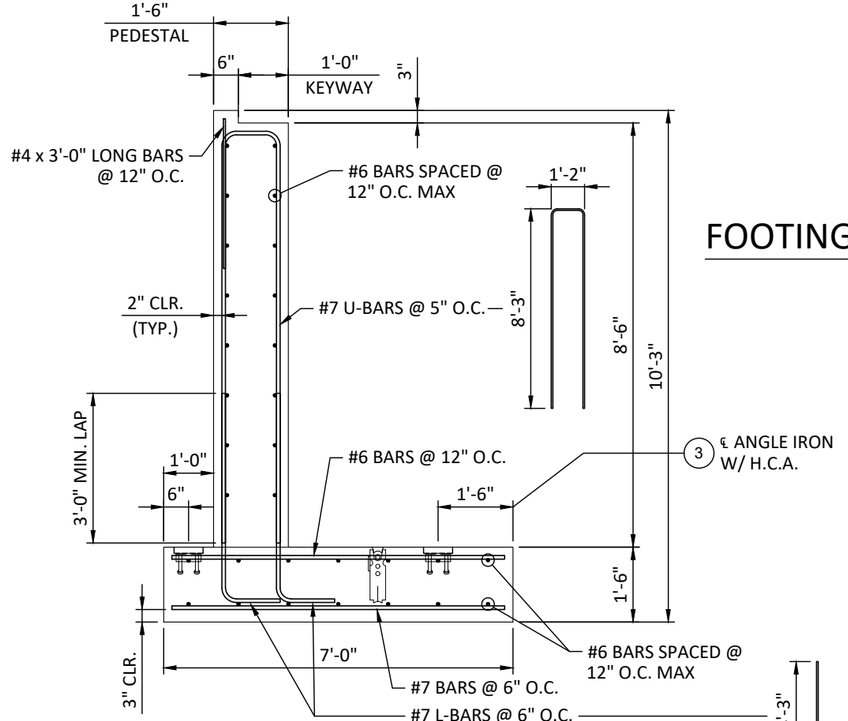
DETAIL BLOCKOUT 3 / P21

BILL OF MATERIALS PER PIECE (F4)		
ITEM	QTY	DESCRIPTION
5	5.1 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	2	RL23 8-TON SPREAD ANCHOR (79119)
③	4	ANGLE IRON: 2"x 2" W/ (2) 1/2"Ø x 6" H.C.A.
④	2	RL7 8-TON ERECTION ANCHOR (79149) W/ TENSION ANCHOR

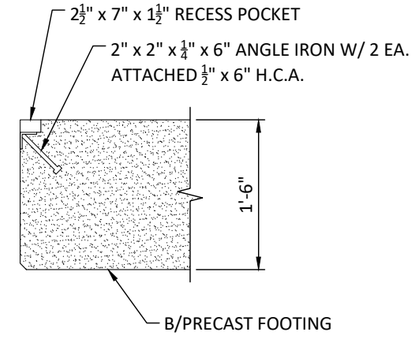
DESIGN NOTES

1. F'c = 7,000 PSI (28-DAY),
   F'c = 4,900 PSI (MIN STRIPPING STRENGTH)
2. REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. LIFT INSERTS SHALL BE INSTALLED AND USED PER MANUFACTURER'S RECOMMENDATIONS.
4. FOUNDATIONS WILL NOT HANG LEVEL, ADJUST LIFT CABLES AS REQUIRED.
6. CRANE IS STATIONARY AND WILL NOT EXERT IMPACT LOADING ON PRECAST.
7. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN ALL 4 INSERTS.

*NOTE:
BLOCKOUT DIMENSIONS ARE PARALLEL WITH BEVEL.

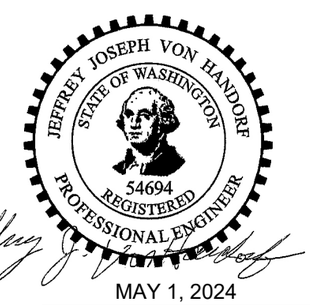


SECTION REINFORCING 2 / P21



FOOTING CONNECTION DETAIL

SIDE VIEW



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

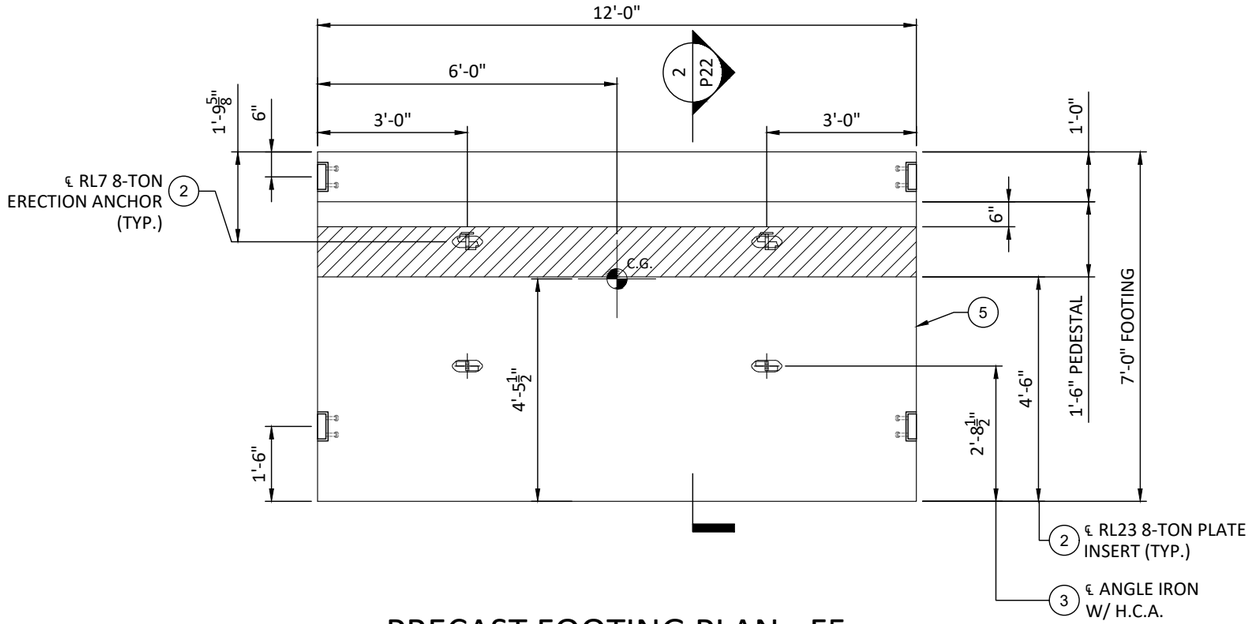
LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

DESIGNED BY:
PRETEK GROUP
P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P21



PRECAST FOOTING PLAN - F5

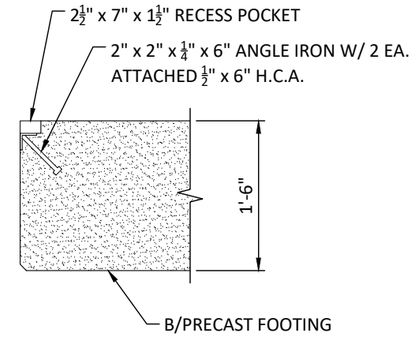
UNIT WEIGHT = 42,155 LBS

(8) F5 PIECE NEEDED

BILL OF MATERIALS PER PIECE (F5)		
ITEM	QTY	DESCRIPTION
①	10.4 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	2	RL23 8-TON SPREAD ANCHOR (79119)
③	4	ANGLE IRON: 2"x 2" W/ (2) ½"Ø x 6" H.C.A.
④	2	RL7 8-TON ERECTION ANCHOR (79149) W/ TENSION ANCHOR

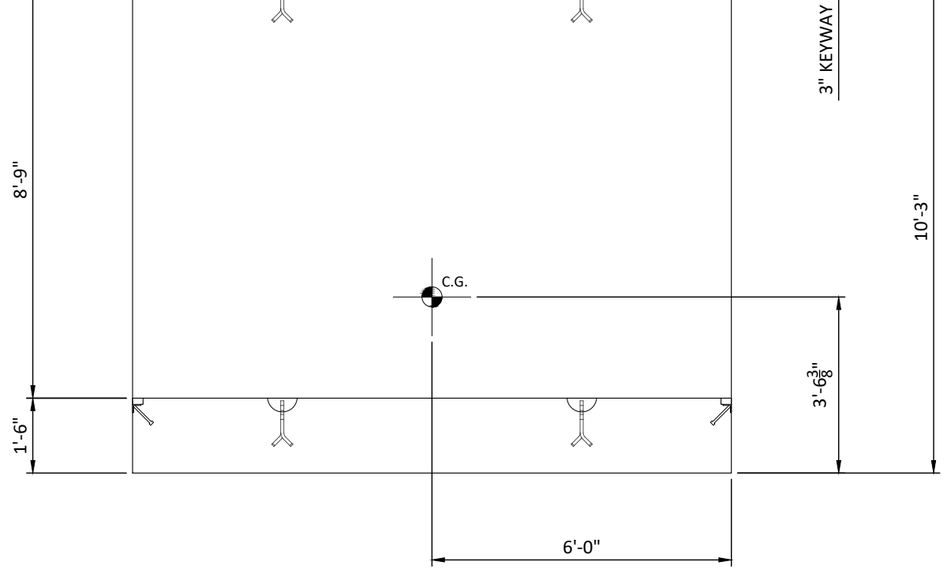
DESIGN NOTES

1. F'c = 7,000 PSI (28-DAY),
   F'c = 4,900 PSI (MIN STRIPPING STRENGTH)
2. REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. LIFT INSERTS SHALL BE INSTALLED AND USED PER MANUFACTURER'S RECOMMENDATIONS.
4. FOUNDATIONS WILL NOT HANG LEVEL, ADJUST LIFT CABLES AS REQUIRED.
6. CRANE IS STATIONARY AND WILL NOT EXERT IMPACT LOADING ON PRECAST.
7. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN ALL 4 INSERTS.



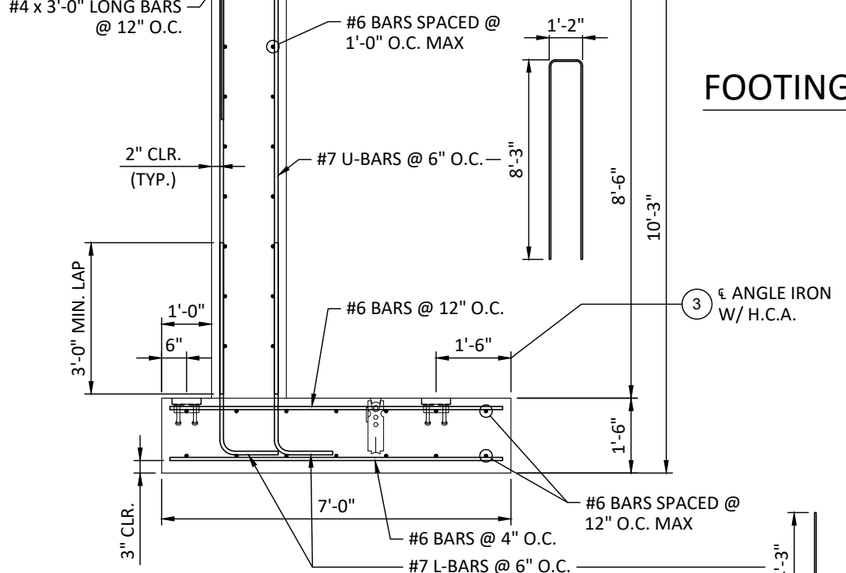
FOOTING CONNECTION DETAIL

SIDE VIEW



ELEVATION

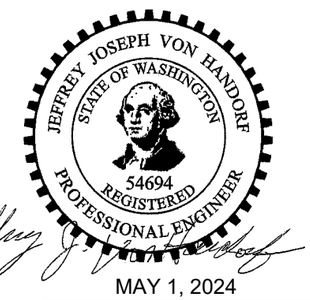
1 / P22



SECTION

REINFORCING

2 / P22



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

LOCALE: CITY OF DUVALL

STATE: WA

PROVIDED BY:

JENSEN PRECAST

5415 189TH STREET E
PUYALLUP, WA 98375
PHONE 253-929-1818

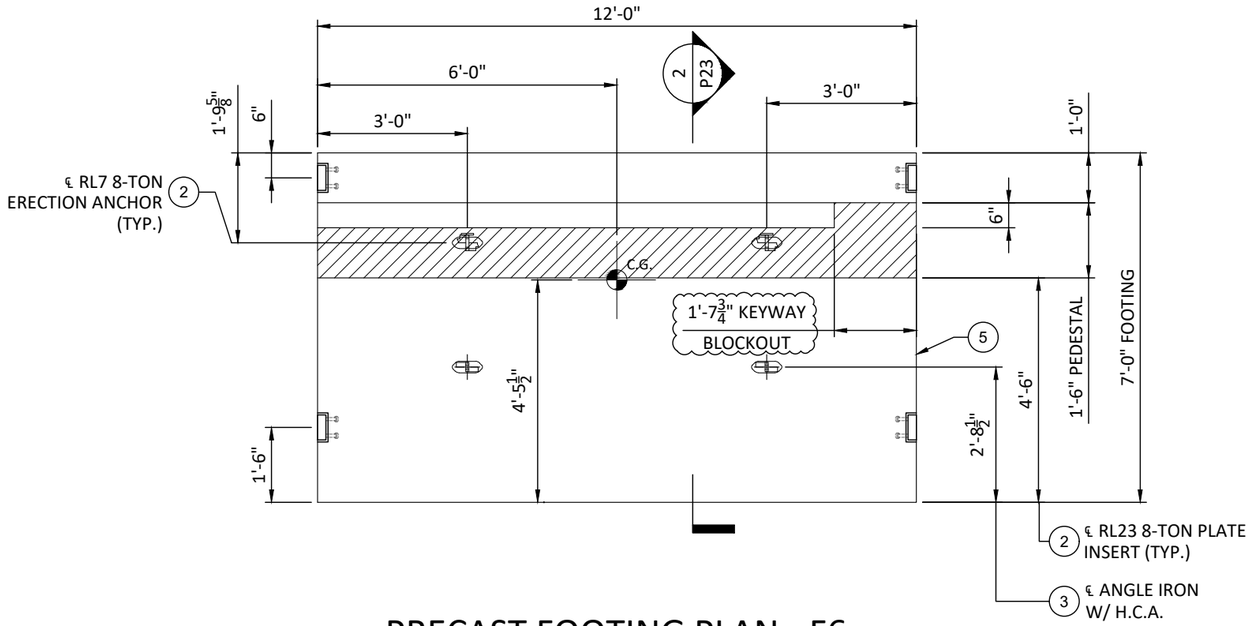
DESIGNED BY:

PRETEK GROUP

P.O. BOX 351
BELLBROOK, OH 45305
800.241.0925

PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P22



PRECAST FOOTING PLAN - F6

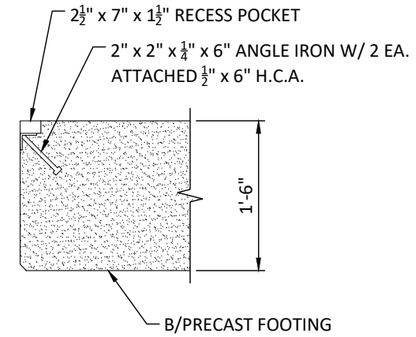
UNIT WEIGHT = 42,120 LBS

(1) F6 PIECE NEEDED

BILL OF MATERIALS PER PIECE (F6)		
ITEM	QTY	DESCRIPTION
⑤	10.4 YD³	CONCRETE 7,000 PSI MIX (4,900 PSI STRIP)
②	2	RL23 8-TON SPREAD ANCHOR (79119)
③	4	ANGLE IRON: 2"x 2" W/ (2) ½"Ø x 6" H.C.A.
④	2	RL7 8-TON ERECTION ANCHOR (79149) W/ TENSION ANCHOR

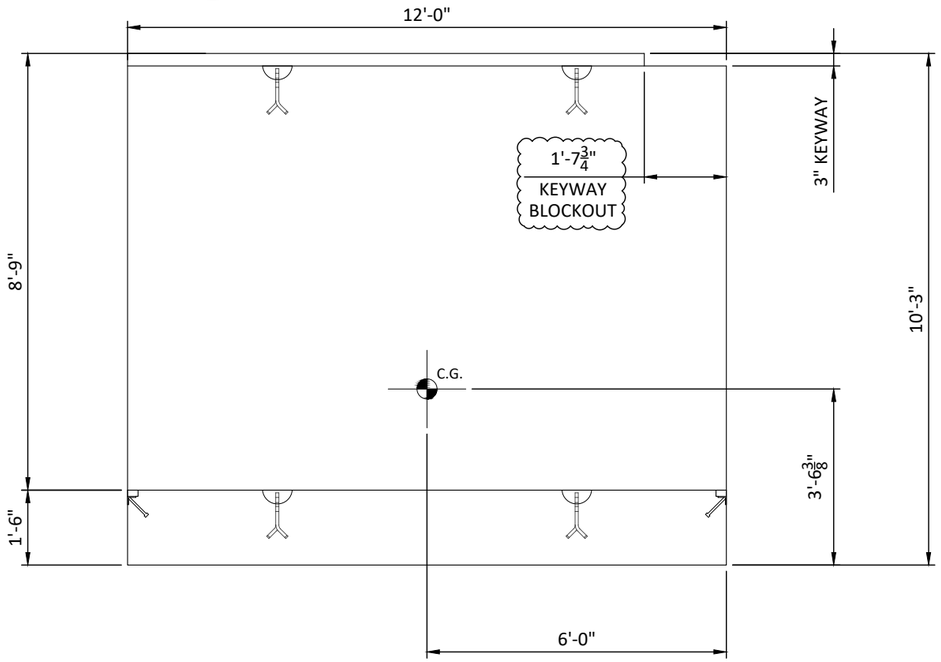
DESIGN NOTES

1. F'c = 7,000 PSI (28-DAY),
   F'c = 4,900 PSI (MIN STRIPPING STRENGTH)
2. REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. LIFT INSERTS SHALL BE INSTALLED AND USED PER MANUFACTURER'S RECOMMENDATIONS.
4. FOUNDATIONS WILL NOT HANG LEVEL, ADJUST LIFT CABLES AS REQUIRED.
6. CRANE IS STATIONARY AND WILL NOT EXERT IMPACT LOADING ON PRECAST.
7. LIFT INSERT RIGGING TO APPLY EQUAL LOADS BETWEEN ALL 4 INSERTS.



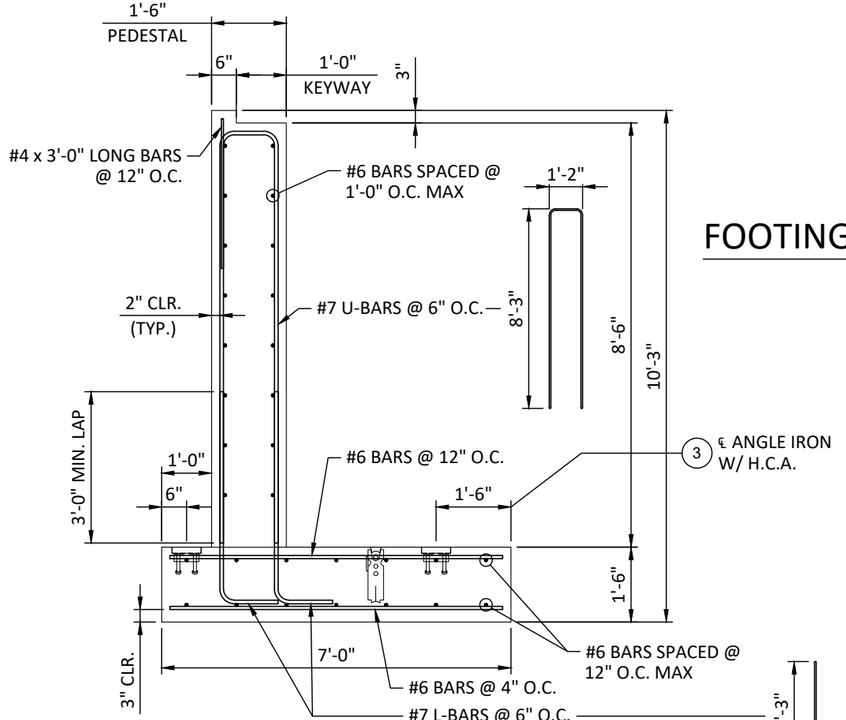
FOOTING CONNECTION DETAIL

SIDE VIEW



ELEVATION

1 / P23



SECTION

REINFORCING

2 / P23



MAY 1, 2024

FOR APPROVAL

	DATE	DESCRIPTION	ENG
7			
6			
5			
4			
3			
2			
1	4/30/24	REVISION PER COMMENTS	JJC

CLEMONS CREEK CULVERT
3RD AVENUE NE RECONSTRUCTION

LOCALE: CITY OF DUVALL **STATE:** WA

PROVIDED BY:
JENSEN PRECAST
5415 189TH STREET E
PUYALLUP, WA 98375
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DESIGNED BY:
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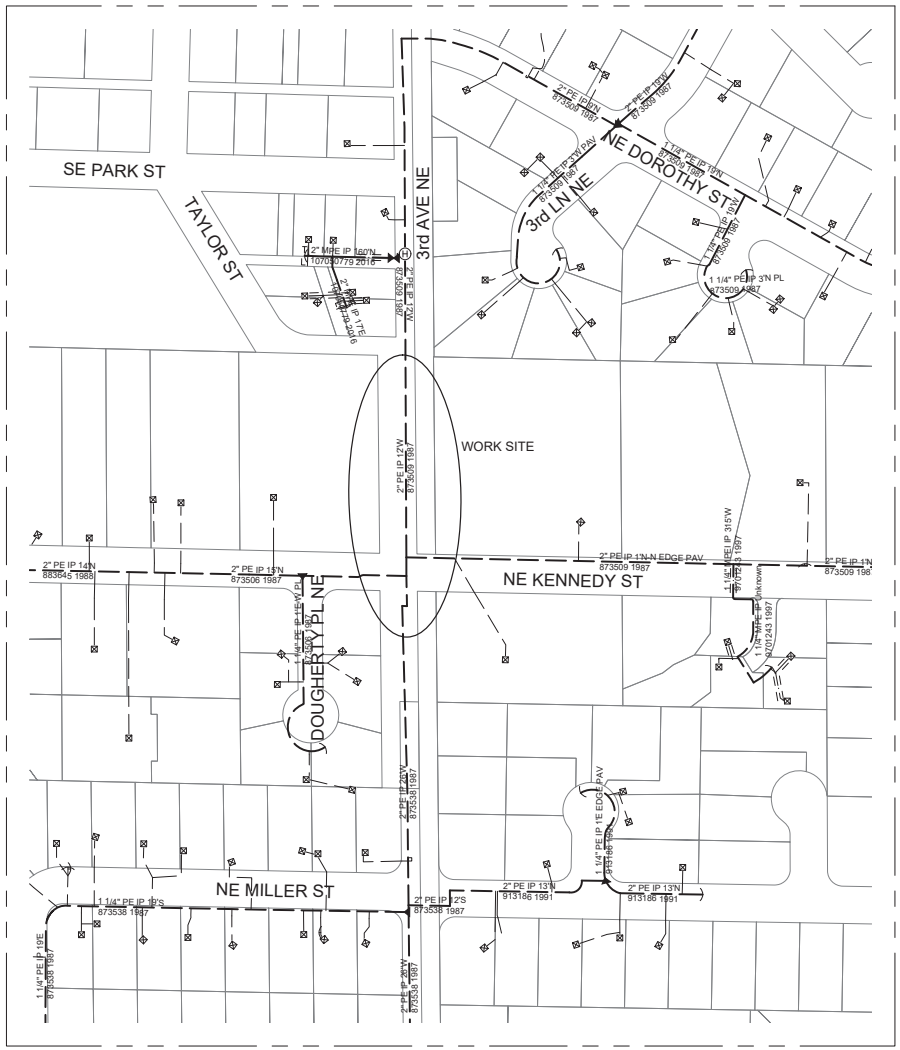
PROJECT NUMBER: 24-171
DATE: 4/23/2024
DESIGNED BY: KDK
DRAWN BY: JJC
CHECKED BY: JJV

P23

APPENDIX I

PUGET SOUND ENERGY

GAS RELOCATION PLANS



GAS SYSTEM PLAN
SCALE: 1" = 100'-0"

STANDARD IP & LP GAS REPLACEMENT CONSTRUCTION NOTES

1. NOTIFY GAS CUSTOMERS, OR DISTRIBUTE FLYER #1443 A MINIMUM OF TWO WORKING DAYS PRIOR TO A PLANNED OUTAGE.
2. INSTALL ONE POUND ANODE FOR EVERY 1000' OF LOCATING WIRE. INSTALL ANODE AND TEST LEAD WIRES PER PSE GAS OPERATING STANDARD 2525.2300.
3. MAINTAIN CATHODIC PROTECTION FOR STEEL MAINS BY THE USE OF CONTINUITY BONDS OR OTHER MEANS DETERMINED BY THE PSE CORROSION ENGINEER PER PSE GAS OPERATING STANDARD 2600.1300.
4. INSTALL ANODES AND TEST LEAD WIRES AS REQUIRED PER PSE GAS FIELD PROCEDURES 4515.1000 AND 4515.1020 AND PSE GAS OPERATING STANDARD 2600.1200. TEST LEAD WIRES ARE REQUIRED ON ALL TRANSITION FITTINGS.
5. INSTALL CURB VALVE AT PROPERTY LINE OR 5/8" PE WHIP AT MAIN (AS REQUIRED) ON NEW AND EXISTING SERVICES PER PSE GAS OPERATING STANDARD 2550.1600.
6. REFER TO PSE GAS OPERATING STANDARD 2525.1700 FOR MAIN AND SERVICE COVER REQUIREMENTS.
7. MAINS AND SERVICES SHALL BE TESTED AND PURGED PER PSE GAS OPERATING STANDARDS 2525.3300 AND 2525.3400 AND PSE GAS FIELD PROCEDURE 4700.1500.
8. PROJECT MANAGER TO MAKE AN ACTIVE SERVICE RUN IMMEDIATELY PRIOR TO STARTING CONSTRUCTION.
9. INSTALL REPLACEMENT MAINS PER PSE GAS OPERATING STANDARD 2525.2100.
10. PLUG ENDS OF DEACTIVATED OR INSERTED MAINS AND SERVICES IN ACCORDANCE WITH PSE GAS OPERATING STANDARDS 2525.2100 AND 2525.3600.
11. REMOVE OR RENDER INOPERABLE DEACTIVATED VALVES ON CASING WHERE MPE PIPE IS INSERTED.
12. INSIDE METER SETS SHALL BE MOVED OUTSIDE WHENEVER POSSIBLE OR SET REGULATORS AND VENTS OUTSIDE PER PSE GAS OPERATING STANDARDS 2575.2300 AND 2550.1700.
13. REPLACE EXISTING ACTIVE SERVICES PER PSE GAS OPERATING STANDARDS 2525.2100 AND 2575.2300.
14. REPLACE ALL "NO RECORD" SERVICES AND 1-1/8" PE SERVICES INSTALLED PRIOR TO 1985.
15. ACTIVE SERVICES TO BE REPLACED DENOTED BY: ###
16. MAINS AND SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH 2525.1200.
17. PIPE SQUEEZING SHALL BE DONE IN ACCORDANCE WITH GOS 2525.1200 AND GAS FIELD PROCEDURES 4700.1300 AND 4700.1310.
18. WHEN INSTALLING, DEACTIVATING, REPAIRING, OR OTHERWISE MODIFYING A PIPELINE THAT IS LOCATED WITHIN 200 FEET OF ANY ACTIVE REGULATING STATION, PRESSURE RELIEF AND LIMITING DEVICE, OR SINGLE SERVICE FARM TAP WHERE GAS SYSTEM ENGINEERING REVIEW AND APPROVAL IS REQUIRED PER GAS OPERATING STANDARDS. SEE REVIEW DOCUMENTS, PROVIDED BY ENGINEERING.
19. FIELD TO VERIFY THAT ALL PROPER SERVICE ACTIONS (FOLLOWING THE KEY TO SERVICE ACTION LEGEND) HAVE BEEN ACCOUNTED FOR PER THE "SERVICE CHECKLIST". IF A RISER IS FOUND IN THE FIELD AND WASN'T ACCOUNTED FOR, FIELD PERSONNEL SHALL CONFIRM WHETHER THE RISER IS AN ABANDONED OR IDLE RISER:
    - 19.1 IF IT IS AN ABANDONED RISER, CONTACT THE POINT DESK TO REQUEST GFR TO REMOVE IT.
    - 19.2 IF IT IS AN IDLE RISER, REPORT THE RISER TO THE PROJECT MANAGER SO THAT THE PROJECT MANAGER MAY CONFIRM WITH THE CUSTOMER WHETHER THEY WOULD LIKE TO KEEP THE SERVICE AND RISER. THE PROJECT MANAGER MAY INSTRUCT TO TEST AND TIE THE SERVICE IF THE CUSTOMER WANTS GAS OR DOESN'T PROVIDE PSE A RESPONSE IN A TIMELY MANNER.

STANDARD GAS CONSTRUCTION NOTES:

1. FIELD LOCATE ALL UNDERGROUND UTILITIES. EXCAVATOR TO CALL "ONE-CALL" TWO WORKING DAYS PRIOR TO CONSTRUCTION. IN WESTERN WASHINGTON CALL: 1-800-424-5555. OR CALL NATIONWIDE: 811
2. NOTIFY APPROPRIATE PERMITTING AGENCY PRIOR TO JOB START (SEE PERMIT REQUIREMENTS).
3. ALL CONSTRUCTION IS TO CONFORM TO PSE GAS OPERATING STANDARDS AND GAS FIELD PROCEDURES.
4. EROSION AND SEDIMENT CONTROL SHALL BE PER PSE STANDARD PRACTICE 0150.3200 TECHNIQUES FOR TEMPORARY EROSION AND SEDIMENT CONTROL AND ANY ADDITIONAL LOCAL JURISDICTION REQUIREMENTS.
5. NOTIFY PROPERTY OWNERS ADJACENT TO PROPOSED CONSTRUCTION ACTIVITIES A MINIMUM OF TWO WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION. USE IB1 TO DISTRIBUTE FLYERS IF JOB IS LARGE, OTHERWISE HAND DELIVER FLYERS BE SURE TO INCLUDE THE LIST OF FREQUENTLY ASKED QUESTIONS AND INFORMATION ABOUT THE OPPORTUNITY TO PURCHASE AN EXCESS FLOW VALVE WHEN THEIR SERVICE IS INSTALLED OR REPLACED PER GAS OPERATING STANDARD 2550.1600. ALLOW ADEQUATE TIME FOR CUSTOMER DECISION AND RESPONSE.
6. ANY CHANGE IN ROUTE, PIPE SIZE/TYPE, TIE-IN METHOD OR ADDITIONAL MAIN FOOTAGE MUST BE APPROVED BY THE APPROPRIATE PSE ENGINEER OR PSE REPRESENTATIVE.
7. COMPLETE "PRE CONDITION REPORT" ON ALL METALLIC PSE FACILITIES. CHECK BOX ON REPORT FOR WIRE BOX (TEST LEAD) INSTALLATION.
8. PIPELINE MARKERS AND WARNING SIGNS SHALL BE INSTALLED AND RECORDED BY THE CONTRACTOR PER PSE GAS OPERATING STANDARD 2525.2500.
9. INSTALL MAIN VALVES OUT OF TRAFFIC WHERE POSSIBLE. VALVE MARKERS SHALL BE INSTALLED AND RECORDED BY THE CONTRACTOR PER PSE GAS OPERATING STANDARD 2525.2600 FOR ALL HP VALVES IF THE LOCATION IS NOT READILY ACCESSIBLE, AND FOR ALL VALVES WHERE PERSISTENT SNOWFALL MAY OBSCURE THE VALVE BOX.
10. TO PREVENT ACCIDENTAL OVERPRESSURE OF ADJOINING SYSTEMS, NO TWO MAINS SHALL BE CONNECTED EXCEPT AS SHOWN ON THIS DESIGN UNLESS APPROVED BY APPROPRIATE PSE ENGINEER OR PSE REPRESENTATIVE.
11. SYSTEM MAOP DENOTED BY: SYSTEM MAOP = 60 PSIG
12. GAUGE AND MONITOR USE OF ALL STOPPERS TO ENSURE ADEQUATE FEED.
13. RESTORE ALL DRIVEWAYS SUBJECT TO OPEN CUT TO ORIGINAL OR BETTER CONDITION.
14. PURGE POINTS TO BE INSTALLED PER PSE GAS OPERATING STANDARDS 2525.3400.
15. MAINS AND SERVICES SHALL BE TESTED AND PURGED PER PSE GAS OPERATING STANDARDS 2525.3300 AND 2525.3400.
16. IF METALLIC PIPE IS INVOLVED, COORDINATE INSTALLATION WITH CP TECH. _____ PHONE _____
17. NOTE ALL ACTUAL FOOTAGE, LOCATION AND MATERIAL CHANGES ON THE AS-BUILT IN RED. (') DENOTES FOOTAGE BETWEEN FITTINGS.
18. EXCESS FLOW VALVE TO BE INSTALLED ON ALL NEW RESIDENTIAL SERVICES PER GOS 2500.2200. (RECORD ALL INFORMATION ON D-4 CARD)

SAP BATCH YEAR & FOOTAGE

SIZE OF RETIRED MAIN	MATERIAL RETIRED	ORIGINAL JOB	ORIGINAL YEAR	PROPOSED LENGTH OF RETIREMENT	ACTUAL LENGTH OF RETIREMENT
2"	PE	673509	1987	280'	

HOLE HOG TABLE

CALLOUT		LOCATION	DEPTH	LENGTH
BP1	START			
BP2	END			
BP3	START			
BP4	END			
BP5	START			
BP6	END			
BP7	START			
BP8	END			
BP9	START			
BP10	END			
BP11	START			
BP12	END			
BP13	START			
BP14	END			
BP15	START			
BP16	END			
BP17	START			
BP18	END			
BP19	START			
BP20	END			

GAS MAIN INSTALLATION/RETIREMENT

Type/Work	Pipe Size	Type	Est Length	Act Lgth	Manufacturer
INSTALL	2"	MPE-	356'		
RETIRE	2"	PE	280'		

Verify Testing Requirements, Chart vs Gauge
GOS 2525.3300 sec. 5, Table 5-1 and sec. 5.5

GAS MAIN PRESSURE & TESTING

TYPE TEST	☐ SOAP	☐ AIR	☐ NITROGEN	☐ WATER
DATE ON	/ /	START TIME		TESTED BY
DATE OFF	/ /	STOP TIME		
PRESSURE		TEST RESULTS	☐ P ☐ F	
TYPE TEST	☐ SOAP	☐ AIR	☐ NITROGEN	☐ WATER
DATE ON	/ /	START TIME		TESTED BY
DATE OFF	/ /	STOP TIME		
PRESSURE		TEST RESULTS	☐ P ☐ F	

☐ TESTED BY PSE PRESSURE CONTROL, SEE FORM 1928

DESIGN PRESS	60	SYS MAOP	60
2023 02/18			

GASSED UP PIPELINE

DATE	FOREMAN'S NAME	PIPE SEGMENT

PROJECT PHASE		Notification #	Order #
GAS	SAP Superior	11978472	109152840
	Service/Meter		
	Service/Meter		
	Service/Meter		
	Service/Meter		
	Ind. Service		
	Ind. MSA		
	Dis. Reg. / FT		
	HP Svc/MSA		
	Relocate		
	Retirement		108647291

Owner / Developer Contact Info
N/A
N/A
N/A
ATTN: N/A N/A office

For contacts below dial 1-888-CALL PSE (225-5773)

CALL 811 AT LEAST 2 BUSINESS DAYS BEFORE YOU DIG

THIS SKETCH NOT TO BE RELIED UPON FOR EXACT LOCATION OF EXISTING FACILITIES

Project Manager Contact Information:
Manager: JEANNE COLEMAN
Cell Phone: 425-463-6550
E-Mail: jeanne.coleman@pse.com

"Locates Required" Yes ☐ No ☐
"Flagging Required" Yes ☐ No ☐

REAL ESTATE/EASEMENT	PERMIT
N/A	DUVALL

REV#	DATE	BY	DESCRIPTION
1			
2			
3			

FUNCTION	CONTACT	PHONE NO	DATE
PROJECT MGR	J.COLEMAN	425-463-6550	
ENGR - GAS			
DRAWN BY	J.MOSS	425-449-6376	2-21-24
CHECKED BY	C.WESTHOFF	425-330-8161	2-21-24
APPROVED BY	K.SIKYE	425-213-9205	
CP APPROVAL			
PC APPROVAL			
MAPPING			

COUNTY	Emer Sect	GAS WK CTR
KING	044Q	CSPFGPI
1/4 SEC	OP MAP	PLAT MAP
SW 13-26-6	172.098	173.102

JOINT FACILITIES ARRANGEMENTS

UTILITIES	N/A	N/A	N/A	N/A
CONTACT	N/A	N/A	N/A	N/A
PHONE#	N/A	N/A	N/A	N/A

FITTER'S CHECKLIST (CHECK BOX TO CONFIRM COMPLETION)

- ☐ Inspected Steel and PE pipe per GOS 2450.1400 and 2450.1500
- ☐ Reviewed and complied with all construction notes.
- ☐ Recorded all required information on the as-built per GOS 2500.1700.
- ☐ Completed post installation inspection per GOS 2525.1200 and 2525.2700.
- ☐ Left the work area in a clean and safe condition.

Foreman's Signature_____
Foreman's Name (printed) _____
Company: _____ Date _____

4680 06/11

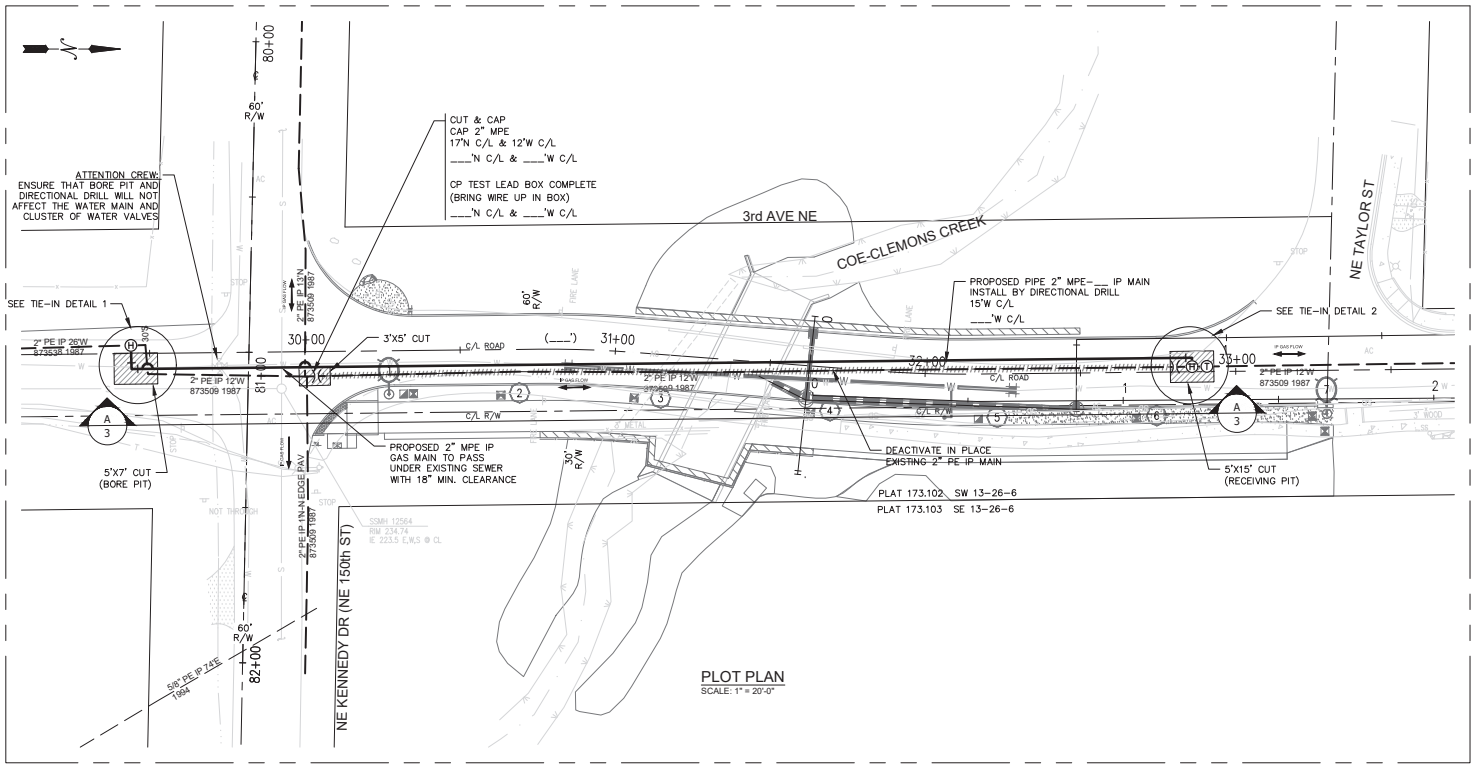
PUGET SOUND ENERGY
DESIGNED BY PSE

COE-CLEMONS CREEK CULVERT
2" MPE IP MAIN RELOCATION
3rd AVE NE, DUVALL, WA 98019

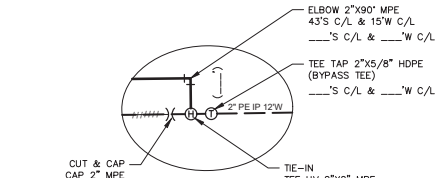
SAP Sup Order Nbr 109152840
Drawing Number 109152840
SCALE 1"=100'
PAGE 1 of 3

109152840

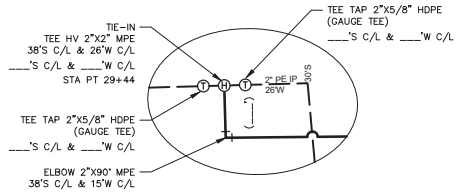
May 03, 2024 - 2:42pm C:\pwworking\projectwise\moss.\dms79017\ 109152840.dwg



PLOT PLAN
SCALE: 1" = 20'-0"



2 - TIE-IN DETAIL
Scale: NONE



1 - TIE-IN DETAIL
Scale: NONE

LEGEND

- Detail Number / Section Letter
- Sheet Location of Detail or Section (a dash if on same sheet as the Plot Plan)
- Detail Number or Section Letter
- TIE-IN DETAIL (Scale: NONE)
- Sheet Where Detail or Section is Referenced (a dash if on same sheet as the Plot Plan)

ALL SURFACE CUTS ARE SHOWN ENLARGED FOR CLARITY. DO NOT SCALE.

FITTER'S CHECKLIST (CHECK BOX TO CONFIRM COMPLETION)

- ☐ Inspected Steel and PE pipe per GOS 2450.1400 and 2450.1500
- ☐ Reviewed and complied with all construction notes.
- ☐ Recorded all required information on the as-built per GOS 2500.1700.
- ☐ Completed post installation inspection per GOS 2525.1200 and 2525.2700.
- ☐ Left the work area in a clean and safe condition.

Foreman's Signature_____
Foreman's Name (printed) _____
Company: _____ Date _____

4680 06/11

GAUGE TEES TO BE MONITORED DURING ALL ACTIVITIES WHERE FLOW OF GAS WILL BE INTERRUPTED

REV#	DATE	BY	DESCRIPTION
1			
2			
3			

REAL ESTATE/EASEMENT: N/A
PERMIT: DUVALL

FUNCTION	CONTACT	PHONE NO	DATE
PROJECT MGR	J.COLEMAN	425-463-6550	
ENGR - GAS			
DRAWN BY	J.MOSS	425-449-6376	2-21-24
CHECKED BY	C.WESTHOFF	425-330-8161	2-21-24
APPROVED BY	K.SKYE	425-213-9205	
CP APPROVAL			
PC APPROVAL			
MAPPING			

COUNTY	Emer Sect	GAS WK CTR
KING	044Q	CSPFGPI
1/4 SEC	OP MAP	PLAT MAP
SW 13-26-6	172.098	173.102

JOINT FACILITIES ARRANGEMENTS

UTILITIES	N/A	N/A	N/A	N/A
CONTACT	N/A	N/A	N/A	N/A
PHONE#	N/A	N/A	N/A	N/A

PUGET SOUND ENERGY

DESIGNED BY PSE

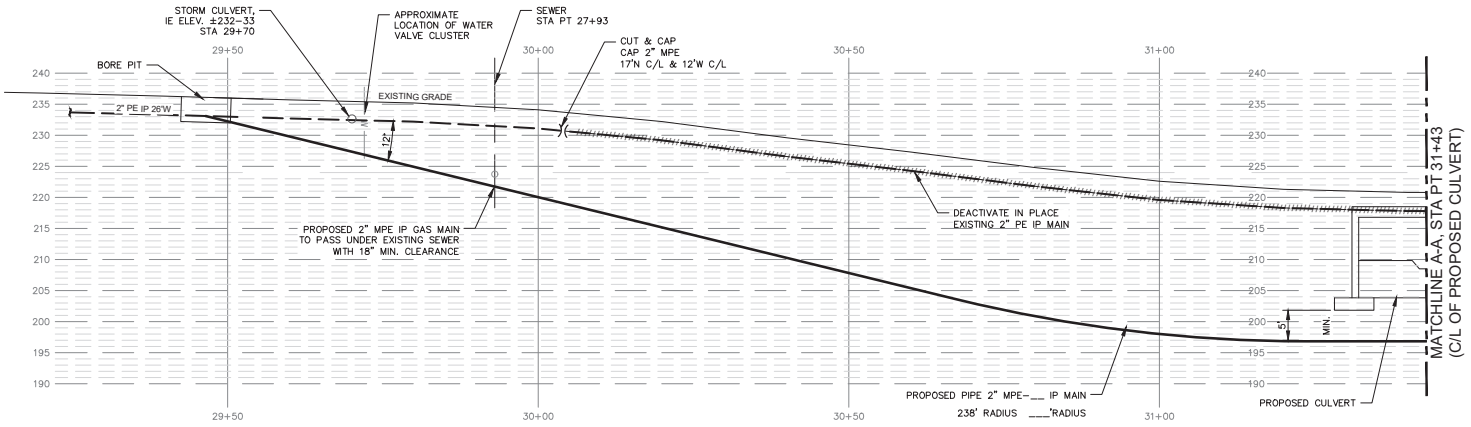
COE-CLEMONS CREEK CULVERT

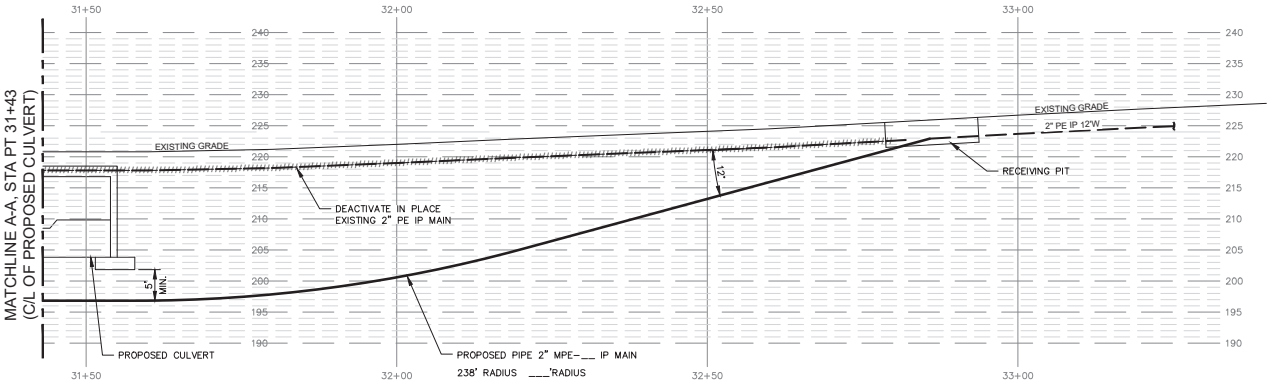
2" MPE IP MAIN RELOCATION
3rd AVE NE, DUVALL, WA 98019

SAP Sup Order Nbr 109152840
Drawing Number

SCALE: AS NOTED
PAGE: 2 of 3

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(LOOKING WEST)

A/2 DIRECTIONAL DRILL PROFILE

Scale: 1"=10'

LEGEND

Detail Number / Section Letter

Sheet Location of Detail or Section
(a dash if on same sheet as the Plot Plan)

Detail Number or Section Letter

TIE-IN DETAIL
Scale: NONE

Sheet Where Detail or Section is Referenced
(a dash if on same sheet as the Plot Plan)

FITTER'S CHECKLIST (CHECK BOX TO CONFIRM COMPLETION)

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Foreman's Signature_____

Foreman's Name (printed) _____

Company: _____ Date _____

4680 06/11

REAL ESTATE/EASEMENT	PERMIT
N/A	DUVALL

REV#	DATE	BY	DESCRIPTION
1			
2			
3			

FUNCTION	CONTACT	PHONE NO	DATE
PROJECT MGR	J.COLEMAN	425-463-6550	
ENGR - GAS			
DRAWN BY	J.MOSS	425-449-6376	2-21-24
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CP APPROVAL			
PC APPROVAL			
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COUNTY	Emer Sect	GAS WK CTR
KING	044Q	CSPFGPI
1/4 SEC	OP MAP	PLAT MAP
SW 13-26-6	172.098	173.102

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UTILITIES	N/A	N/A	N/A	N/A
CONTACT	N/A	N/A	N/A	N/A
PHONE#	N/A	N/A	N/A	N/A

PUGET SOUND ENERGY

DESIGNED BY PSE

COE-CLEMONS CREEK CULVERT

2" MPE IP MAIN RELOCATION

3rd AVE NE, DUVALL, WA 98019

SAP Sup Order Nbr
109152840

Drawing Number

SCALE 1"=10'

PAGE 3 of 3

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