Set No. _____

Specifications, Proposal,
and Contract Documents for:

116th Avenue NE/NE 124th Street Intersection Improvements

Job No. 09-21-PW

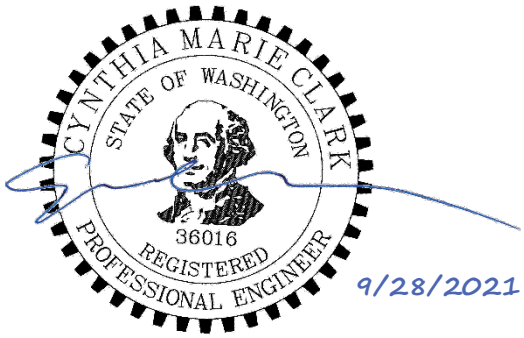
City of Kirkland
Department of Public Works
123 Fifth Avenue
Kirkland, Washington 98033

CITY OF KIRKLAND
GENERAL TABLE OF CONTENTS

CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS

116th Avenue NE/NE 124th Street Intersection Improvements
CIP NO. TRC1240000
JOB NO. 09-21-PW

Certificate of Engineer:
The Special Provisions and drawings contained herein have been prepared by or under the direction of the undersigned, whose seal as a Professional Engineer licensed to practice in the State of Washington, is affixed below.



Cynthia Marie Clark, PE
Project Engineer

Approved for Construction:

Rod Steitzer, PE
Capital Projects Manager

INVITATION TO BID

City of Kirkland

INVITATION TO BID

Notice is hereby given that the City of Kirkland will receive sealed bids in the office of the Purchasing Agent, City Hall, 123 Fifth Avenue, Kirkland, Washington, at 11:00 AM local time on October 28, 2021, for the project hereinafter referred to as:

116th Avenue NE/NE 124th Street Intersection Improvements
CIP NO. TRC1240000
JOB NO. 09-21-PW

At said time all bids will be opened and publicly read aloud. Each bid shall be accompanied by a bid proposal deposit in the form of a cashier's check or a bond issued on a form acceptable to your surety made payable to the City of Kirkland for a sum of not less than five percent (5%) of the total bid amount. No bid shall be considered unless accompanied by such bid proposal deposit. Incomplete proposals and proposals received after the time stated above will not be considered. Faxed or emailed responses are not acceptable.

The work to be performed in this contract shall include:

- Schedule A of this contract shall include improvements of the 116th Avenue NE/ NE 124th Street intersection. This project will widen 116th Avenue NE from the intersection at NE 124th Street to approximately 400 feet north. This work will consist of adding a southbound right turn lane to accommodate bus traffic and a shared pathway to accommodate non-motorized travel. Work also include installation of curb, gutter and sidewalk, landscape strip, landscaping, drainage modifications, striping, traffic control, utility adjustments, signal modifications, illumination, relocated bus stop with shelter footing, and other work, all in accordance with these Contract Provisions, the attached Contract Plans, and the Standard Specifications.

- Schedule B of the contract shall include replacing an existing water main in 116th Avenue NE and other work, all in accordance with these Contract Provisions, the attached Contract Plans, and the Standard Specifications.

Contract award will be made to the lowest, responsible, responsive bidder. The estimated cost for this project is in a range of $1,500,000 to $1,900,000.

The City will not sell bid packages. Plans, specifications, and addenda may be viewed and obtained online at *www.bxwa.com*. Click on: “Posted Projects”; “Public Works”, “City of Kirkland”. The Bidders List is maintained by the Builder’s Exchange of Washington, Inc. Registration for the bidder’s list may be made online, by phoning (425) 258-1303, or at Builder’s Exchange of Washington located at 2607 Wetmore Ave, Everett, WA.

Questions regarding this project shall be submitted in writing to Catherine Okamura via email at cokamura@kirklandwa.gov. Questions via phone will not be accepted. Bidders shall submit questions no later than 11:00 AM on October 25, 2021.

The City reserves the right to reject any and all bids, and to waive any informalities in the bidding, and to make the award to the lowest, responsive, responsible bidder as best serves the interests of the City.

No bids may be withdrawn within forty-five (45) days after the actual date of the bid opening.

Published: Daily Journal of Commerce – October 7, 2021: October 14, 2021.

GENERAL INFORMATION, PROPOSAL, AND CONTRACT

City of Kirkland

CITY OF KIRKLAND

TABLE OF CONTENTS – PROPOSAL

CITY OF KIRKLAND
INFORMATION FOR BIDDERS

Bidders must bid on all items contained in the proposal.

The omission or deletion of any bid item will be considered non-responsive and shall be cause for rejection of the bid.

Submit your proposal on the Bid Proposal and other forms which are enclosed, or make a copy of the required forms and submit these documents.

The following forms must be executed in full *with* submittal of the bid:

1. BIDDER RESPONSIBILITY CRITERIA CHECKLIST
2. SUBCONTRACTOR RESPONSIBILITY CRITERIA CHECKLIST
3. PROPOSAL

   The lump sum or unit prices must be shown in the spaces provided on the bid schedule.

   Show total bid price in both words and figures on the Proposal.

   The Proposal form must be completed in full, signed and dated.

4. BID BOND

   A surety issued bid bond must be executed by the bidder and its surety company. The amount of the bid bond shall be not less than five percent (5%) of the total amount bid and may be shown in dollars or on a percentage basis. (A cashier's check payable to the City of Kirkland and issued for an amount not less than 5% of the total bid may be submitted in lieu of a bid bond.)

5. NONCOLLUSION AFFIDAVIT - Notarized
6. STATEMENT OF BIDDER'S QUALIFICATIONS

   This form must be filled in and signed. The owner reserves the right to check all statements and to judge the adequacy of the bidder's qualifications.

7. SUBCONTRACTOR IDENTIFICATION LIST

   This form must be completed for HVAC, plumbing, and electrical subcontractors if the estimate exceeds $1,000,000.

The following forms are to be executed *after* the contract is awarded:

1. CONTRACT

   This agreement is to be executed by the successful bidder.

2. PERFORMANCE AND PAYMENT BOND

   To be executed by the successful bidder and its surety company.

3. CONTRACTOR'S DECLARATION OF OPTION FOR MANAGEMENT OF STATUTORY RETAINED PERCENTAGE; RETAINED PERCENTAGE ESCROW AGREEMENT

   To be executed by the successful bidder based on bidder's selection of option.

4. CERTIFICATES OF INSURANCE

   To be executed by the successful bidder and by an acceptable insurance company. The City of Kirkland and Northshore Utility District must be named as an additional insured.

5. STATEMENT(S) OF INTENT TO PAY PREVAILING WAGES

   Affidavit certifying all employees of Contractor and Subcontractor shall be paid no less than the Prevailing Wage Rate(s) as determined by the Industrial Statistician of the Washington State Department of Labor and Industries.

SPECIAL NOTE: Prior to commencing work, the contractor and all subcontractors must have applied and paid for a City of Kirkland business license

CITY OF KIRKLAND
Bidder Responsibility Criteria

It is the intent of City to award a contract to the low responsible bidder. Before award, the bidder must meet the following bidder responsibility criteria to be considered a responsible bidder. The bidder may be required by the City to submit documentation demonstrating compliance with the criteria. The bidder must:

☐ 1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of bid submittal;

☐ 2. Have a current Washington Unified Business Identifier (UBI) number;

☐ 3. Have:

a. Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;

b. A Washington Employment Security Department number, as required in Title 50 RCW;

c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;

☐ 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3). **Meet responsibility criteria in RCW 39.04.350**

☐ 5. Until December 31, 2017, not have violated more than one time the off-site, prefabricated, non-standard, project specific items reporting requirements of RCW 39.04.370.

☐ 6. For public works projects subject to the apprenticeship utilization requirements of RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for the project.

CITY OF KIRKLAND
SUBCONTRACTOR RESPONSIBILITY CRITERIA

☐ A. The Contractor shall include the language of this section in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this section apply to all subcontractors regardless of tier.

☐ B. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:

☐ 1. Have a current certificate of registration in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;

☐ 2. Have a current Washington Unified Business Identifier (UBI) number;

☐ 3. Have:

a) Industrial Insurance (workers' compensation) coverage for the subcontractor's employees working in Washington, as required in Title 51 RC
b) A Washington Employment Security Department number, as required in Title 50 RCW;
c) A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
d) An electrical contractor license, if required by Chapter 19.28 RCW;
e) An elevator contractor license, if required by Chapter 70.87 RCW.

☐ 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3). **Meet responsibility criteria in RCW 39.04.350**

☐ 5. Until December 31, 2017, not have violated more than one time the off-site, prefabricated, non-standard, project specific items reporting requirements of RCW 39.04.370.

☐ 6. For public works projects subject to the apprenticeship utilization requirements of RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for the project.

CITY OF KIRKLAND
BID PROPOSAL

116th Avenue NE/NE 124th Street Intersection Improvements
CIP NO. TRC1240000
JOB NO. 09-21-PW

To: Director of Finance
City of Kirkland
123 Fifth Avenue
Kirkland, Washington 98033

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this proposal are those named herein; that this proposal is in all respects fair and without fraud; that it is made without collusion with any official or employee of the City of Kirkland, hereinafter called the Owner; and that the proposal is made without any connection or collusion with any person making another proposal on this contract.

The bidder further declares that it has carefully examined the contract documents for the construction of the project; that it has personally inspected the site; that it has satisfied itself as to the quantities involved, including materials and equipment and conditions of work involved, including the fact that the description of the quantities of work materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the contract documents; and that this proposal is made according to the provisions and under the terms of the contract documents, which documents are hereby made a part of this proposal.

The bidder further agrees that it has exercised its own judgment regarding the interpretation of subsurface information and has utilized all data which it believes pertinent from the engineer-architect, owner, and other sources in arriving at its conclusions.

The bidder agrees to hold its bid proposal open for 45 days after the actual date of bid opening and to accept the provisions of the Instructions to Bidders regarding disposition of bid bond.

The bidder agrees that if this proposal is accepted, it will, within ten (10) calendar days after notification of acceptance, execute the contract with the Owner in the form of contract included in the contract documents, and will, at the time of execution of the contract, deliver to the Owner the Performance and Payment Bond and all Certificates of Insurance required therein, and will, to the extent of its proposals, furnish all machinery, tools, apparatus, and other means of construction and do the work in the manner, in the time, and according to the methods as specified in the contract documents and required by the engineer or other project manager designated thereunder.

The bidder further agrees, if awarded the contract, to begin work within ten (10) calendar days after the date of the execution of the contract and to complete the construction within the time specified in Section 1-08.5 of the Special Provisions.

In the event the bidder is awarded the contract and shall fail to complete the work within the time limit or extended time limit agreed upon as more particularly set forth in the contract documents, liquidated damages shall be paid to the Owner per the specifications contained in the contract documents.

The bidder further proposes to accept as full payment for the work proposed herein, the amounts computed under the provisions of the contract documents and based upon the lump sum and unit price amounts entered by the bidder for the various bid items included in the Bid Schedule. The bidder further agrees the lump sum and unit prices entered for the various bid items included in the Bid Schedule include all use taxes, overhead, profit, bond premiums, insurance premiums and all other miscellaneous and incidental expenses as well as all costs of materials, labor, tools and equipment required to perform and complete the work.

Within the three-year period immediately preceding the date of the bid solicitation for this Project, bidder has not been 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 to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48, or 49.52 RCW.

The undersigned bids and agrees to complete all construction of the **116th Avenue NE/NE 124th Street Intersection Improvements; JOB NO. 09-21-PW** for the following:

Total Computed Price – Bid Schedule A *(in figures)*: $_____

Total Computed Price – Bid Schedule B *(in figures)*: $_____

Washington State Sales Tax 10.2% on Bid Schedule B only *(in figures)*: $

Total Bid (A+B+Tax) *(in figures)*: $_____

Total Bid (A+B+Tax) *(in words)*: _____

_____

Receipt of Addenda No(s). _____ is hereby acknowledged.

I certify (or declare) under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct:

CONTRACTOR (Firm Name)	Location or Place Executed: (City, State)
By	Name and title of person signing
(Indicate whether Contractor is Partnership, Corporation, or Sole Proprietorship)	Date
Washington State Contractor's Registration Number	Contractor's Industrial Insurance Account Number

MUST BE SUBMITTED WITH PROPOSAL

Employment Security Identification Number	Uniform Business Identification (UBI) Number

Contractor's Address:

	Telephone Number
	Fax Number
	EMAIL

** Bid proposal to be submitted in a **sealed envelope** marked "**Bid Enclosed**" for **116th Avenue NE/NE 124th Street Intersection Improvements; JOB NO. 09-21-PW.**

CITY OF KIRKLAND
BID SCHEDULE A

116th Avenue NE/NE 124th Street Intersection Improvements
JOB NO. 09-21-PW

Note: Unit prices for all items, all extensions, and the total amount of the bid must be shown. All entries must be typed or entered in ink.

Item No.	Item Description	Spec Ref.	Est. Qty.	Unit	Unit Price	Amount
SECTION 1: PREPARATION						
A-1	Mobilization	1-09(7)	0.1	L.S.	$	$
A-2	Clearing and Grubbing	2-01	0.2	ACRE	$	$
A-3	Removing Drainage Structure	2-02	9	EACH	$	$
A-4	Removal of Storm Pipe	2-02	480	L.F.	$	$
A-5	Removing Cement Conc. Sidewalk	2-02	360	S.Y.	$	$
A-6	Removing Cement Conc. Curb and Gutter	2-02	600	L.F.	$	$
A-7	Removing Cement Conc. Curb	2-02	480	L.F.	$	$
A-8	Removing Asphalt Conc. Pavement	2-02	790	S.Y.	$	$
A-9	Removal of Asbestos Cement Pipe	2-02	12	LF	$	$
A-10	Removing Paint Line	8-22	70	L.F.	$	$
A-11	Removing Painted Crosswalk Line	8-22	350	S.F.	$	$
SECTION 2: GRADING						
A-12	Roadway Excavation Incl. Haul	2-03	400	C.Y.	$	$
A-13	Hazardous Material Excavation Incl. Haul	2-03	10	C.Y.	$	$
SECTION 5: STORM SEWER						
A-14	Solid Wall PVC Storm Sewer Pipe 12 In. Diam.	7-04	183	L.F.	$	$
A-15	Catch Basin Type 1	7-05	3	EACH	$	$
A-16	Catch Basin Type 2 48 In. Diam.	7-05	1	EACH	$	$
A-17	Catch Basin Type 2 72 In. Diam.	7-05	2	EACH	$	$
A-18	Connection to Drainage Structure	7-05	8	EACH	$	$
A-19	Rehabilitate Existing Manhole	7-05	1	EACH	$	$
A-20	Storm Manhole Lid Replacement	7-05	2	EACH	$	$
SECTION 8: LANDSCAPE						
A-21	Topsoil Type A	8-02	10	C.Y.	$	$
A-22	Bark Mulch	8-02	2	C.Y.	$	$
A-23	PSIPE – *Malus tschonoskii*	8-02	3	EACH	$	$
A-24	Protection and Restoration of Property	8-02	1	L.S.	$	$
SECTION 9: SURFACING						
A-25	Crushed Surfacing Base Course	9-03.9	570	TON	$	$

Item No.	Item Description	Spec Ref.	Est. Qty.	Unit	Unit Price	Amount
SECTION 14: HOT MIX ASPHALT						
A-26	Planing Bituminous Pavement	5-04	2,460	S.Y.	$	$
A-27	HMA Cl. 1/2 In. PG 64-22	5-04	770	TON	$	$
A-28	HMA Sawcut and Seal	5-04	930	L.F.	$	$
SECTION 17: EROSION CONTROL AND ROADSIDE PLANTING						
A-29	Inlet Protection	8-01	22	EACH	$	$
A-30	High Visibility Silt Fence	8-01	400	L.F.	$	$
A-31	Erosion/Water Pollution Control	8-01	1	L.S.	$	$
SECTION 18: TRAFFIC						
A-32	Cement Conc. Traffic Curb and Gutter	8-04	530	L.F.	$	$
A-33	Cement Conc. Traffic Curb	8-04	21	L.F.	$	$
A-34	Cement Conc. Pedestrian Curb	8-04	60	L.F.	$	$
A-35	Paint Line	8-22	1,600	L.F.	$	$
A-36	Precast Dual Faced Sloped Mountable Curb	8-04	295	L.F.	$	$
A-37	Plastic Crosswalk Line	8-22	890	S.F.	$	$
A-38	Plastic Stop Line	8-22	130	L.F.	$	$
A-39	Plastic Traffic Arrow	8-22	12	EACH	$	$
A-40	Plastic Traffic Letter	8-22	12	EACH	$	$
A-41	Permanent Signing	8-22	1	L.S.	$	$
A-42	Cantilever Sign Structure No.	8-20	1	L.S.	$	$
A-43	Illumination System	8-20	1	L.S.	$	$
A-44	Traffic Signal System	8-20	1	L.S.	$	$
A-45	Fiber Optic System, Complete	8-20	1	L.S.	$	$
A-46	Project Temporary Traffic Control	1-10	1	L.S.	$	$
A-47	Off-Duty Uniformed Police Officer	1-10	368	HR	$	$
SECTION 19: OTHER ITEMS						
A-48	Shoring or Extra Excavation Trench	2-09	400	S.F.	$	$
A-49	Pedestrian Handrail	6-03	77	L.F.	$	$
A-50	Adjust Manhole	7-05	5	EACH	$	$
A-51	Commercial Concrete	6-02.3(2)(B)	6	C.Y.	$	$
A-52	Roadway Surveying	1-05	1	L.S.	$	$
A-53	ADA Features Surveying	1-05	1	L.S.	$	$
A-54	Cement Conc. Sidewalk	8-14	510	S.Y.	$	$
A-55	Shelter Footing	8-14	4.4	S.Y.	$	$
A-56	Cement Conc. Curb Ramp Type Parallel	8-14	3	EACH	$	$
A-57	Cement Conc. Driveway Entrance Type Commercial	8-06	140	S.Y.	$	$
A-58	Minor Change	1-04	1	EST.	$10,000	$10,000

Item No.	Item Description	Spec Ref.	Est. Qty.	Unit	Unit Price	Amount
A-59	Record Drawings (minimum bid $1,000)	1-05	1	L.S.	$	$
A-60	COVID-19 Health and Safety Plan	1-07	1	L.S.	$	$
A-61	SPCC Plan	1-07	1	L.S.	$	$
				Total Schedule A:	**$**	

CITY OF KIRKLAND
BID SCHEDULE B

116th Avenue NE/NE 124th Street Intersection Improvements
JOB NO. 09-21-PW

Note: Unit prices for all items, all extensions, and the total amount of the bid must be shown. All entries must be typed or entered in ink.

BID SCHEDULE B – NORTHSHORE UTILITY DISTRICT (NUD) WATER MAIN REPLACEMENT

Item No.	Item Description	Spec Ref.	Est. Qty.	Unit	Unit Price	Amount
B-1	Trench Safety Systems	Appendix C	1	LS	$	$
B-2	8-inch Cl 52 D.I.R.J. Water Main	Appendix C	420	LF	$	$
B-3	8-inch Gate Valve Assembly	Appendix C	1	EA	$	$
B-4	Fire Hydrant Assembly	Appendix C	1	EA	$	$
B-5	Connect to Existing Water System	Appendix C	2	EA	$	$
B-6	Additional D.I. Fittings (if required)	Appendix C	500	LB	$	$
B-7	1-inch Water Service and Reconnection	Appendix C	3	EA	$	$
B-8	Imported Foundation Gravel (If Required)	Appendix C	70	TN	$	$
B-9	Crushed Rock	Appendix C	600	TN	$	$
B-10	Asphalt Trench Patch	Appendix C	125	TN	$	$
B-11	Cement Concrete Sidewalk Removal and Replacement	Appendix C	12	SY	$	$
B-12	Cement Concrete Curb and Gutter Removal and Replacement	Appendix C	20	LF	$	$
B-13	General Restoration	Appendix C	1	LS	$	$
Subtotal Schedule B – NUD Water Main Replacement:					$	
Sales Tax, 10.2%:					$	
Total Schedule B – NUD Water Main Replacement:					$	

BID SUMMARY

Total Schedule A:	**$**
Total Schedule B:	**$**
Grand Total (Schedule A + Schedule B):	**$**

MUST BE SUBMITTED WITH PROPOSAL

BID DEPOSIT

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

SIGN HERE_____

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____, as Principal, and _____, as Surety, are held and firmly bound unto the City of Kirkland, as Obligee, in the penal sum of _____ _____ dollars, for the payment of which the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

The condition of this obligation is such that if the Obligee shall make any award to the Principal for

_____ _____
Project Name Job Number

according to the terms of the proposal or bid made by the Principal therefor, and the Principal shall duly make and enter into a contract with the Obligee in accordance with the terms of said proposal or bid and award and shall give bond for faithful performance thereof, with Surety or Sureties approved by the Obligee; or if the Principal shall, in case of failure to do so, pay and forfeit to the Obligee the penal amount of the deposit specified in the call for bids, then this obligation shall be null and void; otherwise it shall be and remain in full force and effect and the Surety shall forthwith pay and forfeit to the Obligee, as penalty and liquidated damages, the amount of this bond.

SIGNED, SEALED AND DATED THIS _____ DAY OF _____, 20_____.

PRINCIPAL: SURETY:

Note: If a Bid Bond is provided, it must be accompanied by a power of attorney which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this Bid Bond.

CITY OF KIRKLAND
NONCOLLUSION DECLARATION

116th Avenue NE/NE 124th Street Intersection Improvements
CIP NO. TRC1240000
JOB NO. 09-21-PW

STATE OF WASHINGTON)
) SS
COUNTY OF KING)

The undersigned, being duly sworn, on oath deposes and says that the person(s), firm, association, partnership or corporation herein named has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the project for which this proposal is submitted.

_____ _____
Firm Name Authorized Signature

_____
Type Name

_____
Title

Sworn to before me, this _____ day of _____, 20__.

_____
Notary Public in and for the State of Washington
Residing at _____
My Commission Expires _____

NOTICE TO ALL BIDDERS

To report bid rigging activities call: 1-800-424-9071

The U.S. Department of Transportation (USDOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., ET. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of USDOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the USDOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

CITY OF KIRKLAND
STATEMENT OF BIDDER'S QUALIFICATIONS

Contractor Name: _____ Contact: _____

Business Address: _____

Business phone: _____ Fax: _____

Number of years the Contractor has been engaged in the construction business under the present firm name: _____

Describe the general character of work performed by your company: _____

_____

List five projects of a similar nature which Contractor has completed within the last 10 years. Include contract amount and contact information for references:

Project Name	Amount	Owner/Agency	Contact	Phone	Year Completed

List major equipment anticipated to be used on this project; indicate whether Contractor-owned or to be leased from others: _____

_____

_____

_____

Bank reference(s): _____

Washington State Contractor Registration No.: _____

Uniform Business Identification No.: _____

I certify that other contracts now in progress or hereafter obtained will not interfere with timely performance of the City of Kirkland project should I become the successful bidder.

Authorized Signature: _____

Print Name: _____ Title: _____

CITY OF KIRKLAND
SUBCONTRACTOR IDENTIFICATION FOR CONTRACTS ESTIMATED TO BE IN EXCESS OF ONE MILLION DOLLARS ($1,000,000.00)

RCW 39.30.060 requires the following:

> "(1) Every invitation to bid on a prime contract that is expected to cost one million dollars or more for the construction, alteration, or repair of any public building or public work of the state or a state agency or municipality as defined under RCW 39.04.010 … shall require each prime contract bidder to submit:
>
> (a) Within one hour after the published bid submittal time, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of: HVAC (heating, ventilation, and air conditioning); plumbing as described in chapter 18.106 RCW; and electrical as described in chapter 19.28 RCW, or to name itself for the work; or
>
> (b) Within forty-eight hours after the published bid submittal time, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of structural steel installation and rebar installation.
>
> The prime contract bidder shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the prime contract bidder must indicate which subcontractor will be used for which alternate. Failure of the prime contract bidder to submit as part of the bid the names of such subcontractors or to name itself to perform such work or the naming of two or more subcontractors to perform the same work shall render the prime contract bidder's bid non-responsive and, therefore, void."

Each bidder shall submit a list of:

1. HVAC, plumbing, electrical, structural steel installation, and rebar installation subcontractors; and

2. The specific items of work those subcontractors will perform on the contract; and

3. The specific items of work that will be performed by the bidder on the contract relating to work described in RCW 39.30.060.

CITY OF KIRKLAND
SUBCONTRACTOR IDENTIFICATION LIST

*REQUIRED IF ESTIMATE AMOUNT EXCEEDS $1,000,000 (*Reference RCW 39.30.060 RCW*)

Proposed Subcontractors and items of work to be performed:

Subcontractor Name: _____

HVAC Item Numbers: _____

_____

_____

_____

Subcontractor Name: _____

Plumbing Item Numbers: _____

_____

_____

_____

Subcontractor Name: _____

Electrical Item Numbers: _____

_____

_____

_____

Subcontractor Name: _____

Structural Steel Installation Item Numbers: _____

_____

_____

_____

Subcontractor Name: _____

Rebar Installation Item Numbers: _____

_____

_____

_____

- make additional pages if necessary -

Work to be performed by Prime Contractor:

Item Numbers: _____

_____

_____

_____

_____

CITY OF KIRKLAND
BIDDER'S CHECKLIST

1. Have you reviewed the Bidder Responsibility and Subcontractor Responsibility Criteria?
2. Have you enclosed a bid bond or certified check with your bid? (Must be at least 5% of the total amount bid)
3. Have you entered a bid amount for all items and all schedules?
4. Do the written amounts of the proposal agree with the amounts shown in the figures?
5. Have you acknowledged receipt of addenda?
6. Has the proposal been properly completed and signed?
7. Have you completed the Statement of Bidder's Qualifications?
8. Have you completed the City of Kirkland Non-collusion Affidavit?
10. Bid proposal to be submitted in a sealed envelope marked "Bid Enclosed" for **116th Avenue NE/NE 124th Street Intersection Improvements; JOB NO. 09-21-PW.**

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CITY OF KIRKLAND

TABLE OF CONTENTS – CONTRACT DOCUMENTS

CITY OF KIRKLAND
PUBLIC WORKS AGREEMENT

Version:063020
116th Avenue NE/NE 124th Street Intersection Improvements
JOB NO. 09-21-PW

This agreement is made and entered into this _____day of_____, 20____, by and between **CONTRACTOR NAME**, hereinafter called the "Contractor" and the City of Kirkland, hereinafter called the "City."

W I T N E S S E T H:

Whereas, pursuant to the invitation of the City extended through an officially published "Invitation to Bid," the Contractor did, in accordance therewith, file with the City a proposal containing an offer which was invited by said notice, and

Whereas, the City has heretofore determined that said offer was the lowest responsible bid submitted; now, therefore, it is agreed:

Section 1. That Contractor shall comply in every way with the requirements of those certain specifications entitled: "PROJECT NAME, Job No. 09-21-PW"

The further terms, conditions and covenants of the contract are set forth in the following contract documents which are hereby made a part of this agreement by actual attachment or by this reference thereto as follows:

A. Invitation to Bid, as published by the City.

B. Specifications prepared for this project by the City and named above by title.

C. Detailed Plans listed and described in said Specifications, together with those which may be issued as supplements thereof.

D. The bid proposals submitted by the Contractor as to those items and/or alternatives accepted by the City.

E. Any written change orders, additions or deletions, if any, issued by the City, pursuant to this agreement.

F. Indemnification and insurance provisions included in the project documents shall apply to this agreement.

Section 2. In consideration of faithful compliance with the terms and conditions of this agreement, whether set forth herein or incorporated by reference, the Owner shall pay to the Contractor, at the times and in the manner provided in said specifications, the total sum of _____ dollars

($_____) which sum is subject, however, to increase or decrease in such proportion as the quantities named in said proposal are so changed, all as in said specifications and proposal provided.

In witness whereof, said Contractor and said City have caused this agreement to be executed on the day and year first written above.

_____
CONTRACTOR (Firm Name)

_____ _____
Signature of authorized officer Name and title of officer (print or type)

_____ _____
WA Contractor's Registration Number Industrial Insurance Account Number

_____ _____
Uniform Business Identification (UBI) Number Phone Number

(For corporations, LLC's and other legal entities)

STATE OF WASHINGTON)
) SS
COUNTY OF KING)

On this day before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____, to me known to be the _____ of _____, the legal entity that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said legal entity, for the uses and purposes therein set forth, and on oath stated that he/she was authorized to sign said instrument.

Given under my hand and official seal this _____ day of _____, 2____.

_____
Print Name: _____
NOTARY PUBLIC in and for the State of
Washington, residing _____
Commission expires: _____

(For individuals and d/b/a's)

STATE OF WASHINGTON)
) SS
COUNTY OF KING)

On this day before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____ and _____ to me known to be the individual(s) described herein and who executed the foregoing instrument, and acknowledged that he/she/they signed the same as his/her/their free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal this _____ day of _____, 2____.

_____
Print Name: _____
NOTARY PUBLIC in and for the State of
Washington, residing _____
Commission expires: _____

CITY OF KIRKLAND

BY: _____
Tracey Dunlap, Deputy City Manager

PERFORMANCE BOND
Surety to have an A.M. Best rating of A-:VII or better.

Bond No. _____

KNOW ALL PERSONS BY THESE PRESENTS, that **CONTRACTOR NAME**, as Principal, and _____, (insert name of surety), as Surety, a corporation duly organized under the laws of the State of _____, (insert Surety's state of incorporation), and authorized to do business as a surety in the State of Washington, are held and firmly bound unto the City of Kirkland (City) in the sum of **_____** dollars **($_____)**, lawful money of the United States of America, plus the total amount of extra orders issued by the City to the Principal pursuant to the terms of the Contract referred to in the next succeeding paragraph hereof, for the payment whereof Principal and Surety bind ourselves, and our heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has been awarded, and is about to enter into, a written Contract with the City for **PROJECT NAME**, **Job #09-21-PW**, which is hereby made a part of this bond as if fully set forth herein;

NOW, THEREFORE, the condition of this bond is such that:

If the Principal shall completely and faithfully perform all of its obligations under the Contract, including any warranties required thereunder, and all modifications, amendments, additions, and alterations thereto, including modifications which increase the contract price or time for completion, with or without notice to the surety; and

If the Principal shall indemnify and hold the City harmless from any and all losses, liability, damages, claims, judgments, liens, costs, and fees of any type that the City may be subject to because of the failure or default of the Principal in the performance of any of the terms, conditions, or obligations of the Contract, including all modifications, amendments, additions, and alterations thereto, and any warranties required thereunder;

THEN THIS obligation shall be null and void; otherwise to remain in full force and effect. If the City shall declare Principal to be in default of the Contract, and shall so notify Surety, Surety shall, within a reasonable time which shall not exceed 14 days, except for good cause shown, notify the City in writing of the manner in which surety will satisfy its obligations under this Bond.

Nonpayment of the Bond premium will not invalidate this Bond nor shall the City be obligated for the payment thereof. The Surety hereby waives notice of any modification of the Contract or extension of time made by the City.

Signed this _____ day of _____, 2____.

Principal:	_____	Surety:	_____
By:	_____	By:	_____
Title:	_____	Title:	_____
Address:	_____	Address:	_____
City/Zip:	_____	City/Zip:	_____
Telephone: ( )	_____	Telephone: ( )	_____

Note: A power of attorney must be provided which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this performance bond.

LABOR, MATERIAL AND TAXES PAYMENT BOND
Surety to have an A.M. Best rating of A-:VII or better.

Bond No. _____

KNOW ALL PERSONS BY THESE PRESENTS, that, **CONTRACTOR NAME**, as Principal, and _____, (insert name of surety), as Surety, a corporation duly organized under the laws of the State of _____ (insert Surety's state of incorporation), and authorized to do business as a surety in the State of Washington, are held and firmly bound unto the City of Kirkland (City) for the use and benefit of claimants as hereinafter defined, in the sum of _____ **Dollars ($_____),** lawful money of the United States of America, plus the total amount of any extra orders issued by the City, for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has been awarded, and is about to enter into, a Contract with City of Kirkland for **PROJECT NAME, Job #09-21-PW**, which contract is by this reference made a part hereof;

WHEREAS, the contract is a public works contract, subject to the provisions of RCW Titles 39 and 60;

NOW, THEREFORE, the conditions of this obligation are such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for (a) all labor and material used or reasonably required for use in the performance of the contract and (b) all taxes, increases, and penalties incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due, then this obligation shall be void; otherwise, it shall remain in full force and effect, subject, however, to the following conditions: A claimant is defined as and includes (a) a person claiming to have supplied labor or materials for the prosecution of the work provided for in the contract, including any person having direct contractual relationship with the contractor furnishing the bond or direct contractual relationship with any subcontractor, or an assignee of such person, (b) the state with respect to taxes incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due and (c) any other person or entity as allowed or required by law.

The Principal and Surety hereby jointly and severally agree with the City that every claimant as herein defined, who has not been paid in full prior to Final Acceptance of the project, or materials were furnished by such claimant, has an action on this bond for such sum or sums as may be justly due claimant, and may have execution thereon. The City shall not be liable for the payment of any costs or expenses of any such suit or action.

(Form continues on next page)

No suit or action shall be commenced hereunder by any claimant (except the state with respect to taxes, increases, and penalties incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due) unless the claimant has sent the written notice required under RCW Title 39 to the Principal and to the City's Purchasing Agent by registered or certified mail, or by hand delivery, no later than 30 days after Final Acceptance of the Project.

The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against the improvement, whether or not claim for the amount of such lien be presented under and against this bond.

The Surety hereby waives notice of any modification of the contract or extension of time made by the City.

Signed this _____ day of _____ , 2____

Principal: _____	Surety: _____
By: _____	By: _____
Title: _____	Title: _____
Address: _____	Address: _____
City/Zip: _____	City/Zip: _____
Telephone: ( ) _____	Telephone: ( ) _____

Note: A power of attorney must be provided which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this performance bond.

END OF LABOR, MATERIAL AND TAXES PAYMENT BOND FORM

CITY OF KIRKLAND
CONTRACTOR'S DECLARATION OF OPTION FOR MANAGEMENT OF STATUTORY RETAINED PERCENTAGE

Version:063020
116th Avenue NE/NE 124th Street Intersection Improvements
JOB NO. 09-21-PW

Monies reserved under provisions of Chapter 60.28 RCW, at the option of the Contractor, shall be:

Select One

[ ] (1) Retained in a fund by the City. No interest will be earned on the retained percentage amount under this election.

[ ] (2) Retainage Bond

[ ] (3) Placed in escrow with a bank or trust company by the City. When the monies reserved are to be placed in escrow, the City will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by the City and the bonds and securities held in escrow. (For the convenience of those Contractors choosing option (3) a City approved Form of Escrow Agreement is included on the next page and should be completed and submitted with the executed contract.)

The Contractor in choosing option (3) agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges or both, and further agrees to assume all risks in connection with the investment of the retained percentages in securities.

[ ] (4) Deposited by the City in an interest-bearing account at the FDIC insured bank currently providing contracted banking services to the City of Kirkland. Interest on such account shall be paid to the contractor. Any fees incurred shall be the responsibility of the contractor.

CONTRACTOR:

Signature: _____

Print or Type Name: _____

Title: _____

Date: _____

RETAINAGE BOND
RETURN THIS FORM IF RETAINAGE BOND OPTION IS SELECTED

Contract Title	_____
Contract Number	_____
Contractor Name	

The Undersigned, _____, existing under and by virtue of the laws of the State of Washington and authorized to do business in the State of Washington as Principal, and _____ 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_____, hereinafter called Obligee, and are similarly held and bound unto the beneficiaries of the trust fund created by RCW 60.28, in the penal sum of _____ ($_____), Which is 5% of the principal's price on Contract ID_____.

WHEREAS, on the _____ day of _____, 2____, the said principal herein executed a contract with the Obligee, for the Contract specified above, Contract ID Number _____.

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

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 the 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 _____ percent (___%) of the final contract cost which shall include any increases 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 purposes of RCW 60.28, then this obligation shall be null and void; otherwise, it shall remain in full force and effect until release is authorized in writing by the Obligee. 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% or 50% 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 instituted within the time provided by applicable law.

Witness our hands this _____ day of _____, 2____.

SURETY

By:_____
Name/Title

OF:_____

PRINCIPAL

By:_____
Name/Title

OF:_____

Surety Name and Local Office of Agent: _____

Surety Address and Phone of Local Office and Agent: _____

_____

CITY OF KIRKLAND
RETAINED PERCENTAGE ESCROW AGREEMENT
Version:063020
116th Avenue NE/NE 124th Street Intersection Improvements
JOB NO. 09-21-PW

Escrow No. _____

City of Kirkland
123 Fifth Avenue
Kirkland, Washington 98033

Contractor: _____

Address: _____

Project Description: _____

_____

_____

TO: Escrow Bank or Trust Company:

Name: _____

Address: _____

_____

Attention: _____

The undersigned, _____, herein referred to as the Contractor, has directed the City of Kirkland to deliver to you its warrants, which shall be payable to you and the Contractor jointly. Such warrants are to be held and disposed of by you in accordance with the following instructions and upon the terms and conditions hereinafter set forth.

INSTRUCTIONS

1. Warrants or checks made payable to you and the Contractor jointly upon delivery to you shall be endorsed by you and forwarded for collection. The moneys will then be used by you to purchase, as directed by the Contractor, bonds or other securities chosen by the Contractor and approved by the City of Kirkland. Attached is a list of such bonds, or other securities approved by the City of Kirkland. Other bonds or securities, except stocks, may be selected by the Contractor, subject to the express written approval of the City of Kirkland. Purchase of such bonds or other securities shall be in a form which shall allow you alone to reconvert such bonds or other securities into money if you are required to do so at the direction of the City of Kirkland and Contractor.

2. When and as interest on the securities held by you pursuant to this agreement accrues and is paid, you shall collect such interest and forward it to the Contractor at its address designated below unless otherwise directed by the Contractor.

3. You are not authorized to deliver to the Contractor all or any part of the securities held by you pursuant to this agreement (or any moneys derived from the sale of such securities, or the negotiation of the City of Kirkland's warrants) except in accordance with written instructions from the City of Kirkland. Compliance with such instructions shall relieve you of any further liability related thereto. The estimated completion date on the contract underlying this Escrow Agreement is _____.

4. The Contractor agrees to pay you as compensation for your services hereunder as follows:

   Payment of all fees shall be the sole responsibility of the Contractor and shall not be deducted from any property placed with you pursuant to this agreement until and unless the City of Kirkland directs the release to the Contractor of the securities and moneys held hereunder whereupon you shall be granted a first lien upon such property released and shall be entitled to reimburse yourself from such property for the entire amount of your fees as provided for hereinabove. In the event that you are made a party to any litigation with respect to the property held by you hereunder, or in the event that the conditions of this escrow are not promptly fulfilled or that you 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, you shall be entitled to reasonable compensation for such extraordinary services from the Contractor and reimbursement from the Contractor for all costs and expenses, including attorneys fees occasioned by such default, delay, controversy, or litigation.

5. This agreement shall not be binding until executed by the Contractor and the City of Kirkland and accepted by you.

6. This instrument contains the entire agreement between you, the Contractor and the City of Kirkland, with respect to this escrow and you are not a part nor bound by any instrument or agreement other than this; you 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; you shall not be liable for any loss or damage not caused by your own negligence or willful misconduct.

7. The foregoing provisions shall be binding upon the assigns, successors, personal representatives, and heirs of the parties hereto.

8. The Contractor's Federal Income Tax Identification number is _____.

** Please note: Written release will be issued by the Director of Finance & Administration. For further information, contact the Purchasing Agent at (425) 587-3123.

The undersigned have read and hereby approve the instructions as given above governing the administration of this escrow and do hereby execute this agreement on this _____ day of _____, 2____.

CONTRACTOR:

By: _____
Signature

_____
Print or Type Name

_____
Title

Address: _____

_____

CITY OF KIRKLAND:

By: _____
Signature

_____
Print or Type Name

_____
Title

123 Fifth Avenue
Kirkland, Washington 98033

The above escrow instructions received and accepted this _____ day of _____, 2____.

ESCROW BANK OR TRUST CO:

_____

By: _____
Authorized Signature

_____
Print or Type Name

_____
Title

Securities Authorized by City of Kirkland (select one):

1. Bills, certificates, notes or bonds of the United States;
2. Other obligations of the United States or its agencies;
3. Obligations of any corporation wholly-owned by the government of the United States;
4. Indebtedness of the Federal National Mortgage Association; and
5. Time deposits in commercial banks.

RETURN THIS SIGNED AGREEMENT TO:

City of Kirkland
Attn: Purchasing Agent
123 Fifth Avenue
Kirkland, Washington 98033

CITY OF KIRKLAND
RETAINAGE RELEASE REQUIREMENTS

Version:063020
116th Avenue NE/NE 124th Street Intersection Improvements
JOB NO. 09-21-PW

DOCUMENTS REQUIRED TO BE ON FILE PRIOR TO RELEASE OF RETAINAGE

1. Intent to Pay Prevailing Wage (Contractor must generation including for subcontractors)

   Department of Labor/Industries
   Employment Standards Division
   General Administration Building
   Olympia, Washington 98504
   (360) 956-5335

2. Notice of Completion of Public Works Contract (City generates)

   Department of Revenue
   Excise Tax Division
   Olympia, Washington 98504

3. Affidavit of Wages Paid (Contractor must generate including for subcontractors)

   Department of Labor/Industries

4. Certificate of Release - State Excise Tax by Public Works Contractor (Letter from State to City)

   Department of Revenue
   Department of Labor and Industries
   Employment Security Department

Receipt for Payment in full or Release of Lien signed by Lien Claimant and filed with City (Responsibility of Contractor to obtain)

Claims against retainage or Payment Bond filed with City by any such subcontractor, workman, or material supplier.

Current insurance certificate through retainage release (Contractor generates)

Produce final invoice for retainage if bond is not selected (Contractor generates)

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
	PHONE (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED	INSURER A :	
	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
	☐ CLAIMS-MADE ☐ OCCUR						MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
							GENERAL AGGREGATE	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$
	☐ POLICY ☐ PRO-JECT ☐ LOC							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ☐ NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	☐ **UMBRELLA LIAB** ☐ OCCUR						EACH OCCURRENCE	$
	☐ **EXCESS LIAB** ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☐ WC STATU-TORY LIMITS ☐ OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ **(Mandatory in NH)**	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Department of Labor and Industries
Prevailing Wage
(360) 902-5335
www.lni.wa.gov/TradesLicensing/PrevWage

STATEMENT OF INTENT TO PAY PREVAILING WAGES

Public Works Contract
$40.00 Filing Fee Required

- This form **must** be typed or printed in ink.
- **Fill in all blanks or the form will be returned for correction (see instructions).**
- Please allow a **minimum** of 10 working days for processing.
- Once approved, your form will be posted online at https://fortress.wa.gov/lni/pwiapub/SearchFor.asp

Intent ID # (Assigned by L&I)_____

Your Company Information		
Your Company Name ABC Company, Inc.		
Your Address 1234 Main Street		
City Olympia	State WA	Zip+4 98501-1234
Your Contractor Registration Number ABCCI*0123AA	Your UBI Number 123456789	
Your Industrial Insurance Account Number 111,111-11		
Your Email Address (required for notification of approval) prevailingwage@lni.wa.gov	Your Phone Number (555) 555-5555	

Awarding Agency Information		
Project Name Road Repair	Contract Number 2011-01B	
Awarding Agency WA State Department of Transportation		
Awarding Agency Address PO Box 47354		
City Olympia	State WA	Zip+4 98501
Awarding Agency Contact Name John Doe	Phone Number (555) 555-5555	
County Where Work Will Be Performed Thurston	City Where Work Will Be Performed Olympia	

Additional Details	
Your Expected Job Start Date (mm/dd/yyyy) 01/01/2011	
Job Site Address/Directions State Street @ Plum Street	

Contract Details	
Bid Due Date (**Prime Contractor's**) 08/01/2010	Award Date (**Prime Contractor's**) 08/10/2010
Indicate Total Dollar Amount of **Your** Contract (including sales tax) or time and materials, if applicable.	$1000.00

ARRA Funds
Does this project utilize American Recovery and Reinvestment Act (ARRA) funds? ☐ Yes ☒ No

Weatherization or Energy Efficient Funds
Does this project utilize any weatherization or energy efficiency upgrade funds (ARRA or otherwise)? ☐ Yes ☒ No

Prime Contractor's Company Information	
Prime Contractor's Company Name XYZ Company, Inc.	Prime Contractor's Intent Number 123456
Prime Contractor's Registration Number XYZIN*0123AA	Prime Contractor's UBI Number 987654321

Hiring Contractor's Company Information	
Hiring Contractor's Company Name Super Pavers, Inc.	
Hiring Contractor's Contractor Registration Number SUPERPA123AA	Hiring Contractor's UBI Number 321456987

Employment Information					
Do you intend to use **ANY** subcontractors?	☐ Yes	☒ No	Will employees perform work on this project?	☒ Yes	☐ No
Will **ALL** work be subcontracted?	☐ Yes	☒ No	Do you intend to use apprentice employees?	☒ Yes	☐ No

Number of Owner/Operators who own at least 30% of the company who will perform work on the project: ☐ None (0) ☒ One (1) ☐ Two (2) ☐ Three (3)

Crafts/Trades/Occupations – (Do not list apprentices. They are listed on the Affidavit of Wages Paid only.) If an employee works in more than one trade, ensure that all hours worked in each trade are reported below. For additional crafts/trades/occupations please use Addendum A.	**Number of Workers**	**Rate of Hourly Pay**	**Rate of Hourly Usual ("Fringe") Benefits**
Laborer - Asphalt Raker	**2**	**39.28**	**5.00**
Power Equipment Operator - Asphalt Plant Operator	**1**	**48.04**	**2.35**
Truck Driver - Asphalt Mix (over 16 Yds)	**1**	**46.47**	**0.00**

Signature Block

I hereby certify that I have read and understand the instructions to complete this form and that the information, including any addenda, are correct and that all workers I employ on this Public Works Project will be paid no less than the Prevailing Wage Rate(s) as determined by the Industrial Statistician of the Department of Labor and Industries.

Print Name:	**Print Title:**	**Signature:**	**Date:**

For L&I Use Only

Approved by signature of the Department of Labor and Industries Industrial Statistician

NOTICE: If the prime contract is at a cost of over one million dollars ($1,000,000.00), RCW 39.04.370 requires you to complete the EHB 2805 (RCW 39.04.370) Addendum and attach it to your Affidavit of Wages of Paid when your work on the project concludes. This is only a notice. The EHB 2805 Addendum is not submitted with this Intent.

Department of Labor and Industries
Prevailing Wage Program
(360) 902-5335
www.Lni.wa.gov/TradesLicensing/PrevWage/default.asp

Affidavit of Wages Paid
Public Works Contract
$40.00 Filing Fee Required*
*Exemption may apply. See instruction 9.

This form **must** be typed or printed in ink.
Fill in ALL blanks or the form will be returned for correction (see instructions).
Please allow a **minimum** of 10 business days for processing.
Once approved, your form will be posted online at:
https://fortress.wa.gov/lni/wagelookup/searchforms.aspx

Affidavit ID # (Assigned by L&I):
#

Your Company Information 1		
Your Company Name		
Your Company Address		
City	State	Zip+4
Your Contractor Registration Number	Your UBI Number	
Your Industrial Insurance Account Number		
Your Email Address (required for notification of approval)	Your Phone Number	

Awarding Agency Information 2		
Project Name	Contract Number	
Awarding Agency		
Awarding Agency Address		
City	State	Zip+4
Awarding Agency Contact Name	Phone Number	
County Where Work Was Performed	City Where Work Was Performed	

Additional Details 3	
Your Job Start Date (mm/dd/yyyy)	**Your** Date Work Completed (mm/dd/yyyy)
Job Site Address/Directions	Your Approved Intent ID #

Contract Details 4	
Bid Due Date (**Prime Contractor's**)	Award Date (**Prime Contractor's**)
Indicate Total Dollar Amount of **Your** Contract (including sales tax).	$

EHB 2805 (RCW 39.04.370) – Is the Prime Contractor's contract at a cost of over one million dollars ($1,000,000)? ☐ No ☐ Yes
If "Yes" to the **EHB 2805** question and the Award Date is **9/1/2010** or later you must complete and submit the **EHB 2805 (RCW 39.04.370) Addendum**. 5

ARRA Funds 6	**Weatherization or Energy Efficient Funds** 6
Does this project utilize American Recovery and Reinvestment Act (ARRA) funds? ☐ Yes ☐ No	Does this project utilize any weatherization or energy efficiency upgrade funds (ARRA or otherwise)? ☐ Yes ☐ No

Prime Contractor's Company Information 7		**Hiring Contractor's Company Information** 8	
Prime Contractor's Company Name		Hiring Contractor's Company Name	
Prime Contractor's Registration Number	Prime Contractor's UBI Number	Hiring Contractor's Registration Number	Hiring Contractor's UBI Number

Employment Information 9

Did you use **ANY** subcontractors?	☐ Yes (**Addendum B Required**)	☐ No	Did employees perform work on this project?	☐ Yes	☐ No
Was **ALL** work subcontracted?	☐ Yes (**Addendum B Required**)	☐ No	Did you use apprentice employees?	☐ Yes	☐ No

Number of Owner/Operators who own at least 30% of the company who performed work on this project: ☐ None (0) ☐ One (1) ☐ Two (2) ☐ Three (3)
You must list the First and Last Name(s) of any Owner/Operator performing work below

List your Crafts/Trades/Occupations Below - For Journey Level Workers you must provide all of the information below. Owner/Operators - must provide their First and Last name no other information required. ****Apprentices are not recorded below. You must use Addendum D to list Apprentices.**	**Number of Workers**	**Total # of Hours Worked**	**Rate of Hourly Pay**	**Rate of Hourly Usual ("Fringe") Benefits**
10	11	12	13	14

Signature Block

I hereby certify that I have read and understand the instructions to complete this form and that the information on the form and any addenda is correct and that all workers I employed on this Public Works Project were paid no less than the Prevailing Wage Rate(s) as determined by the Industrial Statistician of the Department of Labor and Industries.

Print Name:	**Print Title:**	**Signature:**	**Date:**

For L&I Use Only

Department of Labor and Industries
APPROVED BY: _____
Industrial Statistician

Department of Labor & Industries
Prevailing Wage Program
P.O. Box 44540
Olympia, Washington 98504-4540
Phone (360) 902-5335 / Fax (360) 902-5300

INSTRUCTIONS AFFIDAVIT OF WAGES PAID FOR PUBLIC WORKS CONTRACTS

COMPLETE ALL FIELDS ON THE FORM

The numbered blocks in the following instructions correspond to the numbered blocks on the numbered Affidavit of Wages Paid above. In addition, a completed sample form (without numbers) is included at the end of these instructions.

1

Your Company Information – Enter the following information:

a) Your **Company Name** and **Address**.

b) Your **Contractor Registration Number** – You can verify this number at: http://www.lni.wa.gov/TradesLicensing/Contractors/HireCon/

c) Your **UBI Number** (Unified Business Identifier) – This 9-digit number registers you with several state agencies and allows you to do business in Washington. You can verify this number at: http://www.bls.dor.wa.gov/LicenseSearch/

d) Your **Industrial Insurance Account Number** – You can verify this number at: https://fortress.wa.gov/lni/crpsi/MainMenu.aspx?MessageId=2001

e) Please provide your **Email Address** so that L&I can notify you of form approval and/or any required corrections. If you do not provide this information, L&I will use standard mail to send you correction notices. You can access approved forms at: https://fortress.wa.gov/lni/wagelookup/searchforms.aspx

f) No notice of approval will be mailed.

g) Your company **Phone Number**.

2

Awarding Agency Information – Enter the following information regarding the agency that awarded the contract. This information is available from the Prime Contractor:

a) **Project Name** – This is the name the Awarding Agency assigned to the project.

b) **Contract Number** – This is the number the Awarding Agency assigned to the project.

c) **Awarding Agency** – This is the name of the agency that awarded the contract.

d) Please enter the **Street Address**, **City**, **State** and **Zip+4** of the Awarding Agency.

e) **Awarding Agency Contact Name and Phone Number** – Enter the name and phone number of the person the Prime Contractor communicates with at the Awarding Agency.

f) **County Where Work Was Performed** – Enter the name of the county where the work was performed. If the work was performed in multiple counties, include the names of all counties where work was performed.

g) **City Where Work Was Performed** – Enter the name of the city where the work was performed. If the work was performed outside the limits of any city, or in multiple cities, include the name of the nearest city.

3

Additional Details

a) **Your Job Start Date** – This is the date that you began work on the project.

b) **Your Date Work Completed** – This is the date you completed work on the project. You cannot have a date in the future.

c) **Job Site Address/Directions –** Enter the specific address of the project or provide brief details regarding the location of the site, if no specific address exists.

d) **Your Approved Intent ID #** – Enter the 6-digit number, assigned by L&I, from the approved Intent form filed for this project.

INSTRUCTIONS (Cont.)

4	**Contract Details** a) **Bid Due Date** – Enter the date the **Prime Contractor** had to submit a bid to the Awarding Agency for this project (mm/dd/yyyy). • **What if my contract was not bid?** – If the contract you are working under was not required to be bid, you will enter the date the contract was awarded. b) **Award Date** – This is the date the Awarding Agency awarded the contract to the Prime Contractor (mm/dd/yyyy). c) **Indicate the Total Dollar Amount of <u>Your</u> Contract –** Enter the total amount of **<u>your</u>** contract, including the applicable sales tax. You must enter the final amount of your contract. You cannot enter Time and Materials on an Affidavit of Wages Paid.
5	**EHB 2805 (RCW 39.04.370) -** F700-164-000 is an addendum to your Affidavit of Wages Paid Form. RCW 39.04.370 requires you to complete form F700-164-000 for contracts entered into between September 1, 2010 and December 31, 2013 if the Prime's contract is at a cost of over one million dollars ($1,000,000). If you fail to properly provide the requested information more than one time between September 1, 2010 and December 31, 2013, pursuant to RCW 39.04.350(1)(f) you will not be considered a responsible bidder qualified to be awarded a public works project. Use as many of these forms as you need in order to provide the requested information for all relevant project items. This is an addendum to form F700-007-000.
6	**ARRA & Weatherization Funding Questions –** Enter the information regarding the source of funds. This information should be obtained from the Awarding Agency or the Prime Contractor. a) Does this project utilize American Recovery and Reinvestment Act (ARRA) funds? b) Does this project utilize any weatherization or energy efficiency upgrade funds (ARRA or otherwise)?
7	**Prime Contractor's Company Information** – Enter information about the contractor who has the direct contract with the Awarding Agency: a) **Prime Contractor's Company Name** – Enter the Prime Contractor's company name. b) **Prime Contractor's Registration Number** – Enter the Contractor Registration Number for the Prime Contractor. You can verify the number at: https://fortress.wa.gov/lni/bbip/Search.aspx. c) **Prime Contractor's UBI Number** – Enter the UBI number for the Prime Contractor. You can verify this number at: https://fortress.wa.gov/dol/dolprod/bpdLicenseQuery/.
8	**Hiring Contractor's Company Information** – Enter the information about the Hiring Contractor. This is the contractor who hired or contracted your firm to perform work on this project: a) **Hiring Contractor's Company Name** – Enter the name of the contractor who hired or contracted your firm to perform work on this project. b) **Hiring Contractor's Registration Number** – Enter the Contractor Registration Number for the contractor who hired you. You can verify the number at: https://fortress.wa.gov/lni/bbip/Search.aspx. c) **Hiring Contractor's UBI Number** – Enter the UBI Number for the contractor who hired you. You can verify this number at: https://fortress.wa.gov/dol/dolprod/bpdLicenseQuery/.

9

Employment Information – Enter information about the individuals who performed work on this project:

a) **Did you use any subcontractors? -** If **PART** of the work was performed by subcontractors you hired, check the "Yes" box and complete **Addendum B**.

b) **Did employees perform work on this project? -** If employees, including apprentices, performed any work on the project, check the "Yes" box and list each employee's applicable craft/trade/occupation. If you utilized apprentices on this project you must complete **Addendum D**.

NOTICE: If no employees performed work subject to Washington's prevailing wage requirements, check no on this question, and your form may be submitted without payment. For more information, see our website at http://www.lni.wa.gov/TradesLicensing/PrevWage/IntentAffidavits/File/default.asp

c) **Was ALL work subcontracted? -** If **ALL** work was performed by subcontractors, check the "Yes" box and complete **Addendum B**.

d) **Did you use apprentice employees?** – If you used apprentices on this project please be aware:

1. Any workers **NOT** registered with the Washington State Apprenticeship and Training Council (WSATC) must be paid the correct journey-level prevailing rate of wage.
2. Any apprentice **NOT** registered with the WSATC within 60 days of hiring must be paid at the correct journey-level prevailing rate of wage for the time preceding the date of registration.
3. You **MUST** be a registered training agent with the WSATC in order to pay a registered apprentice less than journey-level prevailing rate of wage.
4. To verify apprenticeship and/or registered training agent status call (360) 902-5324.

e) **Number of Owners/Operators who own at least 30% of the company who performed work on the project** – Indicate the number of Owners/Operators who performed work on the project. If no 30%+ Owners/Operators performed work on the project, check the box "None".

10 **Crafts/Trades/Occupations and Apprentices** – List the craft/trade/occupation of each worker, journey-level and apprentice, employed on this project.

❖ **Crafts/Trades/Occupations**

If you indicated above that Owners/Operators worked on this project, and you also indicated above that no employees performed work on the project, and that **ALL** work was subcontracted, then you do not need to fill in this section. Individuals who own less than 30% of the company are not considered Owner/Operators under RCW 39.12 and must be listed as employees and paid at least the prevailing rate of wage for the work performed

Use **Addendum A** for additional Crafts/Trades/Occupations that will not fit on this form.

Residential Construction - If you are using any residential classifications (e.g. Residential Carpenter, Residential Laborer, etc.) you must provide information regarding the following questions, on **Addendum C**, in order for L&I to determine if residential rates are being utilized appropriately:

1. Did the Awarding Agency, in compliance with RCW 39.12.030, determine that the project meets the definition of residential construction?
2. Please indicate the type of structure (e.g. single-family dwelling, duplex, apartment, condominium or other residential structure).
3. Including any basement or garage, how many stories or levels does the structure have?
4. What is the facility used for (answer "yes" or "no" to each of the following options)?:
    a. Permanent residence only?
    b. Rehabilitation house?
    c. Transitional housing?
    d. Communal dining facility?
    e. Treatment services?
    f. Counseling?
    g. Other?
5. Does each dwelling unit have its own full, self-contained kitchen?
6. Does each dwelling unit have its own full bathroom?
7. Is there a community facility or manager's office on site?
8. Is any part of the facility used by members of the public?

Landscape Construction - If you are using "Landscape Construction" or any of the sub-classifications within Landscape Construction (e.g. Landscape or Planting Laborer, Irrigation or Lawn Sprinkler Installers, Landscape Equipment Operators or Truck Drivers) you must provide information regarding the following questions, on **Addendum C**, in order for L&I to determine if Landscape Construction rates are being utilized appropriately:

1. The beautification of a plot of land through addition of or modification to lawns, trees and bushes under the Landscape Construction Scope of work (WAC 296-127-01346) is a limited universe and has exclusions that may affect its application. Please provide L&I with more information so we can verify whether the landscape construction wage rates apply to this project.
    a. Please describe the whole project – not just your part.
    b. Please describe your part(s) of the project –the tasks you performed, equipment used, and tools used. Please provide as much detail as you can.
    c. If the project involves installing an irrigation system, trenching, installing French drains or other subsurface water collection systems, or spreading top soil or mulch, please tell us the relevant depths.
2. If Equipment Operators and/or Truck Drivers were used, describe the type, and list the size or rated capacity of the equipment.

	Crafts/Trades/Occupations and Apprentices (Cont.) **Apprentices** – If you employed apprentices on this project, list each apprentice by Name, Registration Number, Trade, the number of hours the individual had completed in the program when they started work (Beginning Hours) and ended work (Ending Hours) on the project, Beginning and Ending dates of work performed on this project, and Rate of Hourly Pay and Usual ("Fringe") Benefits. 1. Any workers **NOT** registered with the Washington State Apprenticeship and Training Council (WSATC) must be paid the correct journey-level prevailing rate of wage. 2. Any apprentice **NOT** registered with the WSATC within 60 days of hiring must be paid at the correct journey-level prevailing rate of wage for the time preceding the date of registration. 3. You **MUST** be a registered training agent with the WSATC in order to pay a registered apprentice less than journey-level prevailing rate of wage. 4. To verify apprenticeship and/or registered training agent status call (360) 902-5366.
11	**Number of Workers** – Enter the number of journey-level workers employed on this project for that craft/trade/occupation.
12	**Total Number of Hours Worked** – Enter the number of hours worked for that Craft/Trade/Occupation.
13	**Rate of Hourly Pay** – Enter the rate of hourly pay, as defined by RCW 39.12.010, that you actually paid the workers for that Craft/Trade/Occupation. The amount listed for "Rate of Hourly Pay" plus the amount listed for the "Rate of Hourly Fringe Benefits," if any, must equal or exceed the applicable prevailing rate of wage.
14	**Rate of Hourly Usual ("Fringe") Benefits** – Enter the rate of hourly fringe benefits for that Craft/Trade/Occupation. This is the cost of fringe benefits, as defined by RCW 39.12.010, that you actually paid to the workers. The amount listed for "Rate of Hourly Pay" plus the amount listed for "Rate of Hourly Usual ("Fringe") Benefits," if any, must equal or exceed the applicable prevailing rate of wage.

If there is not enough space to list all required information on one form, use the appropriate Addendum as needed. No additional fee is required for using Addendums to the form. No other attachments will be accepted.

L&I approval of your Affidavit of Wages Paid is based on the information you provide. Approval of the form does not signify that the classifications of labor you listed on the form are the correct classifications of work for the tasks performed on the public works project. It is your responsibility to pay workers the prevailing rate of wage for the classification of work that correctly applies to the actual work they perform.

Be sure to include your email address on the form. If you do not provide this information, L&I will use standard mail to send you correction notices. You will be able to access approved forms at: https://fortress.wa.gov/lni/wagelookup/searchforms.aspx

MAILING INSTRUCTIONS

*You must mail the completed and signed form with **original signature** (a photocopy of a signature will **not** be accepted) with the $40 filing fee, if applicable*, to:*

Management Services
Department of Labor & Industries
Prevailing Wage Program
PO Box 44835
Olympia, WA 98504-4835

FURTHER INFORMATION

Make checks payable to:

Department of Labor and Industries

*If you have questions or would like assistance in completing the form, please call us at **(360) 902-5335** or email the Prevailing Wage office at pw1@Lni.wa.gov.*

Prevailing wage rates are available on the Internet at:
http://www.lni.wa.gov/TradesLicensing/PrevWage/WageRates/default.asp
(No notice of approval will be mailed).

SPECIAL PROVISIONS

City of Kirkland

SPECIAL PROVISIONS

Supplement to

2021

WSDOT Standard Specifications

City of Kirkland

TABLE OF CONTENTS - SPECIAL PROVISIONS

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City of Kirkland Special Provisions

INTRODUCTION

The work on this project shall be accomplished in accordance with the Standard Specifications for Road, Bridge and Municipal Construction, 2021 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 supersede any conflicting provisions of the Standard Specifications.

The accompanying Plans and these Specifications and any Addenda thereto, show and describe the location and type of work to be performed under the 116th Avenue NE/NE 124th Street Intersection Improvements project.

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 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 titles of headings of the Sections and subsections herein are intended for convenience or reference and shall not be considered as having any bearing on their interpretation.

In addition, technical specifications, revisions, and supplements to standard technical specifications, including measurement and payment and descriptions of bid items specific to Bid Schedule B are included in Appendix C and are made part of the Contract Documents.

Several types of Special Provisions are included in this contract and are differentiated as follows:

General Special Provisions (GSPs) are similar to Standard Specifications in that they typically apply to many projects and are used by agencies throughout the state. Denoted as: ***(date)***

Local Agency Approved GSPs are modifications to the standard specifications prepared by the APWA Division 1 subcommittee, which is comprised of representatives of local agencies throughout the state. APWA GSPs replace what was formerly referred to as "Division 1-99 APWA Supplement" in previous editions of the Standard Specifications for Road, Bridge and Municipal Construction. Denoted as: **(*date APWA GSP)***

City of Kirkland GSPs are commonly applicable to City of Kirkland projects. Denoted as: ***(date COK GSP)***

Project Specific Special Provisions normally appear only in the contract for which they were developed. Denoted as: ***(******)***

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/APWA, current edition
- City of Kirkland Public Works Department Pre-Approved Plans and Policies.

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

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DIVISION 1 – GENERAL REQUIREMENTS

DESCRIPTION OF WORK

The work to be performed under Schedule A of this contract shall include improvements of the 116th Avenue NE/NE 124th Street intersection. This project will widen 116th Avenue NE from the intersection at NE 124th Street to approximately 400 feet north. This work will consist of adding a southbound right turn lane to accommodate bus traffic and a shared pathway to accommodate non-motorized travel. Work also include installation of curb, gutter and sidewalk, landscape strip, landscaping, drainage modifications, striping, traffic control, utility adjustments, signal modifications, illumination, relocated bus stop with shelter footing, and other work, all in accordance with these Contract Provisions, the attached Contract Plans, and the Standard Specifications.

The work to be performed under Schedule B of the contract shall include replacing an existing water main in 116th Avenue NE and other work, all in accordance with these Contract Provisions, the attached Contract Plans, and the Standard Specifications. The technical specifications, revisions, and supplements to standard technical specifications, including measurement and payment and descriptions of bid items that apply to Bid Schedule B are located in Appendix C.

1-01 DEFINITIONS AND TERMS

1-01.3 Definitions
(January 4, 2016 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, Amendments, 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 CONDITIONS

1-02.1 Prequalification of Bidders
(January 24, 2011 APWA GSP)

Delete this Section and replace it with the following:

1-02.1 Qualifications of Bidder

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 (Invitation 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")	*** 2 ***	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
(June 24, 2021 APWA GSP Option B)

The first sentence of the seventh paragraph, beginning with "Any prospective Bidder desiring…", is revised to read:

Any prospective Bidder desiring an explanation or interpretation of the Bid Documents, shall request the explanation or interpretation in writing by close of business *** 3 *** 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.

1-02.8 Noncollusion Declaration and Lobbying Certification
(January 1, 2016 COK GSP)

The following new paragraph is inserted at the end of Section 1-02.8:

Conflict of Interest
The bidder affirms that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of its services hereunder. The Contractor further covenants that in the performance of this contract, no person having any conflicting interest shall be employed. Any interest on the part of the Contractor or its employees must be disclosed forthwith to the City of Kirkland. If this contract is within the scope of a Federal Housing and Community Development Block Grant program, the Contractor further covenants that no person who presently exercises any functions or responsibilities in connection with the block grant program has any personal financial interest, direct or indirect, in this contract.

1-02.9 Delivery of Proposal
(******)

Delete this section and replace it with the following:

Each Proposal shall be submitted as stated in the Invitation to Bid.

If submitted after the Bid Proposal is due, the document(s) must be submitted as follows:

1. In a sealed envelope, with the Project Name and Project Number as stated in the Call for Bids clearly marked on the outside of the envelope or
2. By e-mail to the following e-mail address: cokamura@kirklandwa.gov

All other information required to be submitted with the Bid Proposal must be submitted with the Bid Proposal itself, at the time stated in the Call for Bids.

Proposals that are received as required will be publicly opened and read and the results transmitted to all bidders. The Contracting Agency will not open or consider any Bid Proposal that is received after the time specified in the Call for Bids for receipt of Bid Proposals, or received in a location other than that specified in the Call for Bids. The Contracting Agency will not open or consider any "Supplemental Information" (UDBE confirmations, or GFE documentation) that is received after the time specified above, 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 as specified in the Bid Advertisement 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 work day 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.

1-02.13 Irregular Proposals
(October 1, 2020 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, if applicable, as required in Section 1-02.6;

    h. The Bidder fails to submit or properly complete a Disadvantaged Business Enterprise Certification, if applicable, as required in Section 1-02.6;

    i. The Bidder fails to submit written confirmation 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 form, 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, 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 A)

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.

The Contracting Agency will verify that the Bidder meets the mandatory bidder responsibility criteria in RCW 39.04.350(1). To assess bidder responsibility, the Contracting Agency reserves the right to request documentation as needed from the Bidder and third parties concerning the Bidder's compliance with the mandatory bidder responsibility criteria.

If the Contracting Agency determines the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1) 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.

1-02.15 Pre Award Information
(August 14, 2013 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
(January 23, 2006 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
(October 1, 2005 APWA GSP)

Revise this section to read:

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 *** 20 *** 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, and a satisfactory bond as required by law and Section 1-03.4. 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
(January 1, 2016 COK GSP)

Revise the first paragraph to read:

The successful bidder shall provide executed payment and performance bond(s) for the full contract amount. Separate payment and performance bonds are required and 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, and
   c. Have an A.M. best rating of A:VII or better.
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).

1-03.7 Judicial Review
(November 30, 2018 APWA GSP)

Revise this section to read:

Any decision 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

(December 10, 2020 APWA GSP)

Revise the second paragraph to read:

Any inconsistency in the parts of the contract shall be resolved by following this order of precedence (e.g., 1 presiding over 2, 2 over 3, 3 over 4, and so forth):

1. Addenda,
2. Proposal Form,
3. Special Provisions,
4. Contract Plans,
5. Standard Specifications,
6. Contracting Agency's Standard Plans or Details (if any), and
7. WSDOT Standard Plans for Road, Bridge, and Municipal Construction.

1-04.4 Changes

1-04.4(1) Minor Changes

(May 30, 2019 APWA GSP)

Delete the first paragraph and replace it with the following:

Payments or credits for changes amounting to *** $10,000 *** or less may be made under the Bid item "Minor Change". At the discretion of the Contracting Agency, this procedure for Minor Changes may be used in lieu of the more formal procedure as outlined in Section 1-04.4, Changes. All "Minor Change" work will be within the scope of the Contract Work and will not change Contract Time.

1-05 CONTROL OF WORK

1-05.4 Conformity With and Deviations from Plans and Stakes

(January 13, 2021)

Section 1-05.4 is supplemented with the following:

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.

(April 2, 2018)

Contractor Surveying – ADA Features

ADA Feature Staking Requirements

The Contractor shall be responsible for setting, maintaining, and resetting all alignment stakes, and grades necessary for the construction of the ADA features. Calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's

responsibility. The Contractor shall build the ADA features within the specifications in the Standard Plans and contract documents.

ADA Feature As-Built Measurements
The Contractor shall be responsible for providing electronic As-Built records of all ADA feature improvements completed in the Contract.

The survey work shall include but not be limited to completing the measurements, recording the required measurements and completing other data fill-ins found on the ADA Measurement Forms, and transmitting the electronic Forms to the Engineer. The ADA Measurement Forms are found at the following website location:

http://www.wsdot.wa.gov/Design/ADAGuidance.htm

In the instance where an ADA Feature does not meet accessibility requirements, all work to replace non-conforming work and then to measure, record the as-built measurements, and transmit the electronic Forms to the Engineer shall be completed at no additional cost to the Contracting Agency, as ordered by the Engineer.

Payment
Payment will be made for the following bid item that is included in the Proposal:

"ADA Features Surveying", lump sum.

The unit Contract price per lump sum for "ADA Features Surveying" shall be full pay for all the Work as specified.

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.

1-05.9 Equipment
(January 1, 2016 COK GSP)

The following new paragraph is inserted between the second and third paragraphs:

Use of equipment with metal tracks will not be permitted on concrete or asphalt surfaces unless otherwise authorized by the Engineer.

1-05.11 Final Inspection
(October 1, 2005 APWA GSP)

Delete this section and replace it with the following:

1-05.11 Final Inspections and Operational Testing

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.

1-05.12 Final Acceptance

Add the following new section:

1-05.12(1) One-Year Guarantee Period **New Section**
(March 8, 2013 APWA GSP)

The Contractor shall return to the project and repair or replace all defects in workmanship and material discovered within one year after Final Acceptance of the Work. The Contractor shall start work to remedy any such defects within 7 calendar days of receiving Contracting Agency's written notice of a defect and shall complete such work within the time stated in the Contracting Agency's notice. In case of an emergency, where damage may result from delay or where loss of services may result, such corrections may be made by the Contracting Agency's own forces or another contractor, in which case the cost of corrections shall be paid by the Contractor. In the event the Contractor does not accomplish corrections within the time specified, the work will be otherwise accomplished and the cost of same shall be paid by the Contractor.

When corrections of defects are made, the Contractor shall then be responsible for correcting all defects in workmanship and materials in the corrected work for one year after acceptance of the corrections by Contracting Agency.

This guarantee is supplemental to and does not limit or affect the requirements that the Contractor's work comply with the requirements of the Contract or any other legal rights or remedies of the Contracting Agency.

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

Delete the sixth and seventh paragraph of this section.

1-05.14 Cooperation With Other Contractors
(******)

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:

One private developer within the project limits is upgrading a gas station on the northwest corner of 116th Avenue NE/NE 124th Street. The developer will be constructing site improvements within their parcel. The Contractor shall coordinate the work with the site development contractor and subcontractors. All costs associated with coordination and cooperation shall be considered incidental and shall not be grounds for additional payment or claims of any kind.

Puget Sound Energy is installing transmission lines west of the project limits. The Contractor shall coordinate the work with Puget Sound Energy's contractor and subcontractors. All costs associated with coordination and cooperation shall be considered incidental and shall not be grounds for additional payment or claims of any kind.

The Contractor shall coordinate the work with other Contractors and utility companies, which also have facilities in the project area which are to be relocated or adjusted to grade. All costs associated with coordination and cooperation with other contractors shall be considered incidental and shall not be grounds for additional payment or claims of any kind.

Contractor shall be responsible for coordinating directly with affected utilities responsible for utility work or adjustments. Contractor shall coordinate all required relocations such that no delay in work occurs. Delay caused by failure to schedule between the Contractor and utilities shall not be just cause for a claim, dispute, or suspension. At a minimum coordination shall include:

- Providing each utility with an overall project schedule showing the private utility work.
- Providing each utility with a three week look ahead showing any private utility work required that could impact the Critical Path of the project schedule.

All phone conversations and emails between the Contractor and utilities in regard to schedules and coordination shall be documented on a record of communication and provided to the Owner.

All costs associated with coordination and cooperation with other contractors as required by these contract documents shall be incidental and included within the unit Bid prices provided in the Contract Proposal.

1-05.15 Method of Serving Notices
(March 25, 2009 APWA GSP)

Revise the second paragraph to read:

All correspondence from the Contractor shall be directed to the Project Engineer. <u>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</u>.

Add the following new section:

1-05.16 Water and Power **New Section**
(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:

1-05.17 Record Drawings **New Section**
(******)

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.

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 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 $ *** 1,000 ***)	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.

1-06 CONTROL OF MATERIAL

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
(******)

Section 1-07.1 is supplemented with the following:

The Contractor shall at all times eliminate noise to the maximum practicable extent. Air compressing plants shall be equipped with silencers, and the exhaust of all gasoline motors or other power equipment shall be provided with mufflers. Special care shall be used to avoid noise or other nuisances, and the Contractor shall strictly observe all federal, state, and local regulations concerning noise.

The Contractor shall make an effort to reduce carbon emissions by turning off engines on construction equipment not in active use, and on trucks that are idling while waiting to load or unload material for five minutes or more.

(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.

(January 1, 2016 COK GSP)

Contractor's Safety Responsibilities

These construction documents and the joint and several phases of construction hereby contemplated are to be governed at all times by applicable provisions of the federal law(s), including but not limited to the latest amendments of the following:

Williams-Steiger Occupational Safety and Health Act of 1980, Public Law 91-596.

Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.

This project, the Contractor and its subcontractors, shall, at all times, be governed by Chapter XIII of Title 29, Code of Federal Regulations, Part 1518 - Safety and Health Regulations for Construction (35 CFR 75), as amended to date.

To implement the program, and to provide safe and healthful working conditions for all persons, the construction superintendent or his/her designated safety officer shall conduct general project safety meetings at the site at least once each month during the course of construction.

The prime contractor and all subcontractors shall immediately report all accidents, injuries, and health hazards to the Manager, in writing. This shall not obviate any mandatory reporting under the provisions of the Occupational Safety and Health Act of 1970. This program shall become a part of the contract documents and the contract between the Owner and the Contractor, and all subcontractors, as though fully written therein.

Where the location of the work is in proximity to overhead wires and power lines, the Contractor shall coordinate all work with the utility and shall provide for such measures as may be necessary for the protection of the workers.

1-07.2 State Taxes
(June 27, 2011 APWA GSP)

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

1-07.2 State Sales Tax

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).

1-07.4 Sanitation

1-07.4(2) Health Hazards
(******)

Section 1-07.4(2) is supplemented with the following:

COVID-19 Health and Safety Plan (CHSP)
The Contractor shall prepare a project specific COVID-19 health and safety plan (CHSP). The CHSP shall be prepared and submitted as a Type 2 Working Drawing prior to beginning physical Work. The CHSP shall be based on the most current State and Federal requirements. If the State or Federal requirements are revised, the CHSP shall be updated as necessary to conform to the current requirements.

The Contractor shall update and resubmit the CHSP as the work progresses and new activities appear on the look ahead schedule required under Section 1-08.3(2)D. If the conditions change on the project, or a particular activity, the Contractor shall update and resubmit the CHSP. Work on any activity shall cease if conditions prevent full compliance with the CHSP.

The CHSP shall address the health and safety of all people associated with the project including State workers in the field, Contractor personnel, consultants, project staff, subcontractors, suppliers and anyone on the project site, staging areas, or yards.

COVID-19 Health and Safety Plan (CHSP) Inspection
The Contractor shall grant full and unrestricted access to the Engineer for CHSP Inspections. The Engineer (or designee) will conduct periodic compliance inspections on the project site, staging areas, or yards to verify that any ongoing work activity is following the CHSP plan. If the Engineer becomes aware of a noncompliance incident either through a site inspection or other means, the Contractor will be notified immediately (within 1 hour). The Contractor shall immediately remedy the noncompliance incident or suspend all or part of the associated work activity. The Contractor shall satisfy the Engineer that the noncompliance incident has been corrected before the suspension will end.

All materials and equipment needed to generate and implement the plan are considered incidental to other bid items, such as but not limited to, site supervisor to implement the plan, worker daily temp checks, providing project team with masks, and providing handwashing stations.

Add the following new section:

1-07.4(3) Measurement **New Section**
(******)

No specific unit of measurement for “COVID-19 Health and Safety Plan” will apply, but measurement will be for the sum total of all work and material required to complete the work described under Section 1-07.4(2) as supplemented in these specifications.

Add the following new section:

1-07.4(4) Payment **New Section**
(******)

Payment will be made for each of the following Bid items that are included in the Proposal:

"COVID-19 Health and Safety Plan", lump sum.

The lump sum Contract price for "COVID-19 Health and Safety Plan" includes all elements to prepare and update the COVID-19 Health and Safety Plan.

1-07.7 Load Limits
(March 13, 1995)

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

1-07.9 Wages

1-07.9(5) Required Documents
(January 3, 2020 APWA GSP, Option A)

Delete this section and replace it with the following:

General
All "Statements of Intent to Pay Prevailing Wages", "Affidavits of Wages Paid" and Certified Payrolls, including a signed Statement of Compliance for Federal-aid projects, shall be submitted to the Engineer and the State L&I online Prevailing Wage Intent & Affidavit (PWIA) system.

Intents and Affidavits
On forms provided by the Industrial Statistician of State L&I, the Contractor shall submit to the Engineer the following for themselves and for each firm covered under RCW 39.12 that will or has provided Work and materials for the Contract:

1. The approved "Statement of Intent to Pay Prevailing Wages" State L&I's form number F700-029-000. The Contracting Agency will make no payment under this Contract until this statement has been approved by State L&I and reviewed by the Engineer.

2. The approved "Affidavit of Prevailing Wages Paid", State L&I's form number F700-007-000. The Contracting Agency will not grant Completion until all approved Affidavit of Wages paid for the Contractor and all Subcontractors have been received by the Engineer. The Contracting Agency will not release to the Contractor any funds retained under RCW 60.28.011 until "Affidavit of Prevailing Wages Paid" forms have been approved by State L&I and all of the approved forms have been submitted to the Engineer for every firm that worked on the Contract.

The Contractor is responsible for requesting these forms from State L&I and for paying any fees required by State L&I.

Certified Payrolls
Certified payrolls are required to be submitted by the Contractor for themselves, all Subcontractors and all lower tier subcontractors. The payrolls shall be submitted weekly on all Federal-aid projects and no less than monthly on State funded projects.

Penalties for Noncompliance
The Contractor is advised, if these payrolls are not supplied within the prescribed deadlines, any or all payments may be withheld until compliance is achieved. In addition, failure to provide these payrolls may result in other sanctions as provided by State laws (RCW 39.12.050) and/or Federal regulations (29 CFR 5.12).

1-07.13 Contractor's Responsibility for Work

1-07.13(4) Repair of Damage
(August 6, 2001)

Section 1-07.13(4) is revised to read:

The Contractor shall promptly repair all damage to either temporary or permanent work as directed by the Engineer. For damage qualifying for relief under Sections 1-07.13(1), 1-07.13(2) or 1-07.13(3), payment will be made in accordance with Section 1-04.4. Payment will be limited to repair of damaged work only. No payment will be made for delay or disruption of work.

1-07.15 Temporary Water Pollution/Erosion Control

1-07.15(1) Spill Prevention, Control, and Countermeasures Plan
(January 10, 2019 COK GSP)

Add the following as the second paragraph of this section:

In the event the Contractor uses an SPCC Plan template that either follows the WSDOT SPCC Plan Template or contains the same or similar content and/or format, the following changes shall be required:

1. Replace all references to “WSDOT” as either the Contracting Agency or project owner with “City of Kirkland”, except where indicated in this Section.
2. Add into all Spill Reporting and related section(s): “The City of Kirkland Spill Response Hotline at (425) 587-3900 shall be the first point of contact in the event of a spill. Notification to the City of Kirkland Spill Response Hotline shall precede the spill notifications to federal and state agencies.”
3. Delete all references to the “WSDOT Environmental Compliance Assurance Procedure” (ECAP) in the SPCC.

Supplement the following referenced SPCC Plan Element Requirements in this Section as follows:

2. Add: “The City of Kirkland Spill Response Hotline at (425) 587-3900 shall be the first point of contact in the event of a spill.”

8. Add: “As part of Contractor spill response procedure, the Contractor shall contact the City of Kirkland Spill Response Hotline at (425) 587-3900 to report the spill regardless of whether or not the Contractor has fully contained, controlled, and/or cleaned up the spill.”

1-07.16 Protection and Restoration of Property

1-07.16(1) Private/Public Property
(January 1, 2016 COK GSP)

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

The Contractor shall not use private property for construction staging nor parking any vehicles without the written consent of the property owner. The Contractor shall submit written consent to the City prior to

occupation of private property. Contractor shall remove and restore private property within 48 hours of notification by the Engineer. Contractor is responsible for any costs incurred outside of the approved work area. Road right-of-way including easements may not be used for construction staging unless prior approval from the City has been granted.

1-07.16(2) Vegetation Protection and Restoration
(August 2, 2010)

Section 1-07.16(2) is supplemented with the following:

Vegetation and soil protection zones for trees shall extend out from the trunk to a distance of 1 foot radius for each inch of trunk diameter at breast height.

Vegetation and soil protection zones for shrubs shall extend out from the stems at ground level to twice the radius of the shrub.

Vegetation and soil protection zones for herbaceous vegetation shall extend to encompass the diameter of the plant as measured from the outer edge of the plant.

1-07.16(3) Fences, Mailboxes, Incidentals
(******)

Section 1-07.16(3) is supplemented with the following:

U.S. Postal Service Collection Boxes, Mail Receptacles, and other Structures: U.S. Postal Service collection box and other Structures requiring temporary relocation to accommodate construction, the Contractor shall contact the Kirkland Postmaster at least 5 Working Days in advance for coordination. Only the U.S. Post Office will move Postal Service-owned property.

1-07.16(4) Archeological and Historical Objects
(******)

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

A copy of the Inadvertent Discovery Plan is provided in Appendix E. The Contractor shall keep a copy of the inadvertent discovery plan for the project on the work site at all times. The contractor shall immediately stop all work if human remains, cultural, or archeological resources are discovered in the course of construction. The Contractor shall follow the inadvertent discovery plan in dealing with the human remains, cultural, or archeological resources.

1-07.17 Utilities and Similar Facilities
(******)

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.

Public and private utilities, or their Contractors, will furnish all work necessary to adjust their facilities unless otherwise provided for in the Plans or these Special Provisions. Such adjustment will be done during the prosecution of the work for this project. It is anticipated that utility adjustment within the project limits will be completed as follows:

Contractor shall coordinate with utility companies for all utilities as shown in the plans that will adjusted to grade. Contractor shall schedule this work during the prosecution of the work.

The Contractor shall attend a mandatory utility preconstruction meeting with the Engineer, all affected Subcontractors, and all utility owners and their Contractors prior to beginning onsite work.

The following addresses and telephone numbers of utility companies or their Contractors that will be adjusting, relocating, replacing or constructing utilities within the project limits are supplied for the Contractor's use:

Utility	Agency/Company	Address	Contact	Phone
Water/Sewer	City of Kirkland	123 Fifth Avenue Kirkland, WA 98033	Josh Pantzke	(425) 587-3900
Storm Drainage	City of Kirkland	123 Fifth Avenue Kirkland, WA 98033	Josh Pantzke	(425) 587-3900
Water/Sewer (North area of Kirkland)	Northshore Utility District	6380 NE 185th St Kenmore, WA 98028	Dave Kaiser	(425) 521-3726
Street	City of Kirkland	123 Fifth Avenue Kirkland, WA 98033	Nathen Hower	(425) 587-3900
Natural Gas	Puget Sound Energy	P.O. Box 97034 EST-11W Bellevue, WA 98009-9734	Patty Miller	(206) 305-7950
Electric	Puget Sound Energy	13230 SE 32nd St Bellevue, WA 98005	Fremont Aguinaldo	
Telephone/FIOS	Ziply (formerly Frontier Communications)	PO Box 1003 Everett, WA 98206	Mike Hupf	(360) 302-0095
Cable Television	Comcast	1525 - 75th St SW, Suite 200 Everett, WA 98203	Joe Fordon Raymond Pilkenton	(425) 263-5348 (425) 263-5332
Network	Verizon/MCI	11311 NE 120th St Kirkland, WA 98034	Brad Landis Scott Christenson	(425) 201-0901 (425) 471-1079
School District Transportation	Lake Washington School District	15212 NE 95th St Redmond, WA 98052	Jeff Miles	(425) 936-1120
Transit	King County METRO	MS SVQ-TR-0100 1270 6th Ave S Seattle, WA 98134	David Freeman	(206) 477-1140 (206) 477-0438
Water (Northeast area of Kirkland)	Woodinville Water District	17238 NE Woodinville Duvall Road Woodinville, WA 98072	Ken McDowell	(425) 487-4104
Olympic Pipeline	BP		Kenneth Metcalf Joseph Stone	(425) 981-2575 (425) 981-2506

It shall be the Contractor’s responsibility to coordinate with all utility companies. If the Contractor is adjusting utility company’s facilities where shown in the plans the Contractor shall notify the affected Utility Company prior to doing the work and shall notify the Engineer in advance of any conflicts affecting the

work schedule. The utility companies shall witness or perform all shutdowns, connections or disconnections.

Note that most utility companies may be contacted for locations through the "One Call" system, 1-800-424-5555. In the event of a gas emergency, call 911 and then the PSE hotline at 1-888-225-5773 (1-888-CALL-PSE).

Wherever in the course of the construction operation it becomes necessary to cause an outage of utilities, it shall be the Contractor's responsibility to notify the affected users not less than twenty-four (24) hours in advance of the creation of such outage. The Contractor shall make reasonable effort to minimize the duration of outages.

The Contractor shall be responsible for any breakage of utilities or services resulting from its operations and shall hold the City and its agents harmless from any claims resulting from disruption of, or damage to, same.

Other Notifications

Entry onto Private Property: Each property owner shall be given two working days advance Written Notice prior to entry by the Contractor.

Loop Detection Systems: Where an excavation is to take place through a signal loop detector system, the Contractor shall provide at least five (5) Working Days advance notice to the City Signal Shop at (425) 587-3920 to coordinate temporary signal wire disconnect and installation of temporary signal detection equipment.

Survey Monuments: When proposed pavement removal is close to existing survey monumentation, or proposed pavement removal includes existing survey monumentation, the Contractor shall provide a minimum 4 Working Days advance notice to the Engineer to allow survey crews to tie the monument out and reset the monument after pavement installation.

Add the following new section:

1-07.17(3) Interruption of Service **New Section**
(******)

Whenever in the course of the construction operation it becomes necessary to cause an outage of utilities, it shall be Contractor's responsibility to coordinate with the utility company to minimize outages and provide a notice of outages a minimum of 72 hours prior to the outage. Contractor shall make reasonable effort to minimize the duration of outages, and shall estimate the length of time service will be interrupted and so notify the users. In the case of any utility outage that has exceeded or will exceed four hours, user contact shall again be made.

Locations and dimensions for existing buried facilities are not shown in the plans and it is the Contractor's responsibility to locate these utilities prior to any excavation work.

1-07.18 Public Liability and Property Damage Insurance
(January 4, 2016 APWA GSP)

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

1-07.18 Insurance

1-07.18(1) General Requirements

A. The Contractor shall procure and maintain the insurance described in all subsections of section 1-07.18 of these Special Provisions, from insurers with a current A. M. Best rating of not

less than A: VII and licensed to do business in the State of Washington. The Contracting Agency reserves the right to approve or reject the insurance provided, based on the insurer's financial condition.

B. The Contractor shall keep this insurance in force without interruption from the commencement of the Contractor's Work through the term of the Contract and for thirty (30) days after the Physical Completion date, unless otherwise indicated below.

C. If any insurance policy is written on a claims made form, its retroactive date, and that of all subsequent renewals, shall be no later than the effective date of this Contract. The policy shall state that coverage is claims made, and state the retroactive date. Claims-made form coverage shall be maintained by the Contractor for a minimum of 36 months following the Completion Date or earlier termination of this Contract, and the Contractor shall annually provide the Contracting Agency with proof of renewal. If renewal of the claims made form of coverage becomes unavailable, or economically prohibitive, the Contractor shall purchase an extended reporting period ("tail") or execute another form of guarantee acceptable to the Contracting Agency to assure financial responsibility for liability for services performed.

D. The Contractor's Automobile Liability, Commercial General Liability and Excess or Umbrella Liability insurance policies shall be primary and non-contributory insurance as respects the Contracting Agency's insurance, self-insurance, or self-insured pool coverage. Any insurance, self-insurance, or self-insured pool coverage maintained by the Contracting Agency shall be excess of the Contractor's insurance and shall not contribute with it.

E. The Contractor shall provide the Contracting Agency and all additional insureds with written notice of any policy cancellation, within two business days of their receipt of such notice.

F. The Contractor shall not begin work under the Contract until the required insurance has been obtained and approved by the Contracting Agency

G. Failure on the part of the Contractor to maintain the insurance as required shall constitute a material breach of contract, upon which the Contracting Agency may, after giving five business days' notice to the Contractor to correct the breach, immediately terminate the Contract or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith, with any sums so expended to be repaid to the Contracting Agency on demand, or at the sole discretion of the Contracting Agency, offset against funds due the Contractor from the Contracting Agency.

H. All costs for insurance shall be incidental to and included in the unit or lump sum prices of the Contract and no additional payment will be made.

1-07.18(2) Additional Insured

All insurance policies, with the exception of Workers Compensation, and of Professional Liability and Builder's Risk (if required by this Contract) shall name the following listed entities as additional insured(s) using the forms or endorsements required herein:

- the Contracting Agency and its officers, elected officials, employees, agents, and volunteers

The above-listed entities shall be additional insured(s) for the full available limits of liability maintained by the Contractor, irrespective of whether such limits maintained by the Contractor are greater than those required by this Contract, and irrespective of whether the Certificate of Insurance provided by the Contractor pursuant to 1-07.18(4) describes limits lower than those maintained by the Contractor.

For Commercial General Liability insurance coverage, the required additional insured endorsements shall be at least as broad as ISO forms CG 20 10 10 01 for ongoing operations and CG 20 37 10 01 for completed operations.

1-07.18(3) Subcontractors

The Contractor shall cause each Subcontractor of every tier to provide insurance coverage that complies with all applicable requirements of the Contractor-provided insurance as set forth herein, except the Contractor shall have sole responsibility for determining the limits of coverage required to be obtained by Subcontractors.

The Contractor shall ensure that all Subcontractors of every tier add all entities listed in 1-07.18(2) as additional insureds, and provide proof of such on the policies as required by that section as detailed in 1-07.18(2) using an endorsement as least as broad as ISO CG 20 10 10 01 for ongoing operations and CG 20 37 10 01 for completed operations.

Upon request by the Contracting Agency, the Contractor shall forward to the Contracting Agency evidence of insurance and copies of the additional insured endorsements of each Subcontractor of every tier as required in 1-07.18(4) Verification of Coverage.

1-07.18(4) Verification of Coverage

The Contractor shall deliver to the Contracting Agency a Certificate(s) of Insurance and endorsements for each policy of insurance meeting the requirements set forth herein when the Contractor delivers the signed Contract for the work. Failure of Contracting Agency to demand such verification of coverage with these insurance requirements or failure of Contracting Agency to identify a deficiency from the insurance documentation provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

Verification of coverage shall include:

1. An ACORD certificate or a form determined by the Contracting Agency to be equivalent.
2. Copies of all endorsements naming Contracting Agency and all other entities listed in 1-07.18(2) as additional insured(s), showing the policy number. The Contractor may submit a copy of any blanket additional insured clause from its policies instead of a separate endorsement.
3. Any other amendatory endorsements to show the coverage required herein.
4. A notation of coverage enhancements on the Certificate of Insurance shall <u>not</u> satisfy these requirements – actual endorsements must be submitted.

Upon request by the Contracting Agency, the Contractor shall forward to the Contracting Agency a full and certified copy of the insurance policy(s). If Builders Risk insurance is required on this Project, a full and certified copy of that policy is required when the Contractor delivers the signed Contract for the work.

1-07.18(5) Coverages and Limits

The insurance shall provide the minimum coverages and limits set forth below. Contractor's maintenance of insurance, its scope of coverage, and limits as required herein shall not be construed to limit the liability of the Contractor to the coverage provided by such insurance, or otherwise limit the Contracting Agency's recourse to any remedy available at law or in equity.

All deductibles and self-insured retentions must be disclosed and are subject to approval by the Contracting Agency. The cost of any claim payments falling within the deductible or self-insured retention shall be the responsibility of the Contractor. In the event an additional insured incurs a liability subject to any policy's deductibles or self-insured retention, said deductibles or self-insured retention shall be the responsibility of the Contractor.

1-07.18(5)A Commercial General Liability

Commercial General Liability insurance shall be written on coverage forms at least as broad as ISO occurrence form CG 00 01, including but not limited to liability arising from premises, operations, stop gap liability, independent contractors, products-completed operations, personal and advertising injury, and

liability assumed under an insured contract. There shall be no exclusion for liability arising from explosion, collapse or underground property damage.

The Commercial General Liability insurance shall be endorsed to provide a per project general aggregate limit, using ISO form CG 25 03 05 09 or an equivalent endorsement.

Contractor shall maintain Commercial General Liability Insurance arising out of the Contractor's completed operations for at least three years following Substantial Completion of the Work.

Such policy must provide the following minimum limits:

$1,000,000	Each Occurrence
$2,000,000	General Aggregate
$2,000,000	Products & Completed Operations Aggregate
$1,000,000	Personal & Advertising Injury each offence
$1,000,000	Stop Gap / Employers' Liability each accident

1-07.18(5)B Automobile Liability

Automobile Liability shall cover owned, non-owned, hired, and leased vehicles; and shall be written on a coverage form at least as broad as ISO form CA 00 01. If the work involves the transport of pollutants, the automobile liability policy shall include MCS 90 and CA 99 48 endorsements.

Such policy must provide the following minimum limit:

$1,000,000	Combined single limit each accident

1-07.18(5)C Workers' Compensation

The Contractor shall comply with Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington.

1-07.23 Public Convenience and Safety

1-07.23(1) Construction Under Traffic *(******)*

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

Work Zone Clear Zone

The Work Zone Clear Zone (WZCZ) applies during working and nonworking hours. The WZCZ applies only to temporary roadside objects introduced by the Contractor's operations and does not apply to preexisting conditions or permanent Work. Those work operations that are actively in progress shall be in accordance with adopted and approved Traffic Control Plans, and other contract requirements.

During nonworking hours equipment or materials shall not be within the WZCZ unless they are protected by permanent guardrail or temporary concrete barrier. The use of temporary concrete barrier shall be permitted only if the Engineer approves the installation and location.

During actual hours of work, unless protected as described above, only materials absolutely necessary to construction shall be within the WZCZ and only construction vehicles absolutely necessary to construction shall be allowed within the WZCZ or allowed to stop or park on the shoulder of the roadway.

The Contractor's nonessential vehicles and employees private vehicles shall not be permitted to park within the WZCZ at any time unless protected as described above.

Deviation from the above requirements shall not occur unless the Contractor has requested the deviation in writing and the Engineer has provided written approval.

Minimum WZCZ distances are measured from the edge of traveled way and will be determined as follows:

Regulatory Posted Speed	Distance From Traveled Way (Feet)
35 mph or less	10
40 mph	15
45 to 50 mph	20
55 to 60 mph	30
65 mph or greater	35

Minimum Work Zone Clear Zone Distance

(******)

Lane closures are subject to the following restrictions:

- Contact WSDOT NW Region Radio 5 minutes prior to start of all closures and again after reopening at (206) 440-4490.

- Email Juan Reyes (WSDOT Traffic) 5 working days prior to work at reyesj@wsdot.wa.gov. Attach the approved traffic control plan that will be used.

- Local Access must be maintained at all times except during asphalt curing periods. Contractor shall give residents 5 working days' notice prior to limiting access to their property. The notice shall give the day and time frame (not to exceed 8 hours) that there will be no access to their property to allow the asphalt to cure. The notice shall be hand delivered or overnighted to each resident 5 working days prior to the closure.

- The drive through for the Starbucks property shall remain fully operational at all times. Should the Contractor require closure of a portion of the drive through that runs parallel to the proposed pathway, the Contractor shall provide a temporary exit to 116th Avenue NE at approximate Station 13+50. All work within the Starbucks Temporary Construction Easement and Driveway Reconstruction Permit shall be limited to the hours of 10 pm and 3:30 am. Temporary Construction Easement and Driveway Reconstruction Permit documents are available upon request.

- Contractor shall return all lanes to normal operations at the end of each working day or provide temporary pavement markings and/or signal detection along with traffic control devices. Tape may be used for temporary pavement markings for a maximum of 1 week. If temporary pavement markings are required longer than 1 week then raised pavement markers shall be used.

- Contractor will be allowed to limit traffic to alternating traffic direction (One lane closure) during nighttime work hours as follows with prior notification to the Engineer:

    - 8:00 pm to 5:00 am Sunday through Thursday

- Contractor will not be allowed to work days without prior approval from the Engineer.

- Contractor shall install a portable message sign on each end of the project as follows:

    - 5 working days prior to limiting access to property owners/paving operations. The message shall give the date and time of the occurrence.
    - During the closure the message shall state "Expect delays from ___Street to ___Street."

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.

Lane closures are not allowed on any of the following:

1. A holiday,
2. 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.
3. After 12:00 noon on the day prior to a holiday or holiday weekend, and
4. Before 12:00 noon on the day after the holiday or holiday weekend.

Accessibility to existing or temporary pedestrian push buttons shall not be impaired; if approved by the Contracting Agency activating pedestrian recall timing or other accommodation may be allowed during construction.

Holiday and Event Restrictions
Unless specified in these Special Provisions, no lane, ramp or shoulder closures will be allowed on a holiday or holiday weekend, or after 12:00 p.m. (noon) on a day prior to a holiday or holiday weekend. Holidays that occur on Friday, Saturday, Sunday or Monday are considered a holiday weekend. No lane, road or sidewalk closures will be allowed from midnight through noon the day following a holiday or holiday weekend except as specified in these Special Provisions.

The last paragraph of Section 1-07.23(1) is revised to read:

(******)

The Contractor shall conduct all operations to minimize any drop-offs (abrupt changes in roadway elevation) left exposed to traffic during nonworking hours. Unless otherwise specified in the Traffic Control Plan, drop-offs left exposed to traffic during nonworking hours shall be protected as follows with an accepted traffic control plan submittal in accordance with Section 1-10.2(2):

1. Drop-offs up to 0.20 foot, unless otherwise ordered by the Engineer, may remain exposed with appropriate warning signs alerting motorists of the condition.

2. Drop-offs more than 0.20 foot that are in the Traveled Way or Auxiliary Lane will not be allowed unless protected with appropriate warning signs and further protected as indicated in 3b or 3c below.

3. Drop-offs more than 0.20 foot, but no more than 0.50 foot, that are not within the Traveled Way shall be protected with appropriate warning signs and further protected by having one of the following:

    a. A wedge of compacted stable material placed at a slope of 4:1 or flatter.

    b. Channelizing devices (Type I barricades, plastic safety drums, or other devices 36 inches or more in height) placed along the traffic side of the drop-off and a new edge of pavement stripes placed a minimum of 3 feet from the drop-off. The maximum spacing between the devices in feet shall be the posted speed in miles per hour. Pavement drop-off warning signs shall be placed in advance and throughout the drop-off treatment.

    c. A temporary concrete barrier, temporary steel barrier, or other approved traffic barrier installed on the traffic side of a drop-off with a new edge line placed a minimum of 2-feet from the traffic face of the barrier. The barrier shall have a lateral offset from the edge of the drop-off to the back of the barrier as follows:

        i. A minimum offset of 3-feet for temporary Type F or Type 2 concrete barrier when not anchored.

ii. A minimum offset of 1-foot for temporary Type F or Type 2 concrete barrier when anchored on hot mix asphalt pavement as shown on WSDOT Standard Plans C-60.10 or K-80.35.

iii. A minimum offset of 1-foot for temporary Type F concrete barrier when anchored on cement concrete pavement as shown on WSDOT Standard Plan C-60.10.

iv. A minimum offset of 9-inches for temporary Type F or Type 2 concrete barrier when anchored on cement concrete pavement and/or concrete bridge decks as shown on WSDOT Standard Plan K-80.35.

v. A minimum offset of 6-inches or 9-inches for temporary Type F or Type 2 narrow base concrete barrier when anchored on cement concrete pavement and concrete bridge decks as shown on WSDOT Standard Plan K-80.37.

vi. A minimum offset following manufacturer recommendations for temporary steel barrier when not anchored; or when anchored on hot mix asphalt pavement, cement concrete pavement, or concrete bridge decks.

vii. A minimum offset as directed by the Engineer for any barrier type or configuration not shown in this Section.

An approved terminal, flare, or impact attenuator is required at the approach end of the barrier run, and is required at the trailing end of a barrier run in two-way operations when shown in the plans or as directed by the Engineer.

4. Drop-offs more than 0.50 foot not within the Traveled Way or Auxiliary Lane shall be protected with appropriate warning signs and further protected as indicated in 3a, 3b, or 3c if all of the following conditions are met:

   a. The drop-off is less than 2 feet;

   b. The total length throughout the project is less than 1 mile;

   c. The drop-off does not remain for more than 3 working days;

   d. The drop-off is not present on any of the holidays listed in Section 1-08.5; and

   e. The drop-off is only on one side of the Roadway.

5. Drop-offs more than 0.50 foot that are not within the Traveled Way or Auxiliary Lane and are not otherwise covered by No. 4 above shall be protected with appropriate warning signs and further protected as indicated in 3a or 3c.

6. Open trenches within the Traveled Way or Auxiliary Lane shall have a steel-plate cover placed and anchored over them. A wedge of suitable material, if required, shall be placed for a smooth transition between the pavement and the steel plate. Warning signs shall be used to alert motorists of the presence of the steel plates.

1-07.24 Rights of Way
(July 23, 2015 APWA GSP)

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 given 48 hours notice prior to entry by the Contractor. This includes entry onto easements and private property where private improvements must be adjusted.

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 **New Section**
(May 25, 2006 APWA GSP)

Add the following new section:

1-08.0(1) Preconstruction Conference **New Section**
(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

Except in the event of an emergency, no work shall be done between the hours of 5:00 a.m. and 8:00 p.m., or weekends, or holidays observed by the City of Kirkland and identified in Section 1-08.5 of the Standard Specifications. If the proper and efficient prosecution of the work requires hours of operation more than 8 hours per day, or work weeks greater than 40 hours in duration, the written permission of the Owner shall be obtained before starting such items of the work and shall be in full compliance with terms therewith.

Except in the case of emergency or unless otherwise approved by the Contracting Agency, the normal straight time working hours for the contract shall be any consecutive 8-hour period between 8:00 p.m. and 5:00 a.m. Sunday night through Thursday night, of a working day with a maximum 1-hour lunch break and a 5-day work week. The normal straight time 8-hour working period for the contract shall be established at the preconstruction conference or prior to the Contractor commencing the work.

If a Contractor desires to perform work on holidays, or deviate from the established working hours, the Contractor shall apply in writing to the Engineer for permission to work such times. Permission to work longer than an 8-hour period between 8:00 p.m. and 5:00 a.m. is required. Such requests shall be submitted to the Engineer no later than noon on the working day prior to the day for which the Contractor is requesting permission to work.

Permission to work between the hours of 10:00 p.m. and 7:00 a.m. during weekdays and between the hours of 10:00 p.m. and 9:00 a.m. on weekends or holidays may also be subject to noise control requirements.

Permission to work Saturdays, Sundays before 8:00 p.m., holidays or other than the agreed upon normal straight time working hours Monday through Friday may be given subject to certain other conditions set forth by the Contracting Agency or Engineer. These conditions may include but are not limited to: requiring the Engineer or such assistants as the Engineer may deem necessary to be present during the work; requiring the Contractor to reimburse the Contracting Agency for the costs in excess of straight-time costs for Contracting Agency employees who worked during such times, on non-Federal aid projects; considering the work performed on Saturdays and holidays as working days with regards to the contract time; and 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. Assistants may include, but are not limited to, survey crews; personnel from the Contracting Agency's material testing lab; inspectors; and other Contracting Agency employees when in the opinion of the Engineer, such work necessitates their presence.

Refer to Section 1-07.23(1) for additional hours of work restrictions related to the Starbucks parcel.

Arterial Streets

No work will be performed on arterial streets during the peak traffic hours of 7:00 a.m. – 9:00 a.m. and 3:30 p.m. – 6:00 p.m., except emergency work to restore services, unless a City-approved traffic control plan allows work during the peak hours. The following streets are classified as arterials:

STREET	***FROM***	***TO***
Central Way/NE 85th St	Market St	132nd Ave NE
Juanita Dr NE /NE Juanita Dr	NE 143rd St (City Limits)	98th Ave NE
Juanita Woodinville Way	100th Ave NE	NE 145th St (City Limits)
Lake St/Lake Washington Blvd/ Northup Wy	Central Way	Northup Way (City Limits)
Kirkland Ave/Kirkland Way	Lake St	NE 85th St
Lakeview Dr /NE 68th St/NE 70th St	Lake Washington Blvd	132nd Ave NE
Market St/98th Ave NE/100th Ave NE	Central Way	NE 145th St (City Limits)
NE 116th St	98th Ave NE	Slater Ave NE
NE 120th St/132nd Ave NE	Slater Ave NE	NE 60th St (City Limits)
NE 124th St	100th Ave NE	East City Limits
NE 128th St	116th Ave NE/ 116th Way NE	120th Ave NE
Simonds Rd NE	92nd Ave NE (City Limits)	100th Ave NE
Slater Ave NE	NE 116th St	NE 124th St
Totem Lake Blvd	NE 132nd St	124th Ave NE
3rd Street/State Street	Central Way	NE 68th Street/ Lakeview Dr.
6th St/6th St S/108th Ave NE	Central Way/NE 85th St	South City Limits
90th Ave NE/NE 131st Way/NE 132nd St	NE 134th St	132nd Ave NE
120th Ave NE/116th Ave NE/ 116th Way NE	NE 112th St	NE 132nd St
124th Ave NE	NE 85th St	NE 124th St
124th Ave NE	NE 132nd St	NE 145th Pl (City Limits)

1-08.1 Subcontracting
(May 30, 2019 APWA GSP, Option B)

Delete the ninth paragraph, beginning with “On all projects, the Contractor shall certify…”.

1-08.3 Progress Schedule

1-08.3(2) Progress Schedule Types

1-08.3(2)A Type A Progress Schedule
(******)

Revise this section to read:

The Contractor shall submit *** 5 *** copies of a Type A Progress Schedule no later than 5 working days before the preconstruction conference, or some other mutually agreed upon submittal time. The schedule may be a critical path method (CPM) schedule, bar chart, or other standard schedule format. Regardless of which format used, the schedule shall identify the critical path. The Engineer will evaluate the Type A Progress Schedule and approve or return the schedule for corrections within 15 calendar days of receiving the submittal.

All work required by Franchise Utilities or other Contractors which affect the critical path shall be shown on the project schedule. For additional schedule requirements refer to Section 1-05.14 Cooperation with Other Contractors.

1-08.4 Prosecution of Work

Delete this section in its entirety, 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
(November 30, 2018 APWA GSP, Option B)

Revise the third and fourth paragraphs to read:

Contract time shall begin on the first working day after the Notice to Proceed date. If the Contractor starts work on the project at an earlier date, then contract time shall begin on the first working day when onsite work begins.

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 any partial or whole day the Engineer declares as unworkable. Within 10 calendar days after the date of each statement, the Contractor shall file a written protest of any alleged discrepancies in it. To be considered by the Engineer, the protest shall be in sufficient detail to enable the Engineer to ascertain the basis and amount of time disputed. By not filing such detailed protest in that period, 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

(January 1, 2016 COK GSP)

Section 1-08.5 is supplemented with the following:

This project shall be physically completed in its entirety within ***150*** working days.

1-08.6 Suspension of Work

Section 1-08.6 is supplemented with the following:

(January 2, 2018 WSDOT GSP, Option 2)
Contract time may be suspended for procurement of critical materials (Procurement Suspension). In order to receive a Procurement Suspension, the Contractor shall within 21 calendar days after execution by the Contracting Agency, place purchase orders for all materials deemed critical by the Contracting Agency for physical completion of the contract. The Contractor shall provide copies of purchase orders for the critical materials. Such purchase orders shall disclose the purchase order date and estimated delivery dates for such critical material.

The Contractor shall show procurement of the materials listed below as activities in the Progress Schedule. If the approved Progress Schedule indicates that the materials procurement are critical activities, and if the Contractor has provided documentation that purchase orders are placed for the critical materials within the prescribed 21 calendar days, then contract time will be suspended upon physical completion of all critical work except that work dependent upon the below listed critical materials:

*** Traffic Signal System ***

*** Illumination System ***

Charging of contract time will resume upon delivery of the critical materials to the Contractor or 120 calendar days after execution by the Contracting Agency, whichever occurs first.

1-08.9 Liquidated Damages
(******)

Revise the fourth paragraph to read:

When the Contract Work has progressed to Substantial Completion as defined in the Contract. The Engineer may determine that the 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
(July 23, 2015 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
(May 2, 2017 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
(October 10, 2008 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 Engineer.

1-09.7 Mobilization
(******)

Supplement this section with the following:

All temporary mobilization requirements described in this section and the standard specifications are intended to satisfy the requirements of both Bid Schedule A and Bid Schedule B work.

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

Delete the first four paragraphs and replace them with the following:

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.

The Contractor shall sign electronically using the software required by the Contracting Agency and return the Final Contract Voucher Certification (FCVC) as indicated in this section. Within 21 days of execution, the Contractor shall submit a Type 1 Working Drawing designating who will sign the FCVC, including their full name, email address, and text-message capable phone number. The designee shall be an authorized signer in accordance with Section 1-02.1.

1-09.11 Disputes and Claims

1-09.11(3) Time Limitation and Jurisdiction
(November 30, 2018 APWA GSP)

Revise this section to read*:*

For the convenience of the parties to the Contract it is mutually agreed by the parties that any 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 any 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 any such claims or causes of action. It is further mutually

agreed by the parties that when any 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 any records deemed necessary by the Contracting Agency to assist in evaluating the claims or action.

1-10 TEMPORARY TRAFFIC CONTROL

1-10.1 General
(******)

Section 1-10.1 is supplemented with the following:

All temporary traffic control requirements described in this section and the standard specifications are intended to satisfy the requirements of both Bid Schedule A and Bid Schedule B work.

1-10.2 Traffic Control Management

1-10.2(1) General

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

(September 7, 2021 WSDOT GSP Option 1)
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://altssa.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

1-10.3 Traffic Control Labor, Procedures, and Devices

1-10.3(1) Traffic Control Labor

1-10.3(1)B Other Traffic Control Labor
(******)

Section 1-10.3(1)B is supplemented with the following:

Off Duty Police
When construction activities include shutdown of the traffic signal and/or work being performed on the traffic signal elements, the Contractor shall provide an off-duty uniformed police officer to control the flow of traffic through the intersection. It is the Contractor's responsibility to coordinate the scheduling of the Uniformed Police Officer (UPO).

1-10.4 Measurement

1-10.4(2) Item Bids With Lump Sum for Incidentals
(May 16, 2006 COK GSP)

Section 1-10.4(2) is supplemented with the following:

"Off-duty Uniformed Police Officer" will be by measured per hour for each hour the off-duty uniformed police officer is performing work to control the flow of traffic through signalized intersections affected by Contractor work.

1-10.5 Payment

1-10.5(2) Item Bids With Lump Sum for Incidentals
(May 16, 2006 COK GSP)

Section 1-10.5(2) is supplemented with the following:

"Off-duty Uniformed Police Officer", per hour.

The unit contract price per hour for "Off-duty Uniformed Police Officer" shall be full pay for the work described herein. No additional compensation will be made for hours of work on holidays, weekends, or overtime.

1-10.5(3) Reinstating Unit Items With Lump Sum Traffic Control
(******)

Supplement this Section with the following:

"Off-duty Uniformed Police Officer", per hour.

The unit Contract price per hour for "Off-duty Uniformed Police Officer" shall be full pay for the work described herein. No additional compensation will be made for hours of work on holidays, weekends, or overtime.

The quantity for "Off-duty Uniformed Police Officer" is not subject to the provisions of Section 1-04.6 of the Standard Specifications.

END OF DIVISION 1

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DIVISION 2 – EARTHWORK

2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

2-01.1 Description
(March 13, 1995 WSDOT GSP Option 1)

Section 2-01.1 is supplemented with the following:

Clearing and grubbing on this project shall be performed within the following limits:

- Within the cut and fill limits shown in the Plans or as directed by the Engineer.

(******)

It is the Contractor's responsibility to visit the site prior to bidding the project. For clarity, not all, bushes and ground cover are shown on the plans. Payment for Clearing and Grubbing will include the removal of all trees regardless of size, stumps, bushes and landscape items per this section for all vegetation located within the limits stated herein or as shown on the plans and no additional compensation will be allowed.

2-01.2 Disposal of Usable Material and Debris

2-01.2(1) Disposal Method No. 1 – Open Burning
(******)

Section 2-01.2(1) is supplemented with the following:

Open burning will not be permitted on this project.

2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

2-02.3 Construction Requirements

2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters
(September 8, 1997 WSDOT GSP)

Section 2-02.3(3) is supplemented with the following:

The approximate thickness of the ***asphalt pavement*** is ***10 to 12 inches***.

(******)

Sawcutting
Where sawcutting is required, the sawcut shall be 3 inches deep, minimum in asphalt paved areas, regardless of pavement depth. Where the existing asphalt pavement is more than 3 inches thick, the portion below the top 3 inches may be broken after the sawcut is made. Sawcuts shall be cleaned by the use of high pressure water (1,400 psi or greater), or another method as accepted by the Engineer.

Sawcutting within existing concrete sidewalk, curb and gutter and driveways shall be full depth vertical sawcut between the portion to be removed and that to remain.

Care shall be taken to prevent damage to the existing pavement, curb and gutter, and sidewalk specified to remain. All damage to existing pavement, sidewalk, and curb and gutter specified to remain shall be repaired in accordance with Section 1-07.13.

The Contractor shall perform all sawcutting work, including all containment, collection and disposal of sawcutting debris and wastewater, in accordance with Section 1-07.5(3) and as supplemented in these Special Provisions.

Collection, Containment, and Disposal
Removal of residue and slurry from the immediate Roadway shall be done on a continuous basis. Residue and slurry shall not be allowed to drain across traffic lanes and shoulders or drain into any stormwater conveyance system, including catch basins, inlets, or ditches. Any discharge to surface waters, including wetlands, is a violation of State water quality standards.

The Contractor shall develop a Collection, Containment, and Disposal Plan identifying how the residue and slurry will be contained and collected. The residue and slurry shall become the property of the Contractor and shall be disposed of by hauling to a Contractor-provided disposal site.

The Contractor shall submit a Type 2 Working Drawing consisting of a Collection, Containment, and Disposal Plan, including, at a minimum, the following.
1. Collection, Containment, and Disposal Plan identifying all proposed methods to prevent discharges into the existing drainage systems.
2. Location of all off-site disposal sites, including copies of all applicable permits and approvals for the use of those sites.

Add the following new subsection:

(******)
2-02.3(4) Removal of Asbestos Cement Pipe **New Section**

Certified workers, certified supervisors, and work shall be in compliance with WAC 296-65-030, *"Safety Standards for Asbestos Removal and Encapsulation,"* its latest amendments, and latest edition of *"Recommended Standard Asbestos-Cement Pipe Work Practice Procedures and Training Requirements"* adopted and published by the Pacific Northwest Section of the American Water Works Association, and as approved by the Department of Labor and Industries.

2-02.4 Vacant

Section 2-02.4 is deleted in its entirety and replaced with the following:

(******)
2-02.4 Measurement

"Removing Cement Conc. Sidewalk" will be measured by the square yard. Removing sidewalk ADA ramps will be measured by the square yard and paid for under the bid item. Removing Cement Conc. Sidewalk".

"Removing Cement Conc. Curb and Gutter" will be measured by the linear foot.

"Removing Cement Conc. Curb" will be measured by the linear foot.

"Removing Asphalt Conc. Pavement" will be measured by the square yard.

"Removal of Storm Pipe" will be measured by the lineal foot of removal of pipe.

"Removal of Asbestos Cement Pipe" will be measured per linear foot measured horizontally along the centerline of the asbestos cement (AC) pipe removed and lawfully disposed of in an approved facility.

2-02.5 Payment
(******)

Section 2-02.5 is supplemented with the following:

"Removing Cement Conc. Sidewalk" per square yard. The unit contract price per square yard for "Removing Cement Conc. Sidewalk" shall be full pay for performing the work as specified and disposal of all debris.

"Removing Cement Conc. Curb and Gutter" and "Removing Cement Conc. Curb" per linear foot. The unit contract price per linear foot for "Removing Cement Conc. Curb and Gutter" and "Removing Cement Conc. Curb" shall be full pay for performing the work as specified and disposal of all debris.

"Removing Asphalt Conc. Pavement" per square yard shall be full pay for performing the work as specified and disposal of all debris.

"Removal of Storm Pipe" per linear foot shall be full pay for performing the work as specified and disposal of all debris.

"Removal of Asbestos Cement Pipe" per linear foot (LF) for Removal and Disposal of Existing AC Pipe shall be full compensation for all work, labor, materials, tools, equipment, and incidentals necessary to remove, load, haul, and lawfully handle and dispose of the existing AC pipe as required to accommodate installation of the new water main or reservoir as directed by the Owner/Engineer, and providing, placing, and compacting native material in its place. Payment shall also include all costs associated with proper cutting, handling, encapsulating, containerizing, transportation and disposal. Contractor shall notify the local air pollution control authority in accordance with WAC 173-400-075, and obtain all necessary permits and approvals at their sole expense.

2-03 ROADWAY EXCAVATION AND EMBANKMENT

2-03.3 Construction Requirements

2-03.3(7) Disposal of Surplus Material
(******)

Section 2-03.3(7) is supplemented with the following:

A waste site has not been provided by the Engineer for the disposal and/or storage of surplus materials and debris.

The Contractor shall haul all excess excavated material off site and dispose of it at a legal disposal site at the Contractor's expense without additional payment.

The Contractor shall provide the Engineer with copies of permits for disposal of surplus material and all forms included in the Bid Requirements section of this document within ten (10) calendar days after award of the contract. The Engineer will review the permit(s) and waste sites within fourteen (14) calendar days after receipt of the permits. The Contractor is responsible for obtaining all permits from the appropriate agency and to follow all applicable local policies and ordinances.

If the disposal and/or storage site is rejected by the Engineer, the Contractor is responsible for locating a new disposal or storage site that will meet the Contracting Agency's criteria. Any costs incurred by the Contractor to meet this Section shall be at the Contractor's expense and at no additional cost to the Contracting Agency.

No payment will be made for any related contract item until a site has been approved.

2-03.3(14) Embankment Construction

2-03.3(14)C Compacting Earth Embankments
(March 13, 1995 COK GSP)

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

All embankments, except waste embankments, shall be compacted using Method A.

Add the following new section:

(******)

2-03.3(20) Removal and Disposal of Hazardous Material **New Section**

Removal and Disposal of Hazardous Material
Hazardous material is suspected to exist on this project. Contaminated soils are anticipated along the Arco frontage and may be encountered during excavation for the pedestrian pathway and installation of a street light foundation and fire hydrant. The geotechnical report is available for review in Appendix D. The Contractor is responsible for all work, records, reports, permitting, and testing required to perform the work described in this section.

The Contractor shall notify the Engineer immediately if contamination is discovered in areas other than those identified here, or is suspected through observations such as an oily sheen or discolored soils that may or may not emit strong chemical odors.

Contaminated Soil and Hazardous Material
All material that is designated by the Engineer to be removed shall be handled and stored in a manner that prevents the spread of contamination to adjacent soil or water. Separate stockpiles shall be maintained for known hazardous or contaminated material and for suspected hazardous or contaminated material. The Contractor shall transport hazardous or contaminated material and dispose of it at a permitted facility. The Contractor shall provide the Engineer with a copy of the shipping manifest or bill of lading indicating the amount of material hauled to disposal, and bearing the disposal site operator's confirmation for receipt of the material.

Contaminated Water
All water that is removed from the areas of contamination, including free water that leeches from contaminated soil stockpiles or water that is suspected of being contaminated, shall be collected, handled and stored in a manner that prevents the spread of contamination to adjacent soil or water. The Contractor shall transport contaminated water and dispose of it at a permitted facility. The Contractor shall provide the Engineer with a copy of the shipping manifest or bill of lading indicating the amount of material hauled to disposal, and bearing the disposal site operator's confirmation for receipt of the material.

2-03.4 Measurement
(March 13, 1995 WSDOT GSP Option 2)

Section 2-03.4 is supplemented with the following:

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.

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.

Copies of the ground cross-section notes will be available for the bidder's inspection, before the opening of bids, at the Project Engineer's office and at the Region office.

Upon award of the contract, copies of the original ground cross-sections will be furnished to the successful bidder on request to the Project Engineer.

(******)

"Hazardous Material Excavation Incl. Haul" will be measured by the cubic yard and include all work, records, reports, permitting, and testing required to perform the work. All excavated material will be measured in the position it occupied before the excavation was performed. Measurement will be made by measuring tape for depth and area of removed contaminated soil.

2-03.5 Payment
(******)

Section 2-03.5 is supplemented with the following:

"Hazardous Material Excavation Incl. Haul", per cubic yard.

END OF DIVISION 2

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DIVISION 5 – SURFACE TREATMENTS AND PAVEMENTS

5-04 HOT MIX ASPHALT
(July 18, 2018 APWA GSP)

Delete Section 5-04 and amendments, 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	9-03.8(3)B
Mineral Filler	9-03.8(5)
Recycled Material	9-03.21
Portland Cement	9-01
Sand	9-03.1(2)
(As noted in 5-04.3(5)C for crack sealing)	
Joint Sealant	9-04.2
Foam Backer Rod	9-04.2(3)A

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. The RAP shall be sampled and tested at a frequency of one sample for every 1,000 tons produced and not less than ten samples per project. The asphalt content and gradation test data shall be reported to the Contracting Agency when submitting the mix design for approval on the QPL. The Contractor shall include the RAP as part of the mix design as defined in these Specifications.

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, 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 & sig-nature) 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;

- 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 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 Equivalent Single Axle Loads (ESAL's) 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 Material Transfer Device or Material Transfer Vehicle

A Material Transfer Device/Vehicle (MTD/V) shall only be used with the Engineer's approval, unless otherwise required by the contract.

Where an MTD/V is required by the contract, the Engineer may approve paving without an MTD/V, at the request of the Contractor. The Engineer will determine if an equitable adjustment in cost or time is due.

When used, the MTD/V shall mix the HMA after delivery by the hauling equipment and prior to laydown by the paving machine. Mixing of the HMA shall be sufficient to obtain a uniform temperature throughout the mixture. If a windrow elevator is used, the length of the windrow may be limited in urban areas or through intersections, at the discretion of the Engineer.

To be approved for use, an MTV:

1. Shall be self-propelled vehicle, separate from the hauling vehicle or paver.

2. Shall not be connected to the hauling vehicle or paver.

3. May accept HMA directly from the haul vehicle or pick up HMA from a windrow.

4. Shall mix the HMA after delivery by the hauling equipment and prior to placement into the paving machine.

5. Shall mix the HMA sufficiently to obtain a uniform temperature throughout the mixture.

To be approved for use, an MTD:

1. Shall be positively connected to the paver.

2. May accept HMA directly from the haul vehicle or pick up HMA from a windrow.

3. Shall mix the HMA after delivery by the hauling equipment and prior to placement into the paving machine.

4. Shall mix the HMA sufficiently to obtain a uniform temperature throughout the mixture.

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

5-04.3(4)A1 General

When the Proposal includes a pay item for crack sealing, seal all cracks ¼ inch in width and greater.

Cleaning: Ensure that cracks are thoroughly clean, dry and free of all loose and foreign material when filling with crack sealant material. Use a hot compressed air lance to dry and warm the pavement surfaces within the crack immediately prior to filling a crack with the sealant material. Do not overheat pavement. Do not use direct flame dryers. Routing cracks is not required.

Sand Slurry: For cracks that are to be filled with sand slurry, thoroughly mix the components and pour the mixture into the cracks until full. Add additional CSS-1 cationic emulsified asphalt to the sand slurry as needed for workability to ensure the mixture will completely fill the cracks. Strike off the sand slurry flush with the existing pavement surface and allow the mixture to cure. Top off cracks that were not completely filled with additional sand slurry. Do not place the HMA overlay until the slurry has fully cured.

The sand slurry shall consist of approximately 20 percent CSS-1 emulsified asphalt, approximately 2 percent portland cement, water (if required), and the remainder clean Class 1 or 2 fine aggregate per section 9-03.1(2). The components shall be thoroughly mixed and then poured into the cracks and joints until full. The following day, any cracks or joints that are not completely filled shall be topped off with additional sand slurry. After the sand slurry is placed, the filler shall be struck off flush with the existing pavement surface and allowed to cure. The HMA overlay shall not be placed until the slurry has fully cured. The requirements of Section 1-06 will not apply to the portland cement and sand used in the sand slurry.

In areas where HMA will be placed, use sand slurry to fill the cracks.

In areas where HMA will not be placed, fill the cracks as follows:

1. Cracks ¼ inch to 1 inch in width - fill with hot poured sealant.

2. Cracks greater than 1 inch in width – fill with sand slurry.

Hot Poured Sealant: For cracks that are to be filled with hot poured sealant, apply the material in accordance with these requirements and the manufacturer's recommendations. Furnish a Type 1 Working Drawing of the manufacturer's product information and recommendations to the Engineer prior to the start of work, including the manufacturer's recommended heating time and temperatures, allowable storage time and temperatures after initial heating, allowable reheating criteria, and application temperature range. Confine hot poured sealant material within the crack. Clean any overflow of sealant from the pavement surface. If, in the opinion of the Engineer, the Contractor's method of sealing the cracks with hot poured

sealant results in an excessive amount of material on the pavement surface, stop and correct the operation to eliminate the excess material.

5-04.3(4)A2 Crack Sealing Areas Prior to Paving

In areas where HMA will be placed, use sand slurry to fill the cracks.

5-04.3(4)A3 Crack Sealing Areas Not to be Paved

In areas where HMA will not be placed, fill the cracks as follows:

A. Cracks ¼ inch to 1 inch in width - fill with hot poured sealant.

B. Cracks greater than 1 inch in width – fill with sand slurry.

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 Con**tent – 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 to 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 Composite Pay Factor (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 Composite Pay Factor (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 Composite Pay Factor (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 Composite Pay Factor (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 Composite Pay Factor (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 Composite Pay Factor (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 PFi 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.

(******)

The HMA overlay for driveways shall be feathered to produce a smooth riding connection to the existing pavement where shown in the plans,

HMA utilized in the construction of the feathered connections shall be modified by eliminating the course aggregate from the mix at the Contractor's plant or the commercial source or by raking the joint on the driveway, satisfaction of the Engineer.

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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

5-04.3(12)B1 HMA Sawcut and Seal

Prior to placing HMA on the bridge deck, establish sawcut alignment points at both ends of the bridge paving joint seals to be placed at the bridge ends, and at interior joints within the bridge deck when and where shown in the Plans. Establish the sawcut alignment points in a manner that they remain functional for use in aligning the sawcut after placing the overlay.

Submit a Type 1 Working Drawing consisting of the sealant manufacturer's application procedure.

Construct the bridge paving joint seal as specified ion the Plans and in accordance with the detail shown in the Standard Plans. Construct the sawcut in accordance with the detail shown in the Standard Plan. Construct the sawcut in accordance with Section 5-05.3(8)B and the manufacturer's application procedure.

5-04.3(12)B2 Paved Panel Joint Seal

Construct the paved panel joint seal in accordance with the requirements specified in section 5-04.3(12)B1 and the following requirement:

1. Clean and seal the existing joint between concrete panels in accordance with Section 5-01.3(8) and the details shown in the Standard Plans.

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 planning (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 (Milling) Bituminous Pavement

The planning plan must be approved by the Engineer and a pre planning meeting must be held prior to the start of any planing. See Section 5-04.3(14)B2 for information on planning submittals.

Locations of existing surfacing to be planed are as shown in the Drawings.

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.

(January 5, 2004 WSDOT GSP, Option 1)

The Contractor shall perform the planing operations no more than three (3) calendar days ahead of the time the planed area is to be paved with HMA, unless otherwise allowed by the Engineer in writing.

(July 18, 2018 APWA GSP)

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, Metro 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 Paving Plan and for Planing Plan:

    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, to public convenience and safety, and to other con-tractors who may operate in the Project Site.

    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 to 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, street car rail, and castings, before planning, see 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 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 equipment as it relates to meeting Specification requirements.

   c. Number of JMFs to be placed, and if more than one JMF how the Contractor will ensure different JMFs are distinguished, how pavers and MTVs are distinguished if more than one JMF is being placed at the time, 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.

(******)

5-04.4 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.

Temporary pavement marking will be measured by the linear foot as provided in Section 8-23.4.

Water will be considered incidental to the other bid items.

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.

The unit Contract price per ton for "HMA Cl. ___ PG ___" 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.

"Planing Bituminous Pavement", per square yard.

END OF DIVISION 5

DIVISION 6 – STRUCTURES

6-03 STEEL STRUCTURES

6-03.1 Description
(******)

This section is supplemented with the following:

This work shall consist of fabricating and installing a pedestrian handrail in conformance with the plans and as directed by the Engineer.

6-03.4 Measurement
(******)

This section is supplemented with the following:

"Pedestrian Handrail" will be measured by the linear foot along its complete line. This measurement will be from the beginning vertical post to the ending vertical post at their respective bases. The concrete foundations will not be included in this measurement.

6-03.5 Payment
(******)

This section is supplemented with the following:

Payment will be made for each of the following Bid items that are included in the Proposal:

"Pedestrian Handrail", per linear foot.

Concrete foundations, steel sleeves, epoxy grout, grading, bracing and all other work shall be considered incidental to the item of work.

END OF DIVISION 6

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

7-04 STORM SEWERS

7-04.4 Measurement
(******)

The second paragraph of this section is replaced with the following:

Testing of all storm pipe required by the governing agency shall be incidental to the cost of the pipe installation and shall be in conformance with Section 7-17.3(2)A.

7-04.5 Payment
(******)

This section is supplemented with the following:

The unit contract price per linear foot for "Solid Wall PVC Storm Sewer Pipe __-In. Diam." shall include but is not limited to furnishing and installing pipe, connections, trench excavation, disposal, dewatering (if required), backfilling with suitable material, bedding, compacting, crushed surfacing top course, unsuitable material excavation haul and disposal, and cleaning and testing of the pipe.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.1 Description
(******)

This section is supplemented with the following:

The Work described in this section shall also include adjustment and rehabilitation of an existing sanitary sewer manhole and providing and setting curb door over utility manholes and catch basins as shown and detailed in the Plans and per these Specifications.

The Work described in this section shall also include replacement of storm manhole frames, covers, and additional risers, as necessary.

7-05.2 Materials
(******)

This section is supplemented with the following:

Grates shall be Rectangular Vaned Grates per WSDOT Standard Plan B-30.30-01.

Materials shall meet the following requirements of the following sections:

Crushed Surfacing Top Course	9-03.9(3)
Polyvinyl Chloride Pipe	9-05.12(1)
Ductile Iron	9-05.13

Storm Manhole Lid Replacement materials and lids shall meet the requirements of City of Kirkland Plan No. CK – D18A.

Curb door shall be 40 inches in length and 42 inches in width and consist of a spring assisted door and frame. The frame shall be designed to be cast in concrete. The frame and door shall be designed for pedestrian traffic only and shall have a hot-dipped galvanized NonSlip finish.

Cover slab where needed shall be constructed with Conc. Class 3000 and Epoxy-Coated St. Reinf. Bar in accordance with Section 6-02.

7-05.3 Construction Requirements (******)

This section is supplemented with the following:

The Contractor shall install curb doors integral with the sidewalk except in areas of no sidewalk. In areas of no sidewalk the contractor will install the curb door with cover slab.

Prior to installing Curb Doors, catch basins and manholes shall be adjusted to grade.

7-05.4 Measurement (******)

This section is supplemented with the following:

"Storm Manhole Lid Replacement" will be measured per each location called out in the Plans.

"Rehabilitate Existing Manhole" will be measured per each.

"Connection to Drainage Structure" will include connection of existing drainage pipes to new catch basins and manholes measured per each.

Saw cutting and removal of existing pavements for structure placement, excavation, obtaining and placing backfill and foundation material, and temporary patching around the structure will not be measured for payment and shall be included in the appropriate bid item.

7-05.5 Payment (******)

This section is replaced with the following:

The unit contract price per each for "Catch Basin Type 1" shall be full pay for all labor, materials, tools and equipment necessary to perform the specified work, including but not limited to, furnishing structure, excavation, bedding, installation, backfill, compaction, frame and grate (or rectangular solid locking metal cover), adjusting to final grade, connection to existing system, cleaning, and backfilling of existing location with select native material, in accordance with the Contract Documents.

The unit contract price per each for "Catch Basin Type 2 __ In. Diam. " shall be full pay for all labor, materials, tools and equipment necessary to perform the specified work, including but not limited to, furnishing structure, excavation, bedding, installation, backfill, compaction, frame and grate (or rectangular solid locking metal cover), adjusting to final grade, connection to existing system, cleaning, and backfilling of existing location with select native material, in accordance with the Contract Documents.

The unit contract price per each for "Connection to Drainage Structure" shall include all costs associated with each existing pipe connection to proposed storm structure as called out in the Plans.

The unit contract price per each for "Rehabilitate Existing Manhole" shall be full pay for all labor, materials, tools and equipment necessary and incidental to removing and disposing of the existing manhole frame and grate and adjusting rings and providing and installing new adjusting rings and watertight access structure and shall include all work required to furnish, install, and adjust the curb door and frame. All costs to construct the cover slab shall be included in the cost for "Rehabilitate Existing Manhole"; no separate bid item is provided .

The unit contract price per each for "Storm Manhole Lid Replacement", shall be full pay for all labor, materials, tools and equipment necessary to perform the specified work, including but not limited to furnishing structure, excavation, installation, backfill, compaction, frame and grate (solid locking metal cover), adjusting to final grade, in accordance with the Plans and Specifications.

END OF DIVISION 7

DIVISION 8 – MISCELLANEOUS CONSTRUCTION

8-01 EROSION CONTROL AND WATER POLLUTION CONTROL

8-01.1 Description (******)

Section 8-01.1 is supplemented with the following:

All temporary TESC requirements described in this section and the standard specifications are intended to satisfy the requirements of both Bid Schedule A and Bid Schedule B work.

Implementation of appropriate TESC BMPs at the appropriate construction phases is very important to prevent siltation of the subgrade, aggregate courses, and final permeable pavement. The Contractor shall install and maintain all temporary and permanent erosion control measures and Best Management Practices (BMPs) in accordance with the Contract Documents, Standard Specifications, Permit Conditions, the Contractors "Stormwater Pollution Prevention Plan" (SWPPP) and as directed by the Engineer prior to clearing, grubbing, or grading or as necessary, as clearing and grading progress. Such measures shall include, but are not necessarily limited to:

- Commercial construction entrances per CK-E.02.
- Quarry Spall outfall pads for temporary erosion control
- Rock, Wattle, Compost sock check dams
- Straw mulch, netting and tackifier
- Concrete wash
- Baker tanks and/or Settling ponds
- Stabilized construction entrance/exit
- Inlet protection on existing and proposed drainage structures
- Reinforced silt fencing
- Plastic Covering
- Temporary pipe slope drains
- Temporary HMA Curb
- Disposal of sediments and materials
- TESC seeding
- Maintenance of BMPs including in the event of emergencies and as weather and field conditions dictate; and also including installation of additional BMPs which may become required as field and weather conditions evolve.
- Street sweeping and Cleaning
- ESC Lead per 8-01 of the Standard Specifications
- All materials, tools and equipment necessary to meet these requirements

The Contractor shall provide erosion control as required for all stockpiled materials at no cost to the Contracting Agency. The Engineer, in the event of an emergency, and as weather and field conditions dictate, may require additional erosion controls and BMPs.

Site Specific BMPs and SWPPP Plan

Temporary Erosion/Water Pollution Control notes and performance criteria are noted in the Contract Documents. The Contractor shall submit his or her own Storm Water Pollution Prevention Plan (SWPPP)

to the Contracting Agency for review and approval prior to the commencement of clearing, grubbing, or grading activities.

Water quality testing and discharge volume reporting required by the project permits shall be performed by the Contractor and is a condition of approval of the SWPPP. The reporting data shall be provided to the Engineer as soon as practical, at regular intervals and prior to reporting deadlines established in the permits. The Contractor will provide a copy of the reporting information within 24 hours of a request to do so by the Engineer. All costs to perform these reporting requirements are to be included in the lump sum contract price for "Erosion/Water Pollution Control".

8-01.3 Construction Requirements
(June 20, 2017 COK GSP)

Section 8-01.3 is supplemented with the following:

The Contractor shall bear sole responsibility for damage to completed portions of the project and to property located off the project caused by erosion, siltation, runoff, or other related items during the construction of the project. The Contractor shall also bear sole responsibility for any pollution of rivers, streams, groundwater, or other water that may occur as a result of construction operations.

Any area not covered with established, stable vegetation where no further work is anticipated for a period of 15 calendar days, shall be immediately stabilized with the approved erosion and sedimentation control methods (e.g., seeding and mulching, straw). Where seeding for temporary erosion control is required, fast germinating grasses shall be applied at an appropriate rate (e.g., perennial rye applied at approximately 80 pounds per acre).

At no time shall more than 1 foot of sediment be allowed to accumulate within a catch basin. All catch basins and conveyance lines shall be cleaned at a time designated by the Contracting Agency Construction Inspector.

The cleaning operation shall not flush sediment-laden water into the downstream system. The cleaning shall be conducted using an approved vacuum truck capable of jet rodding the lines. The collection and disposal of the sediment shall be the responsibility of the Contractor at no cost to the Contracting Agency.

8-01.3(1) General

8-01.3(1)A Submittals
(June 20, 2017 COK GSP)

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

Stormwater Pollution Prevention Plan

The Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP) in accordance with Department of Ecology requirements.

The Contractor shall incorporate the SWPPP implementation schedule into the Contractor's progress schedule. The SWPPP and implementation schedule shall be submitted in accordance with Sections 1-05.3 and 1-08.3.

In addition, the SWPPP shall outline the procedures to be used to prevent high pH stormwater. The plan shall include how the pH of the water will be maintained between pH 6.5 and pH 8.5 prior to being discharged from the project or entering surface waters. Prior to beginning any concrete or grinding work, the Contractor shall submit the plan, for the Engineer's review and approval.

The Ecology template can be found at the following link:

http://www.ecy.wa.gov/programs/wq/stormwater/construction/

The SWPPP is considered a "living" document that shall be revised to account for additional erosion control/pollution prevention BMPs as they become necessary and are implemented in the field during project construction. A copy of the most current SWPPP shall remain on-site at all times and an additional copy shall be forwarded to the Engineer. At the Contractor's preference, revisions to the SWPPP may be forwarded to the Engineer rather than submitting a complete document. Revisions to the SWPPP may be kept on-site in a file along with the original SWPPP document.

8-01.3(1)B Erosion and Sediment Control (ESC) Lead
(June 20, 2017 COK GSP)

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

3. Inspecting all on-site erosion and sediment control BMPs at least once every five working days and within 24 hours of every runoff event. A SWPPP Inspection report or form shall be prepared for each inspection and shall be included in the SWPPP file. A copy of each SWPPP Inspection report or form shall be submitted to the Engineer no later than the end of the next working day following the inspection. The report or form shall include, but not be limited to the following:

    a. When, where, and how BMPs were installed, maintained, modified, and removed.

    b. Observations of BMP effectiveness and proper placement.

    c. Recommendations for improving future BMP performance with upgraded or replacement BMPs when inspections reveal SWPPP inadequacies.

    d. Approximate amount of precipitation since last inspection and when last inspection was performed.

4. Updating and maintaining a SWPPP file on site that includes, but is not limited to the following:

    a. SWPPP Inspection Reports or Forms.

    b. SWPPP narrative.

    c. Other applicable permits.

8-01.3(1)C Water Management
(June 20, 2017 COK GSP)

Section 8-01.3(1)C is supplemented with the following:

The Contractor will be responsible for meeting the SWPPP requirements.

The Bid Item "Erosion/Water Pollution Control" shall include the cost of providing temporary detention/retention facilities as illustrated in the Contractor's SWPPP Plan as well as modifications, additions and removals of such facility as dictated by the Contractor's sequence of work and may include, but are not limited to:

1. Temporary detention/retention facilities such as ponds, Baker Tanks, or other facilities.

2. If any permanent stormwater facilities are utilized, such as the detention vault, for SWPPP compliance, the Contractor shall remove accumulated sediment and clean the facility prior to final acceptance at no additional cost to the Contracting Agency.

3. Temporary facilities such as wheel wash stations or similar.

4. Temporary construction entrances.

5. Street Cleaning is considered incidental to other bid items.

No additional compensation shall be made for construction, alteration, removal, maintenance, and any additional requirements necessary for "Erosion/Water Pollution Control". No additional compensation shall be made for conflicts with existing or proposed improvements or construction sequencing of work when facilities are utilized to meet permit requirements.

8-02 ROADSIDE RESTORATION

8-02.1 Description (******)

Section 8-02.1 is supplemented with the following:

This Work shall consist of furnishing and installing plant materials, seeding, topsoil, mulch, plant establishment and performing property restoration activities as shown in the Plans or when directed by the Engineer.

Providing necessary water to install and establish plant materials and seed.

8-02.2 Materials (******)

Section 8-02.2 is supplemented with the following:

Topsoil Type A	9-14.2(1)
Seed	9-14.3
Root Barrier	9-14.9

8-02.3 Construction Requirements

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

Section 8-02.3(1) is supplemented with the following:

Landscape construction is anticipated to begin no later than after all curbs, sidewalks and associated Work have been completed.

The Contractor shall report to the Engineer all deviations and/or conflicts between Contract Documents and site conditions. Extra Work arising from failure to do so shall be done at the Contractor's expense.

The Contractor is responsible for ensuring positive drainage in all landscape areas.

Landscape materials shall not be installed until weather permits and installation has been authorized by the Engineer.

8-02.3(2) Work Plans

8-02.3(2)A Roadside Work Plan
(******)

Section 8-02.3(2)A is supplemented with the following:

Within fourteen (14) calendar days after Award of the Contract, the Contractor shall submit written documentation to the Engineer that all specified plant materials have been ordered. Documentation shall include a list of supplier's name, addresses, and phone numbers along with a list of respective growing or storage locations with addresses.

The Contractor shall provide all plants of the size, species, variety, and quality noted and specified. If unavailable, the Contractor shall notify the Engineer in writing and provide the names and telephone numbers of three (3) nursery suppliers that have been contacted. If substitution should be permitted, it can be made only with the prior written approval of the Engineer.

The Roadside Work Plan shall also include a watering schedule detailing how plant materials will be watered during installation and plant establishment.

8-02.3(4) Topsoil
(******)

The last sentence of the first paragraph of Section 8-02.3(4) is deleted and replaced with the following:

Prior to scarification of subgrade and spreading topsoil, all construction debris, and rocks one (1) inch in diameter and larger, shall be raked up, removed, and disposed.

Prior to installing Topsoil Type A, a percolation test shall be performed. This shall be accomplished by excavating a pit two (2) feet in depth. Location of pit shall be per Engineers field directive. Fill the pit with water and allow to drain for twenty-four (24) hours. After twenty-four (24) hours, re-fill the pit with water. If the time required for the pit to drain completely after being filled the second time is greater than twenty-four (24) hours, the Contractor shall notify the Engineer. The Contractor shall be paid for work required to solve the drainage problem, such as, installation of french drains or drainage sumps at a unit price basis and agreed upon by a Change Order prior to commencement of work.

8-02.3(5) Roadside Seeding, Lawn and Planting Preparation

8-02.3(5)B Lawn Area Preparation
(******)

The entire of Section 8-02.3(5)B is deleted and replaced with the following:

Prepare subgrade and soil as shown on the Plans.

All grades shall flow smoothly into one another and produce positive stormwater drainage. The Contractor is responsible for any adverse drainage conditions that may affect plant growth unless the Contractor contacts the Engineer immediately, indicating any possible problem.

All lawn areas shall be finish graded and accepted by the Engineer before commencement of planting. Drag to even grade, remove debris and rocks larger than one (1) inch in diameter, and roll for firmness prior to planting.

8-02.3(5)C Planting Area Preparation
(******)

The entire of Section 8-02.3(5)C is deleted and replaced with the following:

Prepare subgrade and soil as shown on the Plans.

All grades shall flow smoothly into one another and produce positive stormwater drainage. The Contractor is responsible for any adverse drainage conditions that may affect plant growth unless the Contractor contacts the Engineer immediately, indicating any possible problem.

All planting areas shall be finish graded and accepted by the Engineer before commencement of planting. Drag to even grade, remove debris and rocks larger than one (1) inch in diameter, and roll for firmness prior to planting. Finish grade of planting areas shall allow for placement of bark or wood chip mulch to be added to individual planting areas as specified herein.

8-02.3(6) Mulch and Amendments

8-02.3(6)B Fertilizers
(******)

Section 8-02.3(6)B is supplemented with the following:

Fertilizer shall be as specified in Section 8-02.3(6) Mulch and Amendments and 9-14.2(1) Topsoil Type A.

Install all fertilizer and soil amendments per soil laboratory written recommendations.

8-02.3(7) Layout of Planting, Lawn and Seeding Areas
(******)

Section 8-02.3(7) is deleted and replaced with the following:

The Contractor shall stake the location of all trees and seeding areas for approval by the Engineer prior to any installation activities. Stake individual tree locations on finish grade.

8-02.3(11) Mulch

8-02.3(11)B Bark or Wood Chip Mulch
(******)

Section 8-02.3(11)B is deleted and replaced with the following:

Mulch of the type and depth specified shall be applied where shown in the Plans. Any contamination of the mulch due to the Contractor's operations shall be corrected to its former condition at the Contractor's expense. Mulch shall be feathered to the base of the tree trunk and flush to the top of curbs, and pavement edges. All tree trunks shall be free of mulch. Mulch placed to a thickness greater than specified shall be at no additional cost to the Contracting Agency.

Areas receiving Mulch shall be weed free, bare soil before application.

8-02.3(13) Plant Establishment
(******)

Section 8-02.3(13) is supplemented with the following:

Suspension of Time

Failure to Comply:
Failure to comply with corrective steps as outlined by the Engineer shall result in a suspension of time for plant establishment period(s).

Suspension Relief:
Any such suspension of time shall not be lifted until all unsatisfactory conditions have been corrected to the satisfaction of the Engineer.

Suspension and Penalties:
If a suspension of time is in effect for more than 15 calendar days without effective action being taken by the Contractor, the Contracting Agency will have justification to take corrective steps and to deduct all costs thereof from moneys due the Contractor.

Plant Establishment Plan

Prior to completion of initial planting as defined in Section 8-02.3(12), the Contractor shall submit a Plant Establishment Plan for approval by the Engineer that addresses all planting. The Plan shall define the Work necessary to maintain all Contract areas during the period between completion of initial planting through final acceptance at the completion of the plant establishment period.

The Plant Establishment Plan shall show the scheduling, frequency, dates, materials and equipment utilized, whichever may apply, for all maintenance activities including, but not limited to, the following:

A. Plant Establishment
    1. Pruning
    2. Fertilizing
    3. Watering - amount in inches per week
    4. Weed Control and Chemical Application - post and pre-emergent
    5. Litter and Debris Removal
    6. Staking Removal
    7. Erosion Control Methods and Procedures
    8. Plant Replacement to Maintain 100% Survival
    9. Vandalism and Accidental Damage Repair

Also indicate the following:

A. Maintenance Supervisor/Responsible Contact Name
    1. Local address
    2. Local telephone number

B. Emergency Contact Name - 24 hours, 7 days per week availability

1. Local address
2. Local telephone number

C. Sign and date the Plant Establishment Plan

Should this Plan become unworkable at any time during the specified period, the Contractor shall submit to the Engineer a revised Plan for approval. Failure to comply with the Plant Establishment Plan or to revise the Plan as outlined by the Engineer shall result in a suspension of time for plant establishment period as outlined above.

Add the following new section:

8-02.3(17) Protection and Restoration of Property **New Section**
(******)

Verify and document, in the presence of the adjacent property owners and Engineer, operation, location, and continuity of existing private irrigation system(s) prior to excavation and removal, existing plant material and existing lawn areas. Approximate locations of existing irrigation system(s), plant material, and lawn areas are located back of sidewalk on private property and may be disturbed as a result of retaining wall installation and grading activities. Restore any existing irrigation system(s) to pre-construction condition to provide full and complete coverage to all existing and new plant materials restored. Planting shall match in-kind existing plant material and lawn areas disturbed shall be provided with seeded lawn.

Add the following new section:

8-02.3(18) Root Barrier **New Section**
(******)

Install Root Barrier as shown on the Plans and per manufacture's written recommendations.

8-02.4 Measurement
(******)

Section 8-02.4 is supplemented with the following:

"Protection and Restoration of Property" shall be measured by lump sum.

The first sentence of Section 8-02.4 is deleted and replaced with the following:

"Topsoil Type A" will be measured by the cubic yard in the haul conveyance at the point of delivery.

8-02.5 Payment
(******)

Section 8-02.5 is supplemented with the following:

"Protection and Restoration of Property" by lump sum.

All costs for providing protection and property restoration Work will be paid for by force account as specified in Section 1-09.6. To provide a common Proposal for all Bidders, the Contracting Agency has estimated the amount of force account for "Protection and Restoration of Property" and has entered the amount in the Proposal to become a part of the total Bid by the Contractor.

"Topsoil Type A" per cubic yard.

The unit contract price per cubic yard shall be full pay for providing the material, loading, hauling, stockpiling, weed control, placing, spreading, cultivation and compacting Topsoil Type A. The cost for soil tests, soil amendments and fertilizer are incidental to the "Topsoil Type A" contract bid amount.

"PSIPE____" per each.

The unit price for "PSIPE_____", per each, shall be full pay for all Work necessary for weed control within the planting area, planting area preparation, fine grading, planting, cultivating, plant storage and protection, fertilizer and root dip, root barrier, staking, cleanup, and tree bag furnishing and installation and watering necessary to complete planting operations and specified to the end of first year plant establishment.

8-03 IRRIGATION SYSTEMS
(******)

This section is replaced with the following:

8-03.1 Description

This work consists of providing and installing tree watering bags in accordance with these Specifications and the details shown in the Plans or as approved by Engineer.

8-03.2 Materials

Tree watering bags shall meet the requirements of Section 9-15.

8-03.3 Installation

Tree watering bags shall be 15 gallon each, one per each street tree. Watering bags shall be installed per manufacturer's recommendations.

8-14 CEMENT CONCRETE SIDEWALKS

8-14.1 Description
(April 3, 2017 COK GSP)

Section 8-14.1 is revised to read:

This Work consists of constructing cement concrete sidewalks, curb ramps, bus stop shelter foundations, masonry sidewalks, and ramp grinding in accordance with details shown in the Plans, Standard Plans, these Specifications, and in conformity to the lines and grades shown in the Plans, Standard Plans, and as established by the Engineer.

8-14.3 Construction Requirements
(April 3, 2017 COK GSP)

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. Project 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 2)

Timing Restrictions

Curb ramps shall be constructed on one leg of the intersection at a time. The curb ramps shall be completed and open to traffic within five calendar days before construction can begin on another leg of the intersection unless otherwise allowed by the Engineer.

Unless otherwise allowed by the Engineer, the five calendar day time restriction begins when an existing curb ramp for the quadrant or traffic island/median is closed to pedestrian use and ends when the quadrant or traffic island/median is fully functional and open for pedestrian access.

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.

8-20 ILLUMINATION, TRAFFIC SIGNAL SYSTEMS, INTELLIGENT TRANSPORTATION SYSTEMS, AND ELECTRICAL

8-20.1 Description
(******)

Section 8-20.1 is supplemented with the following:

Electrical work shall include:

- Removal and replacement of signal heads on existing signal mast arm, installation of new type 3 signal standard with equipment as indicated on signal plan, removal of one existing signal standard, rewiring of signal to new terminal cabinets, installation of APS push buttons and/or push button posts, new wiring from signal controller and service cabinet to signal standards, removal of existing signal wiring, and installation of signal pole mounted sign(s).
- Installation of a complete illumination system, including pedestrian scale lighting, roadway lighting and a new City service.
- Installation of a new overhead sign assembly.
- Relocations and modifications to existing fiber optic vaults and fiber optic networks.

8-20.2 Materials

8-20.2(9-29.1) Conduit, Innerduct, and Outerduct

8-20.2(9-29.1(11)) Foam Conduit Sealant
(January 7, 2019 WSDOT GSP)

Section 9-29.1(11) is supplemented with the following:

The following products are accepted for use as foam conduit sealant:

- CRC Minimal Expansion Foam (No. 14077)
- Polywater FST Foam Duct Sealant
- Superior Industries Foam Seal
- Todol Duo Fill 400

8-20.2(9-29.2) Junction Boxes, Cable Vaults, and Pull Boxes
(September 3, 2019 WSDOT GSP)

Section 9-29.2 is supplemented with the following:

Slip-Resistant Surfacing for Junction Boxes, Cable Vaults, and Pull Boxes
Where slip-resistant junction boxes, cable vaults, or pull boxes are required, each box or vault 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 ½ 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**

8-20.2(9-29.6) Light And Signal Standards
(January 13, 2021 WSDOT GSP)

Section 9-29.6 is supplemented with the following:

Light Standards with Type 1 Luminaire Arms
Lighting standards shall be fabricated in conformance with the methods and materials specified on the pre-approved plans listed below, provided the following requirements have been satisfied:

(a) Mounting heights shall be as specified in the Plans.

(b) Light source to pole base distances (H1) shall be determined or verified by the Engineer prior to fabrication. Fabrication tolerance shall be ±6 inches.

(c) All other requirements of the Special Provisions have been satisfied.

Fabricator	Pre-Approved Drawing No.	Rev.	Mounting Height(s) (feet)
Valmont Ind., Inc.	DB01164, Sheets 1-5 of 5	B	30, 35, 40, and 50
Ameron Pole Products Division	WA15LT3721, Sheets 1 and 2 of 2	A	20, 25, 30, 35, 40, 45, and 50
Millerbend Manufacturing Co.	74515-WA-LP1-BB, Sheets 1 and 2 of 2	H	30, 35, 40, and 50
Millerbend Manufacturing Co.	74515-WA-LP1-ELBOW, Sheets 1-3 of 3	J	30, 35, 40, and 50
Millerbend Manufacturing Co.	74515-WA-LP1-SB, Sheets 1-3 of 3	G	30, 35, 40, and 50

(January 13, 2021 WSDOT GSP, Option 5)

Traffic Signal Standards

Traffic signal standards shall be furnished and installed in accordance with the methods and materials noted in the applicable Standard Plans, pre-approved plans, or special design 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 F 3125 Grade A325 connecting bolts tightening shall comply with Section 6-03.3(33).

Traffic signal standard types, applicable characteristics, and foundation types are as follows:

Type PPB

Pedestrian push button posts shall conform to Standard Plan J-20.10 or to one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01165 Rev. B (4 sheets)
Ameron Pole Products Division	WA15TR10-1 Rev. C (1 sheet) and WA15TR10-3 Rev. B (1 sheet)
Millerbend Manufacturing, Co.	74514-WA-PED-PPB Rev H (2 sheets)

Foundations shall be as noted in Standard Plan J-20.10

Type PS, Type I, Type RM, and Type FB

Type PS pedestrian signal standards, Type I vehicle signal standards, Type RM ramp meter signal standards, and Type FB flashing beacon standards shall conform to Standard Plan J-20.16, J-21.15, J-21.16, and J-22.15 respectively, or to one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01165 Rev. B (4 sheets)
Ameron Pole Products Division	WA15TR10-1 Rev. C (1 sheet) and WA15TR10-2 Rev. C (1 sheet)

Millerbend Manufacturing, Co.	74514-WA-PED-FB Rev. H (2 sheets)
Millerbend Manufacturing Co.	74514-WA-PED-SB Rev. H (2 sheets)

Foundations shall be as noted in Standard Plan J-21.10.

Type II
Type II signal standards are single mast arm signal standards with no luminaire arm or extension. Type II standards shall conform to one of the following pre-approved plans. Maximum arm length (in feet) and wind load (XYZ value, in cubic feet) is noted for each manufacturer.

Fabricator	Pre-Approved Drawing No.	Max. Arm Length (ft)	Max. Wind Load (XYZ) (ft^3)
Valmont Ind., Inc.	DB00162 Rev. B (5 sheets)	65	3206
Ameron Pole Products Division	WA15TR3724-1 Rev. C (sheet 1 of 2), and WA15TR3724-2 Rev. D (sheet 2 of 2)	65	2935
Millerbend Manufacturing, Co.	74516-WA-TS-II Rev. H (3 sheets)	65	3697

Foundations shall be as noted in the Plans and Standard Plan J-26.10. Type II signal standards with two mast arms installed 90 degrees apart may use these pre-approved drawings. Standards with two arms at any other angle are Type SD and require special design.

Type III
Type III signal standards are single mast arm signal standards with one Type 1 (radial davit type) luminaire arm. The luminaire arm has a maximum length of 16 feet and a mounting height of 30, 35, 40, or 50 feet, as noted in the Plans. Type III standards shall conform to one of the following pre-approved plans. Maximum arm length (in feet) and wind load (XYZ value, in cubic feet) is noted for each manufacturer. Wind load limit includes a luminaire arm up to 16 feet in length.

Fabricator	Pre-Approved Drawing No.	Max. Arm Length (ft)	Max. Wind Load (XYZ) (ft^3)
Valmont Ind., Inc.	DB00162 Rev. B (5 sheets), with Type “J” luminaire arm	65	3259
Ameron Pole Products Division	WA15TR3724-1 Rev. C (sheet 1 of 2), and WA15TR3724-2 Rev. D (sheet 2 of 2), with Series “J” luminaire arm	65	2988
Millerbend Manufacturing, Co.	74516-WA-TS-III Rev. H (4 sheets)	65	3750

Foundations shall be as noted in the Plans and Standard Plan J-26.10. Type III signal standards with two mast arms installed 90 degrees apart may use these pre-approved drawings. Standards with two arms at any other angle are Type SD and require special design.

Type IV
Type IV strain pole standards shall be consistent with the Plans and Standard Plan J-27.15 or one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01167 Rev. B (2 sheets)
Ameron Pole Products Division	WA15TR15 Rev. A (2 sheets)
Millerbend Manufacturing, Co.	74554-WA-SP-IV Rev. H (2 sheets)

Foundations shall be as noted in the Plans and Standard Plan J-27.10.

Type V
Type V strain poles are combination strain pole and light standards, with Type 1 (radial davit type) luminaire arms. Luminaire rams may be up to 16 feet in length, and a mounting height of 40 or 50 feet, as noted in the Plans. Type V strain poles shall be consistent with the Plans and Standard Plan J-27.15 or one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01167 Rev. B (2 sheets),
Ameron Pole Products Division	WA15TR15 Rev. A (2 sheets)
Millerbend Manufacturing, Co.	74554-WA-SP-V Rev. J (3 sheets)

Foundations shall be as noted in the Plans and Standard Plan J-27.10.

Type CCTV
Type CCTV camera pole standards shall conform to Standard Plan J-29.15 or to one of the following pre-approved plans:

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01166 Rev. C (4 sheets)
Ameron Pole Products Division	WA15CCTV01 Rev. B (2 sheets)
Millerbend Manufacturing, Co.	74577-WA-LC1 Rev. H (2 sheets)
Millerbend Manufacturing, Co.	74577-WA-LC2 Rev. H (2 sheets)
Millerbend Manufacturing, Co.	74577-WA-LC3 Rev. H (3 sheets)

Foundations shall be as noted in the Plans and Standard Plan J-29.10.

Type SD
Type SD signal standards are outside the basic requirements of any pre-defined signal standard and require special design. All special design shall be based on the latest AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and pre-approved plans and as follows:

1. A 115 mph wind loading shall be used.

2. The Mean Recurrence Interval shall be 1700 years.

3. Fatigue category shall be III.

Complete calculations for structural design, including anchor bolt details, shall be prepared by a Professional Engineer, licensed under Title 18 RCW, State of Washington, in the branch of Civil or Structural Engineering or by an individual holding valid registration in another state as a civil or structural Engineer.

All shop drawings and the cover page of all calculation submittals shall carry the Professional Engineer's original signature, date of signature, original seal, registration number, and date of expiration. The cover page shall include the contract number, contract title, and sequential index to calculation page numbers. Two copies of the associated design calculations shall be submitted for approval along with shop drawings.

Details for handholes and luminaire arm connections are available from the Bridges and Structures Office.

Foundations for Type SD standards shall be as noted in the Plans.

8-20.2(9-29.19) Pedestrian Push Buttons
(January 13, 2021 WSDOT GSP)

Section 9-29.19 is supplemented with the following:

Accessible Pedestrian Signal (APS) Pushbuttons
When required in the Contract, APS Pushbuttons shall be provided. Each accessible pedestrian signal (APS) shall be a complete APS pushbutton system at each pedestrian pushbutton location shown in the Plans. Equipment shall be one of the following systems:

1. Campbell Company: Guardian Accessible Pedestrian Station; Part Number: 501-0811T/512

2. Novax / Pelco Products: IntelliCross Intelligent Pedestrian System APS; Part Number: SE-2901-P30 9x15

3. Polara EZ Comm Navigator 4-Wire (EN4); Part Number: EN43TN1-B

Only one brand of equipment shall be used for the entire Contract.

Each pushbutton station shall include the following:

1. Flat dark green colored housing.

2. High contrast pushbutton arrow (dark on a light background or light on a dark background). White on silver or silver on white are not acceptable as high contrast.

3. Integral 9” x 15” R10-3e Sign. Braille shall not be included. Adaptor plates shall be included if required to accommodate the sign.

4. Appropriate interface unit for installation in associated pedestrian display:

    a. Campbell: Signal Power Interface (SPI) Unit

    b. Novax/Pelco: Power Interface Module (PIM)

    c. Polara: Ped Head Control Unit for 4 Wire Navigator (PHCU4W) Module

5. Percussive tone / rapid tick walk indication.

6. Voice messages, as specified below, pre-installed. Voice shall be male.

7. Interconnect cable for installation between pushbutton station and pedestrian display interface unit. Unless otherwise specified in the Contract, cable shall be provided by the pushbutton manufacturer. Cable may be standard four conductor cable meeting the requirements of Standard Specification 9-29.3(2)B if it meets the pushbutton manufacturers requirements.

The following shall be provided at each intersection:

1. One USB flash drive with copies of all voice message audio files for that intersection, placed in the traffic signal cabinet drawer or drawing envelope. A separate flash drive is required for each intersection.

2. One USB cable of the appropriate type (A to A, A to B, male/female, etc.), placed in the traffic signal cabinet drawer or drawing envelope.

Any other equipment or software required by the manufacturer for setup, operation, and maintenance of the pushbutton stations shall be provided.

Dual button adaptor brackets are required for all installations with two APS pushbuttons on the same Type PPB, Type PS, or Type I Signal Standard. Where dual button adaptor brackets or extension brackets are required, they shall be obtained from the same manufacturer as the pushbutton station. Brackets and extensions from other manufacturers shall not be used.

APS Speech Messages
Speech messages shall be provided in the following format:

- "Wait."
- "Wait to cross ____(A)_____ at _____(B)_____."
- "Walk sign is on to cross ____(A)_____."

The following table lists the entries for (A) and (B) above, as well as quantities for button and arrow orientations:

***

Pole ID (crossing)	PPB ID	Street A	Street B	Arrow Direction	Qty
3 (for north crossing)	39	NE 124th St	120th Ave NE	Right	1
3 (for west crossing)	28	120th Ave NE	NE 124th St	Left	1
4 (for east crossing)	29	120th Ave NE	NE 124th St	Left	1
5 (for south crossing)	49	NE 124th St	116th Ave NE	Left	1
6 (for east crossing)	A8	116th Ave NE	NE 124th St	Right	1

Pole ID (crossing)	PPB ID	Street A	Street B	Arrow Direction	Qty
7 (for south crossing)	38	NE 124th St	116th Ave NE	Right	1
7 (for west crossing)	A9	116th Ave NE	NE 124th St	Left	1
8 (for north crossing)	48	NE 124th St	120th Ave NE	Right	1

***

Order forms shall be completed by the Contractor using the information presented above.

8-20.2(1) Equipment List and Drawings
(******)

Section 8-20.2(1) is supplemented with the following:

This Contractor shall also submit product data for the following equipment (and all other equipment not listed):

- Signal standards
- Conduit
- Conductors
- Signal heads
- Terminal cabinets
- Signal controller cabinet equipment (load pack, loop amplifiers, program card, etc.)
- Signs
- Service cabinet
- Temporary Video Detection Equipment
- Vaults
- Fiber optic system splicing and patch panel materials
- Light standards
- Light fixtures
- APS push buttons

Approvals of submittals may require up to 20 calendar days from the date the Engineer receives the submittals until they are returned to the Contractor. The actual time required for approval is dependent upon the completeness and appropriateness of the submittals.

Any deficiencies will require additional time for approval based on the degree of the deficiency and the additional review time required. If the submittals are returned to the Contractor to correct deficiencies, an additional 20 calendar days may be required for the approval process.

If more than 20 calendar days are required for routine approval of submittals that are completed and accurate, the Contractor will be granted an extension of time equal to the additional review time.

Materials not approved by the Engineer will not be permitted on the jobsite. All materials for review shall be submitted in a single package.

(March 13, 1995 WSDOT GSP, Option 2)

Pole base to light source distances (H1) for lighting standards with pre-approved plans will be determined or verified by the Engineer at the request of the Contractor prior to fabrication.

Pole base to light source distances (H1) for lighting standards without pre-approved plans and for combination traffic signal and lighting standards will be furnished by the Engineer as part of the final approved shop drawings prior to fabrication.

8-20.3 Construction Requirements

8-20.3(1) General

8-20.3(1)B Communication System Repairs
(******)

Section 8-20.3(1)B is supplemented with the following:

Fiber optic system relocation, reconnection and restoration shall include all work shown on the Plans.

City of Kirkland fiber optic cutovers are to be coordinated with the City of Kirkland IT Department and any other impacted entities. Cutovers will be performed during maintenance windows and/or on weekend shifts to minimize impact on operations/functionality. Cutovers shall be completed within one 8-hour shift. Contractor shall coordinate cutovers with the City a minimum of ten (10) working days prior to work.

Fiber Optic Testing:

All Relocated fiber optic cable shall be tested for both tier 1 and tier 2 testing applications (OLTS/OTDR).

The customer may choose to modify testing requirement based on fiber optic application. Coordinate testing requirements with the City of Kirkland IT Department for each relocated fiber optic cable.

Equipment used shall be the most current software versioning and will be required to have a current calibration certification.

8-20.3(8) Wiring
(******)

Section 8-20.3(8) is supplemented with the following:

Fiber Optic Cable:

The outer jacket of the cable shall be marked with the manufacturer's name, the year the cable was made, the words "OPTICAL CABLE", the fiber count and sequential meter or foot markings.

The cable shall be of loose tube design for fiber counts of 12 strands and higher. The tubes shall be surrounded by dry moisture blocking filling compound or tape.

Fiber Optic Connectors:

The Contractor shall supply Single-mode LC Fiber Optic Angle Polished Connectors that utilize epoxy for attaching to the tight-buffered lateral cables terminated in traffic signal controller cabinets.

Fiber Optic Splice Closures:

The Contractor shall furnish and install the mounting hardware for mounting the splice closure to splice box hangers at all splice locations.

8-20.3(8) Equipment List and Drawings
(March 13, 1995 WSDOT GSP)

Section 8-20.3(8) is supplemented with the following:

Field Wiring Chart

501	AC+ Input	516-520 Railroad Pre-empt
502	AC- Input	5A1-5D5 Emergency Pre-empt
503-510	Control-Display	541-580 Coordination
511-515	Sign Lights	581-599 Spare

Movement Number	1	2	3	4	5	6	7	8	9
Vehicle Head									
Red	611	621	631	641	651	661	671	681	691
Yellow	612	622	632	642	652	662	672	682	692
Green	613	623	633	643	653	663	673	683	693
Spare	614	624	634	644	654	664	674	684	694
Spare	615	625	635	645	655	665	675	685	695
AC-	616	626	636	646	656	666	676	686	696
Red Auxiliary	617	627	637	647	657	667	677	687	697
Yellow Auxiliary	618	628	638	648	658	668	678	688	698
Green Auxiliary	619	629	639	649	659	669	679	689	699
Pedestrian Heads & Dets.									
Hand	711	721	731	741	751	761	771	781	791
Man	712	722	732	742	752	762	772	782	792
AC-	713	723	733	743	753	763	773	783	793
Detection	714	724	734	744	754	764	774	784	794
Common-Detection	715	725	735	745	755	765	775	785	795
Spare	716	726	736	746	756	766	776	786	796
Spare	717	727	737	747	757	767	777	787	797
Spare	718	728	738	748	758	768	778	788	798
Spare	719	729	739	749	759	769	779	789	799
Detection									
AC+	811	821	831	841	851	861	871	881	891
AC-	812	822	832	842	852	862	872	882	892
Common-Detection	813	823	833	843	853	863	873	883	893
Detection A	814	824	834	844	854	864	874	884	894
Detection B	815	825	835	845	855	865	875	885	895
Loop 1 Out	816	826	836	846	856	866	876	886	896
Loop 1 In	817	827	837	847	857	867	877	887	897
Loop 2 Out	818	828	838	848	858	868	878	888	898
Loop 2 In	819	829	839	849	859	869	879	889	899
Supplemental Detection									
Loop 3 Out	911	921	931	941	951	961	971	981	991
Loop 3 In	912	922	932	942	952	962	972	982	992
Loop 4 Out	913	923	933	943	953	963	973	983	993
Loop 4 In	914	924	934	944	954	964	974	984	994
Loop 5 Out	915	925	935	945	955	965	975	985	995
Loop 5 In	916	926	936	946	956	966	976	986	996
Loop 6 Out	917	927	937	947	957	967	977	987	997
Loop 6 In	918	928	938	948	958	968	978	988	998
Spare	919	929	939	949	959	969	979	989	999

8-20.3(10) Service, Transformer, and Intelligent Transportation Systems (ITS) Cabinets
(******)

Section 8-20.3(10) is supplemented with the following:

The City power service shall be single-phase 120/240 volt, 3 wire per City of Kirkland Standard Plan CK-TS.05A.

The power service point shall be as noted on the Plans and shall be verified by the electrical servicing utility (the Contractor to coordinate a power service point availability, with the power company, as described below).

The Contractor shall furnish and install the conduit and conductors in accordance with the NEC from the meter base in the service cabinet up to but not into the existing ground mounted Puget Sound Energy (PSE) transformer, as shown on the Plans. The Contractor shall provide sufficient conductor length, coiled in the service cabinet, for PSE to make the necessary final connections in the existing PSE transformer. The Contractor shall contact PSE prior to installation to obtain specific material requirements and installation procedures. PSE will make the final connection(s) between the electrical service and the power source by extending the conduit and using the conductors provided under this Contract as shown on the Plans.

Power Source Coordination
The Contractor shall coordinate all of the installation details for the electrical service cabinet(s) with PSE. Within 4 weeks after Notice to Proceed, the Contractor shall meet with a PSE Representative in the field to verify the location of power source as shown in the Plans and shall notify the Engineer immediately if any conflicts exist.

8-20.3(14) Signal Systems
(******)

Section 8-20.3(14) is supplemented with the following:

The Contractor shall make every effort to minimize the cutover time to new signal standards and push button equipment.

8-20.3(14)A Signal Controllers
(******)

Section 8-20.3(14)A is supplemented with the following:

WSDOT owns and maintains the NE 124th St & 116th Ave NE intersection signal. Modifications to the existing signal controller and cabinet shall be coordinated with WSDOT (John Mathews, MathewJ@wsdot.wa.gov) and shall follow all WSDOT requirements.

Anticipated signal controller and Work in the cabinet includes the following:

- Removing and replacing signal cabinet terminations as noted in the Plans as related to the removal of existing signal standards noted as Poles #9, #10 and #11 and replacement with Poles #1, #5, #6 and #7. All terminations shall be replaced in kind and all signal head numbers and phases shall remain the same as existing.
- Removing and replacing induction loop vehicle detectors in the 116th Ave NE southbound lanes. All terminations shall be replaced in kind and loop numbers shall remain the same as existing.
- Temporary video detection shall be installed and maintained per 8-20.3(14)F. In the controller cabinet, this will include at a minimum video camera wire terminations and image processor/detection cards. Contractor shall coordinate with WSDOT to implement any controller programming revisions to implement video detection equipment.
- Installation of equipment for the addition of an overlap phase for 116th Ave NE southbound right

turn lane. This Work consists of terminating traffic signal wire and loop wire as noted on the Plans. New cabinet equipment may include but is not limited to a new load switch, loop amplifier and program card. Overlap loops shall be programmed to extend (but not call) the left turn Phase 5 as shown on the Plans. Programming of the existing signal controller for the new overlap shall be coordinated with WSDOT.

8-20.3(14)C Induction Loop Vehicle Detectors
(******)

Section 8-20.3(14)C is supplemented with the following:

Existing Traffic Loops

The Contractor shall notify the Engineer a minimum of 5 working days in advance of pavement removal, sawcutting or grinding in areas with existing loops.

Existing stop bar and advanced loops are in operation at the NE 124th St & 116th Ave NE intersection. The exact locations of all loops are unknown and not shown on the Plans. Contractor shall locate and protect existing loops during construction. If construction impacts existing loops, the Contractor shall replace all impacted loops, whether or not they are shown on the Plans.

If the Engineer suspects that damage to any loop may have resulted from Contractor's operations or is not operating adequately, the Engineer may order the Contractor to perform the field tests to determine that the loop is still functioning.

Loops that fail the tests and are replaced shall be installed in accordance with design standards and Standard Plans, as determined by the Engineer.

If traffic signal loops that fail tests, as described above, are not replaced and operational within 48 hours, the Contractor shall install and maintain temporary video detection until the replacement loops are operational.

Add the following new section:

8-20.3(14)F Temporary Video Detection **New Section**
(******)

Prior to commencing Work around existing vehicle inductance loops, the Contractor shall provide a fully-operational video detection system at the intersection wherever loop detectors are disturbed by the project. The temporary video detection systems shall be completely installed and made fully operational prior to any associated induction loop being disabled. WSDOT will operate and the Contractor shall maintain the video detection system throughout construction until new inductance loops are fully operational. The Contractor shall provide adequate cable for each detection camera to allow relocation of cameras as construction conditions (lane shifts, traffic control, etc.) change.

The video detection system shall consist of the following:

- Video cameras, including camera enclosure, filter, sunshield and connector kit
- Camera mount assemblies
- Programming devices and/or software
- Camera lens(es) and lens adjustment module
- Surge Suppressor
- Coaxial and power cables
- All other equipment necessary for a fully-operational video detection system.

Cameras shall be mounted at a sufficient height to prevent occlusion from cross traffic. The Contractor shall provide and install the camera mounts and cable per manufacturer recommendations. The Contractor shall install the cameras, bring all wire from cameras to the cabinet, and coordinate with

WSDOT for installation of any controller cabinet video camera equipment in the cabinet. With WSDOT coordination, the Contractor shall program the cameras to provide detection. The Contractor shall notify the Engineer 48 hours in advance of changes that will require WSDOT staff to reprogram cameras.

The Contractor shall not create any holes in the pole or mast arm during installation of the video detection camera, including wiring.

All video detection system equipment shall remain the property of the City of Kirkland upon completion of the contract work. The Contractor is responsible for removal of the camera and wiring after completion of the Work. The Contractor shall be responsible for any damage to the video detection equipment.

8-20.4 Measurement
(******)

Section 8-20.4 is supplemented with the following:

No specific unit of measurement for "Cantilever Sign Structure No." will apply, but measurement will be for the sum total of all work and material required to complete the cantilever sign installation shown on the Plans.

No specific unit of measurement for "Illumination System" will apply, but measurement will be for the sum total of all work and material required to complete the illumination system shown on the Plans. All trench shared between illumination and fiber optic conduits shall be included in the cost of the Illumination System bid item.

No specific unit of measurement for "Traffic Signal System" will apply, but measurement will be for the sum total of all work and material required to complete the signal modifications shown on the Plans. All trench shared between signal, illumination and fiber optic conduits shall be included in the cost of the Traffic Signal System bid item.

No specific unit of measurement for "Fiber Optic System, Complete" will apply, but measurement will be for the sum total of all work and material required to complete the fiber optic relocation shown on the Plans.

8-20.5 Payment
(******)

Section 8-20.5 is supplemented with the following:

"Cantilever Sign Structure No.", lump sum.

The lump sum Contract price for "Cantilever Sign Structure No." includes all removals, materials, installation, testing and other work necessary to complete the work as shown on the Plans.

"Illumination System", lump sum.

The lump sum Contract price for "Illumination System" includes all removals, materials, installation, testing and other work necessary to complete the work as shown on the Plans.

"Traffic Signal System", lump sum.

The lump sum Contract price for "Traffic Signal System" includes all removals, materials, installation, testing and other work necessary to complete the work as shown on the Plans.

"Fiber Optic System, Complete", lump sum.

The lump sum Contract price for "Fiber Optic System, Complete" includes all removals, materials, installation, testing and other work necessary to complete the work as shown on the Plans.

8-21 PERMANENT SIGNING

8-21.3 Construction Requirements

8-21.3(5) Sign Relocation (******)

Section 8-21.3(5) is supplemented with the following:

Bus stop sign must be relocated by the Contractor prior to construction starting. Prior to relocation the Contractor shall contact King County Metro at construction.coord@kingcounty.gov. The following will need to be submitted with the bus stop sign relocation request:

1. Approved Traffic Control Plans
2. Location of Project (Street Intersection)
3. Location of bus stop to be relocated
4. Name and cell number of primary on-site contact
5. Start and End dates of construction
6. Daily start and end times of work
7. Nature of work
8. Company name
9. Coordination with King County Metro shall be incidental to Permanent Signing, including providing the requested information as stated above.

END OF DIVISION 8

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DIVISION 9 – MATERIALS

9-14 EROSION CONTROL AND ROADSIDE PLANTING

9-14.2 Topsoil

9-14.2(1) Topsoil Type A

Section 9-14.2(1) is supplemented as follows:
(******)

Topsoil Type A shall consist of a mixture of compost, meeting requirements of Section 9 14.5(8), and sandy loam per USDA soil texture classification. The mixture shall contain a minimum of 10 percent organic matter. The mixture shall be free of weeds, deleterious materials, rocks, and debris. 100 percent of the imported topsoil shall pass through a 3/4-inch screen, less than 25 percent shall pass through a #200 sieve. Submit 1 gallon sample, source, and letter of certification from the supplier for approval prior to installation.

The topsoil shall be Cedar Grove Composting two-way topsoil, Pacific Topsoil 2-way mix or approved equal. To be equal, source should be a commercial operation with expertise in production of topsoil, an established method of screening materials to verify no pollutant contamination and that all materials are biodegradable, and produce a product that is equal in quality to the source listed. A quality topsoil product is at a minimum a sandy loam soil with fine compost amendments, rich in nutrients, free draining, and weed free.

9-15 IRRIGATION SYSTEM
(******)

This section is replaced with the following:

All tree bags shall be new and undamaged prior to installation.

9-15.1 Tree Watering Bags

Tree bags shall be Treegator Original single bag or approved equal.

9-29 ILLUMINATION, SIGNAL, ELECTRICAL

9-29.3 Fiber Optic Cable, Electrical Conductors, and Cable

9-29.3(1) Fiber Optic Cable
(******)

Section 9-29.3(1) is supplemented with the following:

Fiber shall be Rural Utility Services (RUS) listed. The fiber optic cables shall be OFNR rated.

The cable shall be of loose tube design for fiber counts of 12 strands and higher. The tubes shall be surrounded by dry moisture blocking filling compound or tape.

The cable shall consist of the following components:

- Dielectric central strength member.
- Buffer tubes containing optical fibers (for 12 count and higher).
- Outer MDPE jacket.

Optical fiber shall meet the requirements of the International Telecommunications Union (ITU) G.652 for Standard Single-Mode Optical Fiber. The fiber shall support the transmission of wavelengths for Course Wavelength Division Multiplexing (CWDM) as defined in ITU G694.2.

Manufacturer: Corning Altos series (Fast Access)

Fiber Optic Connectors:

The Contractor shall supply Single-mode LC Fiber Optic Angle Polished Connectors that utilize epoxy for attaching to the tight-buffered lateral cables terminated in traffic signal controller cabinets. The connectors shall meet the following standard and specifications:

- Insertion Loss (SM): < 0.30 dB
- Insertion Loss (MM): < 0.50 dB
- Reflectance (APC): < -65 dB
- Fiber Height: ± 50 nm
- Radius of Curvature (APC): 5 -12 mm
- Apex Offset < 50 [.1m
- Designed for terminating single mode fiber with 125 [.1m cladding
- Factory-measured attenuation less than 0.5 dB
- Connector attenuation will not change more than 0.2 dB following 1000 mating's

Manufacturer: Corning (Unicam Series)

9-29.6 Light and Signal Standards
(******)

Section 9-29.6 is supplemented with the following:

Where noted on the Plans, roadway and pedestrian street lighting standards shall be per City of Kirkland Standard Plans.

9-29.10 Luminaires
(******)

Section 9-29.10 is supplemented with the following:

Roadway and pedestrian luminaires shall be as noted on the Plans.

9-29.12 Electrical Splice Materials

9-29.12(3) Splice Enclosures
(******)

Section 9-29.12(3) is supplemented with the following:

Fiber Optic Splice Closures:

The closure shall be a Commscope FOSC 450 or equivalent and shall be suitable for both vault and aerial applications. The enclosure will meet the following requirements:

- The contractor shall supply a fiber optic splice enclosure made injection-molded high-density thermoplastic that is a maximum of 25 inches in length and can store up to six splice trays.
- The closure shall have a cable entry block on one end that is sealed with a gel profile. The closure shall accommodate up to six cables. The block shall be re-enterable without having to replace the gel. The block shall accommodate cables that are between 0.35-inch and 1.00-inch.

- The splice closure shall be re-enterable and shall not require a re-enter kit.
- The splice enclosure shall be suitable for outdoor applications with a temperature range of 10 degrees C to 60 degrees C.
- The splice enclosure shall provide sufficient space to allow entry of fiber optic cable without exceeding the cable minimum bending radius.
- The enclosure shall protect the splices from moisture and mechanical damage and shall be resistant to corrosion.
- The enclosure shall permit selective splicing to allow one or more fibers to be cut and spliced without disrupting other fibers.
- The enclosure shall have strain relief for the cable to avert accidental tension from disturbing the splices.
- The Contractor shall furnish and install the mounting hardware for mounting the splice closure to splice box hangers at all splice locations.

END OF DIVISION 9

PREVAILING WAGE RATES

City of Kirkland

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: 10/27/2021

County	Trade	Job Classification	Wage	Holiday	Overtime	Note	*Risk Class
King	Asbestos Abatement Workers	Journey Level	$54.62	5D	1H		View
King	Boilermakers	Journey Level	$70.79	5N	1C		View
King	Brick Mason	Journey Level	$63.32	7E	1N		View
King	Brick Mason	Pointer-Caulker-Cleaner	$63.32	7E	1N		View
King	Building Service Employees	Janitor	$26.28	5S	2F		View
King	Building Service Employees	Traveling Waxer/Shampooer	$26.63	5S	2F		View
King	Building Service Employees	Window Cleaner (Non-Scaffold)	$29.98	5S	2F		View
King	Building Service Employees	Window Cleaner (Scaffold)	$30.98	5S	2F		View
King	Cabinet Makers (In Shop)	Journey Level	$22.74		1		View
King	Carpenters	Acoustical Worker	$64.94	7A	4C		View
King	Carpenters	Bridge, Dock And Wharf Carpenters	$64.94	7A	4C		View
King	Carpenters	Carpenter	$64.94	7A	4C		View
King	Carpenters	Carpenters on Stationary Tools	$65.07	7A	4C		View
King	Carpenters	Creosoted Material	$65.07	7A	4C		View
King	Carpenters	Floor Finisher	$64.94	7A	4C		View
King	Carpenters	Floor Layer	$64.94	7A	4C		View
King	Carpenters	Scaffold Erector	$64.94	7A	4C		View
King	Cement Masons	Application of all Composition Mastic	$67.41	7A	4U		View
King	Cement Masons	Application of all Epoxy Material	$66.91	7A	4U		View
King	Cement Masons	Application of all Plastic Material	$67.41	7A	4U		View
King	Cement Masons	Application of Sealing Compound	$66.91	7A	4U		View
King	Cement Masons	Application of Underlayment	$67.41	7A	4U		View
King	Cement Masons	Building General	$66.91	7A	4U		View
King	Cement Masons	Composition or Kalman Floors	$67.41	7A	4U		View
King	Cement Masons	Concrete Paving	$66.91	7A	4U		View
King	Cement Masons	Curb & Gutter Machine	$67.41	7A	4U		View

King	Cement Masons	Curb & Gutter, Sidewalks	$66.91	7A	4U		View
King	Cement Masons	Curing Concrete	$66.91	7A	4U		View
King	Cement Masons	Finish Colored Concrete	$67.41	7A	4U		View
King	Cement Masons	Floor Grinding	$67.41	7A	4U		View
King	Cement Masons	Floor Grinding/Polisher	$66.91	7A	4U		View
King	Cement Masons	Green Concrete Saw, self-powered	$67.41	7A	4U		View
King	Cement Masons	Grouting of all Plates	$66.91	7A	4U		View
King	Cement Masons	Grouting of all Tilt-up Panels	$66.91	7A	4U		View
King	Cement Masons	Gunite Nozzleman	$67.41	7A	4U		View
King	Cement Masons	Hand Powered Grinder	$67.41	7A	4U		View
King	Cement Masons	Journey Level	$66.91	7A	4U		View
King	Cement Masons	Patching Concrete	$66.91	7A	4U		View
King	Cement Masons	Pneumatic Power Tools	$67.41	7A	4U		View
King	Cement Masons	Power Chipping & Brushing	$67.41	7A	4U		View
King	Cement Masons	Sand Blasting Architectural Finish	$67.41	7A	4U		View
King	Cement Masons	Screed & Rodding Machine	$67.41	7A	4U		View
King	Cement Masons	Spackling or Skim Coat Concrete	$66.91	7A	4U		View
King	Cement Masons	Troweling Machine Operator	$67.41	7A	4U		View
King	Cement Masons	Troweling Machine Operator on Colored Slabs	$67.41	7A	4U		View
King	Cement Masons	Tunnel Workers	$67.41	7A	4U		View
King	Divers & Tenders	Bell/Vehicle or Submersible Operator (Not Under Pressure)	$118.80	7A	4C		View
King	Divers & Tenders	Dive Supervisor/Master	$81.98	7A	4C		View
King	Divers & Tenders	Diver	$118.80	7A	4C	8V	View
King	Divers & Tenders	Diver On Standby	$76.98	7A	4C		View
King	Divers & Tenders	Diver Tender	$69.91	7A	4C		View
King	Divers & Tenders	Manifold Operator	$69.91	7A	4C		View
King	Divers & Tenders	Manifold Operator Mixed Gas	$74.91	7A	4C		View
King	Divers & Tenders	Remote Operated Vehicle Operator/Technician	$69.91	7A	4C		View
King	Divers & Tenders	Remote Operated Vehicle Tender	$65.19	7A	4C		View
King	Dredge Workers	Assistant Engineer	$73.62	5D	3F		View
King	Dredge Workers	Assistant Mate (Deckhand)	$73.05	5D	3F		View
King	Dredge Workers	Boatmen	$73.62	5D	3F		View
King	Dredge Workers	Engineer Welder	$75.03	5D	3F		View
King	Dredge Workers	Leverman, Hydraulic	$76.53	5D	3F		View
King	Dredge Workers	Mates	$73.62	5D	3F		View
King	Dredge Workers	Oiler	$73.05	5D	3F		View
King	Drywall Applicator	Journey Level	$67.54	5D	1H		View
King	Drywall Tapers	Journey Level	$67.91	5P	1E		View
King	Electrical Fixture Maintenance Workers	Journey Level	$33.19	5L	1E		View
King	Electricians - Inside	Cable Splicer	$92.57	7C	4E		View

King	Electricians - Inside	Cable Splicer (tunnel)	$99.46	7C	4E		View
King	Electricians - Inside	Certified Welder	$89.44	7C	4E		View
King	Electricians - Inside	Certified Welder (tunnel)	$96.02	7C	4E		View
King	Electricians - Inside	Construction Stock Person	$44.78	7C	4E		View
King	Electricians - Inside	Journey Level	$86.30	7C	4E		View
King	Electricians - Inside	Journey Level (tunnel)	$92.57	7C	4E		View
King	Electricians - Motor Shop	Journey Level	$47.53	5A	1B		View
King	Electricians - Powerline Construction	Cable Splicer	$82.39	5A	4D		View
King	Electricians - Powerline Construction	Certified Line Welder	$75.64	5A	4D		View
King	Electricians - Powerline Construction	Groundperson	$49.17	5A	4D		View
King	Electricians - Powerline Construction	Heavy Line Equipment Operator	$75.64	5A	4D		View
King	Electricians - Powerline Construction	Journey Level Lineperson	$75.64	5A	4D		View
King	Electricians - Powerline Construction	Line Equipment Operator	$64.54	5A	4D		View
King	Electricians - Powerline Construction	Meter Installer	$49.17	5A	4D	8W	View
King	Electricians - Powerline Construction	Pole Sprayer	$75.64	5A	4D		View
King	Electricians - Powerline Construction	Powderperson	$56.49	5A	4D		View
King	Electronic Technicians	Journey Level	$55.32	7E	1E		View
King	Elevator Constructors	Mechanic	$100.51	7D	4A		View
King	Elevator Constructors	Mechanic In Charge	$108.53	7D	4A		View
King	Fabricated Precast Concrete Products	All Classifications - In-Factory Work Only	$18.25	5B	1R		View
King	Fence Erectors	Fence Erector	$46.29	7A	4V	8Y	View
King	Fence Erectors	Fence Laborer	$46.29	7A	4V	8Y	View
King	Flaggers	Journey Level	$46.29	7A	4V	8Y	View
King	Glaziers	Journey Level	$72.41	7L	1Y		View
King	Heat & Frost Insulators And Asbestos Workers	Journey Level	$82.02	15H	11C		View
King	Heating Equipment Mechanics	Journey Level	$91.83	7F	1E		View
King	Hod Carriers & Mason Tenders	Journey Level	$46.42	7A	4V	8Y	View
King	Industrial Power Vacuum Cleaner	Journey Level	$13.69		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, Foamer Operator	$31.49		1		View
King	Inspection/Cleaning/Sealing Of	Grout Truck Operator	$13.69		1		View

	Sewer & Water Systems By Remote Control						
King	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Head Operator	$24.91		1		View
King	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Technician	$19.33		1		View
King	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Tv Truck Operator	$20.45		1		View
King	Insulation Applicators	Journey Level	$64.94	7A	4C		View
King	Ironworkers	Journeyman	$78.53	7N	1O		View
King	Laborers	Air, Gas Or Electric Vibrating Screed	$54.62	7A	4V	8Y	View
King	Laborers	Airtrac Drill Operator	$56.31	7A	4V	8Y	View
King	Laborers	Ballast Regular Machine	$54.62	7A	4V	8Y	View
King	Laborers	Batch Weighman	$46.29	7A	4V	8Y	View
King	Laborers	Brick Pavers	$54.62	7A	4V	8Y	View
King	Laborers	Brush Cutter	$54.62	7A	4V	8Y	View
King	Laborers	Brush Hog Feeder	$54.62	7A	4V	8Y	View
King	Laborers	Burner	$54.62	7A	4V	8Y	View
King	Laborers	Caisson Worker	$56.31	7A	4V	8Y	View
King	Laborers	Carpenter Tender	$54.62	7A	4V	8Y	View
King	Laborers	Cement Dumper-paving	$55.62	7A	4V	8Y	View
King	Laborers	Cement Finisher Tender	$54.62	7A	4V	8Y	View
King	Laborers	Change House Or Dry Shack	$54.62	7A	4V	8Y	View
King	Laborers	Chipping Gun (30 Lbs. And Over)	$55.62	7A	4V	8Y	View
King	Laborers	Chipping Gun (Under 30 Lbs.)	$54.62	7A	4V	8Y	View
King	Laborers	Choker Setter	$54.62	7A	4V	8Y	View
King	Laborers	Chuck Tender	$54.62	7A	4V	8Y	View
King	Laborers	Clary Power Spreader	$55.62	7A	4V	8Y	View
King	Laborers	Clean-up Laborer	$54.62	7A	4V	8Y	View
King	Laborers	Concrete Dumper/Chute Operator	$55.62	7A	4V	8Y	View
King	Laborers	Concrete Form Stripper	$54.62	7A	4V	8Y	View
King	Laborers	Concrete Placement Crew	$55.62	7A	4V	8Y	View
King	Laborers	Concrete Saw Operator/Core Driller	$55.62	7A	4V	8Y	View
King	Laborers	Crusher Feeder	$46.29	7A	4V	8Y	View
King	Laborers	Curing Laborer	$54.62	7A	4V	8Y	View
King	Laborers	Demolition: Wrecking & Moving (Incl. Charred Material)	$54.62	7A	4V	8Y	View
King	Laborers	Ditch Digger	$54.62	7A	4V	8Y	View
King	Laborers	Diver	$56.31	7A	4V	8Y	View
King	Laborers	Drill Operator (Hydraulic, Diamond)	$55.62	7A	4V	8Y	View
King	Laborers	Dry Stack Walls	$54.62	7A	4V	8Y	View
King	Laborers	Dump Person	$54.62	7A	4V	8Y	View

King	Laborers	Epoxy Technician	$54.62	7A	4V	8Y	View
King	Laborers	Erosion Control Worker	$54.62	7A	4V	8Y	View
King	Laborers	Faller & Bucker Chain Saw	$55.62	7A	4V	8Y	View
King	Laborers	Fine Graders	$54.62	7A	4V	8Y	View
King	Laborers	Firewatch	$46.29	7A	4V	8Y	View
King	Laborers	Form Setter	$54.62	7A	4V	8Y	View
King	Laborers	Gabian Basket Builders	$54.62	7A	4V	8Y	View
King	Laborers	General Laborer	$54.62	7A	4V	8Y	View
King	Laborers	Grade Checker & Transit Person	$46.42	7A	4V	8Y	View
King	Laborers	Grinders	$54.62	7A	4V	8Y	View
King	Laborers	Grout Machine Tender	$54.62	7A	4V	8Y	View
King	Laborers	Groutmen (Pressure) Including Post Tension Beams	$55.62	7A	4V	8Y	View
King	Laborers	Guardrail Erector	$54.62	7A	4V	8Y	View
King	Laborers	Hazardous Waste Worker (Level A)	$56.31	7A	4V	8Y	View
King	Laborers	Hazardous Waste Worker (Level B)	$55.62	7A	4V	8Y	View
King	Laborers	Hazardous Waste Worker (Level C)	$54.62	7A	4V	8Y	View
King	Laborers	High Scaler	$56.31	7A	4V	8Y	View
King	Laborers	Jackhammer	$55.62	7A	4V	8Y	View
King	Laborers	Laserbeam Operator	$55.62	7A	4V	8Y	View
King	Laborers	Maintenance Person	$54.62	7A	4V	8Y	View
King	Laborers	Manhole Builder-Mudman	$55.62	7A	4V	8Y	View
King	Laborers	Material Yard Person	$54.62	7A	4V	8Y	View
King	Laborers	Motorman-Dinky Locomotive	$55.62	7A	4V	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)	$46.42	7A	4V	8Y	View
King	Laborers	Pavement Breaker	$55.62	7A	4V	8Y	View
King	Laborers	Pilot Car	$46.29	7A	4V	8Y	View
King	Laborers	Pipe Layer (Lead)	$46.42	7A	4V	8Y	View
King	Laborers	Pipe Layer/Tailor	$55.62	7A	4V	8Y	View
King	Laborers	Pipe Pot Tender	$55.62	7A	4V	8Y	View
King	Laborers	Pipe Reliner	$55.62	7A	4V	8Y	View
King	Laborers	Pipe Wrapper	$55.62	7A	4V	8Y	View
King	Laborers	Pot Tender	$54.62	7A	4V	8Y	View
King	Laborers	Powderman	$56.31	7A	4V	8Y	View
King	Laborers	Powderman's Helper	$54.62	7A	4V	8Y	View
King	Laborers	Power Jacks	$55.62	7A	4V	8Y	View
King	Laborers	Railroad Spike Puller - Power	$55.62	7A	4V	8Y	View
King	Laborers	Raker - Asphalt	$46.42	7A	4V	8Y	View
King	Laborers	Re-timberman	$56.31	7A	4V	8Y	View
King	Laborers	Remote Equipment Operator	$55.62	7A	4V	8Y	View

King	Laborers	Rigger/Signal Person	$55.62	7A	4V	8Y	View
King	Laborers	Rip Rap Person	$54.62	7A	4V	8Y	View
King	Laborers	Rivet Buster	$55.62	7A	4V	8Y	View
King	Laborers	Rodder	$55.62	7A	4V	8Y	View
King	Laborers	Scaffold Erector	$54.62	7A	4V	8Y	View
King	Laborers	Scale Person	$54.62	7A	4V	8Y	View
King	Laborers	Sloper (Over 20")	$55.62	7A	4V	8Y	View
King	Laborers	Sloper Sprayer	$54.62	7A	4V	8Y	View
King	Laborers	Spreader (Concrete)	$55.62	7A	4V	8Y	View
King	Laborers	Stake Hopper	$54.62	7A	4V	8Y	View
King	Laborers	Stock Piler	$54.62	7A	4V	8Y	View
King	Laborers	Swinging Stage/Boatswain Chair	$46.29	7A	4V	8Y	View
King	Laborers	Tamper & Similar Electric, Air & Gas Operated Tools	$55.62	7A	4V	8Y	View
King	Laborers	Tamper (Multiple & Self-propelled)	$55.62	7A	4V	8Y	View
King	Laborers	Timber Person - Sewer (Lagger, Shorer & Cribber)	$55.62	7A	4V	8Y	View
King	Laborers	Toolroom Person (at Jobsite)	$54.62	7A	4V	8Y	View
King	Laborers	Topper	$54.62	7A	4V	8Y	View
King	Laborers	Track Laborer	$54.62	7A	4V	8Y	View
King	Laborers	Track Liner (Power)	$55.62	7A	4V	8Y	View
King	Laborers	Traffic Control Laborer	$49.50	7A	4V	9C	View
King	Laborers	Traffic Control Supervisor	$52.45	7A	4V	9C	View
King	Laborers	Truck Spotter	$54.62	7A	4V	8Y	View
King	Laborers	Tugger Operator	$55.62	7A	4V	8Y	View
King	Laborers	Tunnel Work-Compressed Air Worker 0-30 psi	$142.82	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 30.01-44.00 psi	$147.85	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 44.01-54.00 psi	$151.53	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 54.01-60.00 psi	$157.23	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 60.01-64.00 psi	$159.35	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 64.01-68.00 psi	$164.45	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 68.01-70.00 psi	$166.35	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 70.01-72.00 psi	$168.35	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 72.01-74.00 psi	$170.35	7A	4V	9B	View
King	Laborers	Tunnel Work-Guage and Lock Tender	$57.41	7A	4V	8Y	View
King	Laborers	Tunnel Work-Miner	$57.41	7A	4V	8Y	View
King	Laborers	Vibrator	$55.62	7A	4V	8Y	View
King	Laborers	Vinyl Seamer	$54.62	7A	4V	8Y	View

King	Laborers	Watchman	$42.08	7A	4V	8Y	View
King	Laborers	Welder	$55.62	7A	4V	8Y	View
King	Laborers	Well Point Laborer	$55.62	7A	4V	8Y	View
King	Laborers	Window Washer/Cleaner	$42.08	7A	4V	8Y	View
King	Laborers - Underground Sewer & Water	General Laborer & Topman	$54.62	7A	4V	8Y	View
King	Laborers - Underground Sewer & Water	Pipe Layer	$55.62	7A	4V	8Y	View
King	Landscape Construction	Landscape Construction/Landscaping Or Planting Laborers	$42.08	7A	4V	8Y	View
King	Landscape Construction	Landscape Operator	$72.28	7A	3K	8X	View
King	Landscape Maintenance	Groundskeeper	$17.87		1		View
King	Lathers	Journey Level	$67.54	5D	1H		View
King	Marble Setters	Journey Level	$63.32	7E	1N		View
King	Metal Fabrication (In Shop)	Fitter/Certified Welder	$40.39	15I	11E		View
King	Metal Fabrication (In Shop)	General Laborer	$28.86	15I	11E		View
King	Metal Fabrication (In Shop)	Mechanic	$41.78	15I	11E		View
King	Metal Fabrication (In Shop)	Welder/Burner	$37.64	15I	11E		View
King	Millwright	Journey Level	$66.44	7A	4C		View
King	Modular Buildings	Cabinet Assembly	$13.69		1		View
King	Modular Buildings	Electrician	$13.69		1		View
King	Modular Buildings	Equipment Maintenance	$13.69		1		View
King	Modular Buildings	Plumber	$13.69		1		View
King	Modular Buildings	Production Worker	$13.69		1		View
King	Modular Buildings	Tool Maintenance	$13.69		1		View
King	Modular Buildings	Utility Person	$13.69		1		View
King	Modular Buildings	Welder	$13.69		1		View
King	Painters	Journey Level	$47.70	6Z	2B		View
King	Pile Driver	Crew Tender	$69.91	7A	4C		View
King	Pile Driver	Crew Tender/Technician	$69.91	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 0-30.00 PSI	$80.76	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 30.01 - 44.00 PSI	$85.76	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 44.01 - 54.00 PSI	$89.76	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 54.01 - 60.00 PSI	$94.76	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 60.01 - 64.00 PSI	$97.26	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 64.01 - 68.00 PSI	$102.26	7A	4C		View
King	Pile Driver	Hyperbaric Worker -	$104.26	7A	4C		View

		Compressed Air Worker 68.01 - 70.00 PSI					
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 70.01 - 72.00 PSI	$106.26	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 72.01 - 74.00 PSI	$108.26	7A	4C		View
King	Pile Driver	Journey Level	$65.19	7A	4C		View
King	Plasterers	Journey Level	$64.14	7Q	1R		View
King	Plasterers	Nozzleman	$67.64	7Q	1R		View
King	Playground & Park Equipment Installers	Journey Level	$13.69		1		View
King	Plumbers & Pipefitters	Journey Level	$93.69	6Z	1G		View
King	Power Equipment Operators	Asphalt Plant Operators	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Assistant Engineer	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Barrier Machine (zipper)	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Batch Plant Operator: concrete	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Bobcat	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Brokk - Remote Demolition Equipment	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Brooms	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Bump Cutter	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Cableways	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Chipper	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Compressor	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Concrete Finish Machine - Laser Screed	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Concrete Pump: Truck Mount With Boom Attachment Over 42 M	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Conveyors	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Cranes friction: 200 tons and over	$75.72	7A	3K	8X	View
King	Power Equipment Operators	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	$74.22	7A	3K	8X	View
King	Power Equipment Operators	Cranes: 20 Tons Through 44 Tons With Attachments	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	$74.99	7A	3K	8X	View
King	Power Equipment Operators	Cranes: 300 tons and over or 300' of boom including jib with attachments	$75.72	7A	3K	8X	View

King	Power Equipment Operators	Cranes: 45 Tons Through 99 Tons, Under 150' Of Boom (including Jib With Attachments)	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Cranes: A-frame - 10 Tons And Under	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Cranes: Friction cranes through 199 tons	$74.99	7A	3K	8X	View
King	Power Equipment Operators	Cranes: through 19 tons with attachments, A-frame over 10 tons	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Crusher	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Deck Engineer/Deck Winches (power)	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Derricks, On Building Work	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Dozers D-9 & Under	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Drill Oilers: Auger Type, Truck Or Crane Mount	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Drilling Machine	$74.22	7A	3K	8X	View
King	Power Equipment Operators	Elevator And Man-lift: Permanent And Shaft Type	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Finishing Machine, Bidwell And Gamaco & Similar Equipment	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Forklift: 3000 Lbs And Over With Attachments	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Forklifts: Under 3000 Lbs. With Attachments	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Grade Engineer: Using Blue Prints, Cut Sheets, Etc	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Gradechecker/Stakeman	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Guardrail Punch	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Horizontal/Directional Drill Locator	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Horizontal/Directional Drill Operator	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Hydralifts/Boom Trucks Over 10 Tons	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Hydralifts/Boom Trucks, 10 Tons And Under	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Loader, Overhead 8 Yards. & Over	$74.22	7A	3K	8X	View
King	Power Equipment Operators	Loader, Overhead, 6 Yards. But Not Including 8 Yards	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Loaders, Overhead Under 6 Yards	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Loaders, Plant Feed	$72.84	7A	3K	8X	View

King	Power Equipment Operators	Loaders: Elevating Type Belt	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Locomotives, All	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Material Transfer Device	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Mechanics, All (leadmen - $0.50 Per Hour Over Mechanic)	$74.22	7A	3K	8X	View
King	Power Equipment Operators	Motor Patrol Graders	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Oil Distributors, Blower Distribution & Mulch Seeding Operator	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Outside Hoists (Elevators And Manlifts), Air Tuggers, Strato	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Overhead, Bridge Type Crane: 20 Tons Through 44 Tons	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Overhead, Bridge Type: 100 Tons And Over	$74.22	7A	3K	8X	View
King	Power Equipment Operators	Overhead, Bridge Type: 45 Tons Through 99 Tons	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Pavement Breaker	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Pile Driver (other Than Crane Mount)	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Plant Oiler - Asphalt, Crusher	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Posthole Digger, Mechanical	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Power Plant	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Pumps - Water	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Quad 9, Hd 41, D10 And Over	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Quick Tower - No Cab, Under 100 Feet In Height Based To Boom	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Remote Control Operator On Rubber Tired Earth Moving Equipment	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Rigger and Bellman	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Rigger/Signal Person, Bellman (Certified)	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Rollagon	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Roller, Other Than Plant Mix	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Roller, Plant Mix Or Multi-lift Materials	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Roto-mill, Roto-grinder	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Saws - Concrete	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Scraper, Self Propelled Under 45 Yards	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Scrapers - Concrete & Carry All	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Scrapers, Self-propelled: 45 Yards And Over	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Service Engineers - Equipment	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Shotcrete/Gunite Equipment	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Shovel, Excavator, Backhoe,	$72.28	7A	3K	8X	View

		Tractors Under 15 Metric Tons					
King	Power Equipment Operators	Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons	$74.22	7A	3K	8X	View
King	Power Equipment Operators	Shovel, Excavator, Backhoes: Over 90 Metric Tons	$74.99	7A	3K	8X	View
King	Power Equipment Operators	Slipform Pavers	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Spreader, Topsider & Screedman	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Subgrader Trimmer	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Tower Bucket Elevators	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Tower Crane Up To 175' In Height Base To Boom	$74.22	7A	3K	8X	View
King	Power Equipment Operators	Tower Crane: over 175' through 250' in height, base to boom	$74.99	7A	3K	8X	View
King	Power Equipment Operators	Tower Cranes: over 250' in height from base to boom	$75.72	7A	3K	8X	View
King	Power Equipment Operators	Transporters, All Track Or Truck Type	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Trenching Machines	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Truck Crane Oiler/driver - 100 Tons And Over	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Truck Crane Oiler/Driver Under 100 Tons	$72.28	7A	3K	8X	View
King	Power Equipment Operators	Truck Mount Portable Conveyor	$72.84	7A	3K	8X	View
King	Power Equipment Operators	Welder	$73.49	7A	3K	8X	View
King	Power Equipment Operators	Wheel Tractors, Farmall Type	$69.12	7A	3K	8X	View
King	Power Equipment Operators	Yo Yo Pay Dozer	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Asphalt Plant Operators	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Assistant Engineer	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Barrier Machine (zipper)	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Batch Plant Operator, Concrete	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Bobcat	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Brokk - Remote Demolition Equipment	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Brooms	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Bump Cutter	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cableways	$73.49	7A	3K	8X	View
King	Power Equipment Operators-	Chipper	$72.84	7A	3K	8X	View

	Underground Sewer & Water						
King	Power Equipment Operators-Underground Sewer & Water	Compressor	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Concrete Finish Machine - Laser Screed	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Concrete Pump: Truck Mount With Boom Attachment Over 42 M	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Conveyors	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes friction: 200 tons and over	$75.72	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	$74.22	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: 20 Tons Through 44 Tons With Attachments	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	$74.99	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: 300 tons and over or 300' of boom including jib with attachments	$75.72	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: 45 Tons Through 99 Tons, Under 150' Of Boom (including Jib With Attachments)	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: A-frame - 10 Tons And Under	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: Friction cranes through 199 tons	$74.99	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Cranes: through 19 tons with attachments, A-frame over 10 tons	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Crusher	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Deck Engineer/Deck Winches (power)	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Derricks, On Building Work	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Dozers D-9 & Under	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Drill Oilers: Auger Type, Truck Or Crane Mount	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Drilling Machine	$74.22	7A	3K	8X	View
King	Power Equipment Operators-	Elevator And Man-lift:	$69.12	7A	3K	8X	View

	Underground Sewer & Water	Permanent And Shaft Type					
King	Power Equipment Operators-Underground Sewer & Water	Finishing Machine, Bidwell And Gamaco & Similar Equipment	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Forklift: 3000 Lbs And Over With Attachments	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Forklifts: Under 3000 Lbs. With Attachments	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Grade Engineer: Using Blue Prints, Cut Sheets, Etc	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Gradechecker/Stakeman	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Guardrail Punch	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Horizontal/Directional Drill Locator	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Horizontal/Directional Drill Operator	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Hydralifts/Boom Trucks Over 10 Tons	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Hydralifts/Boom Trucks, 10 Tons And Under	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Loader, Overhead 8 Yards. & Over	$74.22	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Loader, Overhead, 6 Yards. But Not Including 8 Yards	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Loaders, Overhead Under 6 Yards	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Loaders, Plant Feed	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Loaders: Elevating Type Belt	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Locomotives, All	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Material Transfer Device	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Mechanics, All (leadmen - $0.50 Per Hour Over Mechanic)	$74.22	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Motor Patrol Graders	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Oil Distributors, Blower Distribution & Mulch Seeding Operator	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Outside Hoists (Elevators And Manlifts), Air Tuggers, Strato	$72.28	7A	3K	8X	View

King	Power Equipment Operators-Underground Sewer & Water	Overhead, Bridge Type Crane: 20 Tons Through 44 Tons	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Overhead, Bridge Type: 100 Tons And Over	$74.22	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Overhead, Bridge Type: 45 Tons Through 99 Tons	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Pavement Breaker	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Pile Driver (other Than Crane Mount)	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Plant Oiler - Asphalt, Crusher	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Posthole Digger, Mechanical	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Power Plant	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Pumps - Water	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Quad 9, Hd 41, D10 And Over	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Quick Tower - No Cab, Under 100 Feet In Height Based To Boom	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Remote Control Operator On Rubber Tired Earth Moving Equipment	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Rigger and Bellman	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Rigger/Signal Person, Bellman (Certified)	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Rollagon	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Roller, Other Than Plant Mix	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Roller, Plant Mix Or Multi-lift Materials	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Roto-mill, Roto-grinder	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Saws - Concrete	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Scraper, Self Propelled Under 45 Yards	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Scrapers - Concrete & Carry All	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Scrapers, Self-propelled: 45 Yards And Over	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Service Engineers - Equipment	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Shotcrete/Gunite Equipment	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoe, Tractors Under 15 Metric Tons	$72.28	7A	3K	8X	View
King	Power Equipment Operators-	Shovel, Excavator, Backhoe:	$73.49	7A	3K	8X	View

	Underground Sewer & Water	Over 30 Metric Tons To 50 Metric Tons					
King	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons	$74.22	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes: Over 90 Metric Tons	$74.99	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Slipform Pavers	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Spreader, Topsider & Screedman	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Subgrader Trimmer	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Tower Bucket Elevators	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Tower Crane Up To 175' In Height Base To Boom	$74.22	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Tower Crane: over 175' through 250' in height, base to boom	$74.99	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Tower Cranes: over 250' in height from base to boom	$75.72	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Transporters, All Track Or Truck Type	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Trenching Machines	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Truck Crane Oiler/driver - 100 Tons And Over	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Truck Crane Oiler/Driver Under 100 Tons	$72.28	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Truck Mount Portable Conveyor	$72.84	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Welder	$73.49	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Wheel Tractors, Farmall Type	$69.12	7A	3K	8X	View
King	Power Equipment Operators-Underground Sewer & Water	Yo Yo Pay Dozer	$72.84	7A	3K	8X	View
King	Power Line Clearance Tree Trimmers	Journey Level In Charge	$55.03	5A	4A		View
King	Power Line Clearance Tree Trimmers	Spray Person	$52.24	5A	4A		View
King	Power Line Clearance Tree Trimmers	Tree Equipment Operator	$55.03	5A	4A		View
King	Power Line Clearance Tree Trimmers	Tree Trimmer	$49.21	5A	4A		View
King	Power Line Clearance Tree Trimmers	Tree Trimmer Groundperson	$37.47	5A	4A		View
King	Refrigeration & Air Conditioning Mechanics	Journey Level	$88.51	6Z	1G		View
King	Residential Brick Mason	Journey Level	$63.32	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	$64.94	7A	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	$93.69	6Z	1G		View
King	Residential Refrigeration & Air Conditioning Mechanics	Journey Level	$88.51	6Z	1G		View
King	Residential Sheet Metal Workers	Journey Level	$91.83	7F	1E		View
King	Residential Soft Floor Layers	Journey Level	$51.91	5A	3J		View
King	Residential Sprinkler Fitters (Fire Protection)	Journey Level	$53.04	5C	2R		View
King	Residential Stone Masons	Journey Level	$63.32	7E	1N		View
King	Residential Terrazzo Workers	Journey Level	$57.71	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	$57.30	5A	3H		View
King	Roofers	Using Irritable Bituminous Materials	$60.30	5A	3H		View
King	Sheet Metal Workers	Journey Level (Field or Shop)	$91.83	7F	1E		View
King	Shipbuilding & Ship Repair	New Construction Boilermaker	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Carpenter	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Crane Operator	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Electrician	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Heat & Frost Insulator	$82.02	15H	11C		View
King	Shipbuilding & Ship Repair	New Construction Laborer	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Machinist	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Operating Engineer	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Painter	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Pipefitter	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Rigger	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Sheet Metal	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Shipfitter	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Warehouse/Teamster	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	New Construction Welder / Burner	$39.58	7V	1		View
King	Shipbuilding & Ship Repair	Ship Repair Boilermaker	$47.45	7X	4J		View

King	Shipbuilding & Ship Repair	Ship Repair Carpenter	$47.35	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Crane Operator	$45.06	7Y	4K		View
King	Shipbuilding & Ship Repair	Ship Repair Electrician	$47.42	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Heat & Frost Insulator	$82.02	15H	11C		View
King	Shipbuilding & Ship Repair	Ship Repair Laborer	$47.35	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Machinist	$47.35	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Operating Engineer	$45.06	7Y	4K		View
King	Shipbuilding & Ship Repair	Ship Repair Painter	$47.35	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Pipefitter	$47.35	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Rigger	$47.45	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Sheet Metal	$47.35	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Shipwright	$47.35	7X	4J		View
King	Shipbuilding & Ship Repair	Ship Repair Warehouse / Teamster	$45.06	7Y	4K		View
King	Sign Makers & Installers (Electrical)	Journey Level	$51.56	0	1		View
King	Sign Makers & Installers (Non-Electrical)	Journey Level	$33.20	0	1		View
King	Soft Floor Layers	Journey Level	$51.91	5A	3J		View
King	Solar Controls For Windows	Journey Level	$13.69		1		View
King	Sprinkler Fitters (Fire Protection)	Journey Level	$87.99	5C	1X		View
King	Stage Rigging Mechanics (Non Structural)	Journey Level	$13.69		1		View
King	Stone Masons	Journey Level	$63.32	7E	1N		View
King	Street And Parking Lot Sweeper Workers	Journey Level	$19.09		1		View
King	Surveyors	Assistant Construction Site Surveyor	$72.28	7A	3K	8X	View
King	Surveyors	Chainman	$69.12	7A	3K	8X	View
King	Surveyors	Construction Site Surveyor	$73.49	7A	3K	8X	View
King	Telecommunication Technicians	Journey Level	$55.32	7E	1E		View
King	Telephone Line Construction - Outside	Cable Splicer	$38.27	5A	2B		View
King	Telephone Line Construction - Outside	Hole Digger/Ground Person	$25.66	5A	2B		View
King	Telephone Line Construction - Outside	Telephone Equipment Operator (Light)	$31.96	5A	2B		View
King	Telephone Line Construction - Outside	Telephone Lineperson	$36.17	5A	2B		View
King	Terrazzo Workers	Journey Level	$57.71	7E	1N		View
King	Tile Setters	Journey Level	$57.71	7E	1N		View
King	Tile, Marble & Terrazzo Finishers	Finisher	$48.54	7E	1N		View
King	Traffic Control Stripers	Journey Level	$50.51	7A	1K		View
King	Truck Drivers	Asphalt Mix Over 16 Yards	$64.55	5D	4Y	8L	View
King	Truck Drivers	Asphalt Mix To 16 Yards	$63.71	5D	4Y	8L	View
King	Truck Drivers	Dump Truck	$63.71	5D	4Y	8L	View
King	Truck Drivers	Dump Truck & Trailer	$64.55	5D	4Y	8L	View

King	Truck Drivers	Other Trucks	$64.55	5D	4Y	8L	View
King	Truck Drivers - Ready Mix	Transit Mix	$64.55	5D	4Y	8L	View
King	Well Drillers & Irrigation Pump Installers	Irrigation Pump Installer	$17.71		1		View
King	Well Drillers & Irrigation Pump Installers	Oiler	$13.69		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.

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.

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.

Overtime Codes Continued

1. 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.

   O. All hours worked on Sundays and holidays shall be paid at one and one-half times 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.

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.

Overtime Codes Continued

4. 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.

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.

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.

W. 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.

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.

Overtime Codes Continued

4. 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.

   Y. 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 shift, and all work on Saturdays shall be paid at time and one-half the straight time rate. All work performed after 6:00 pm Saturday to 6:00 am Monday and holidays shall be paid at double the straight time rate of pay.

   Any shift starting between the hours of 6:00 pm and midnight shall receive an additional one dollar ($1.00) per hour for all hours worked that shift.

   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.

   Z. 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 20% over the hourly rate of wage. Work performed on Sundays may be paid at double time. All hours worked on holidays shall be paid at double the hourly rate of wage.

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.

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.

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).

J. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Eve Day, And Christmas Day (7).

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).

Holiday Codes Continued

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).

6. 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).

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.

7. 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.

Holiday Codes Continued

7. 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.

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.

Holiday Codes Continued

7. 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.

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, 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.

Holiday Codes Continued

7. 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.

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, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Eve Day, and Christmas Day (8). When the following holidays fall on a Saturday (New Year's Day, Independence Day, and Christmas Day) the preceding Friday will be considered as the holiday; should they fall on a Sunday, the following Monday shall be considered as the holiday.

I. Holidays: New Year's Day, President's Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, the last regular workday before Christmas (8). 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

8. 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.)

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

9. 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.

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.

APPENDIX A

PLANS

(SUBMITTED AS A SEPARATE PACKAGE.)

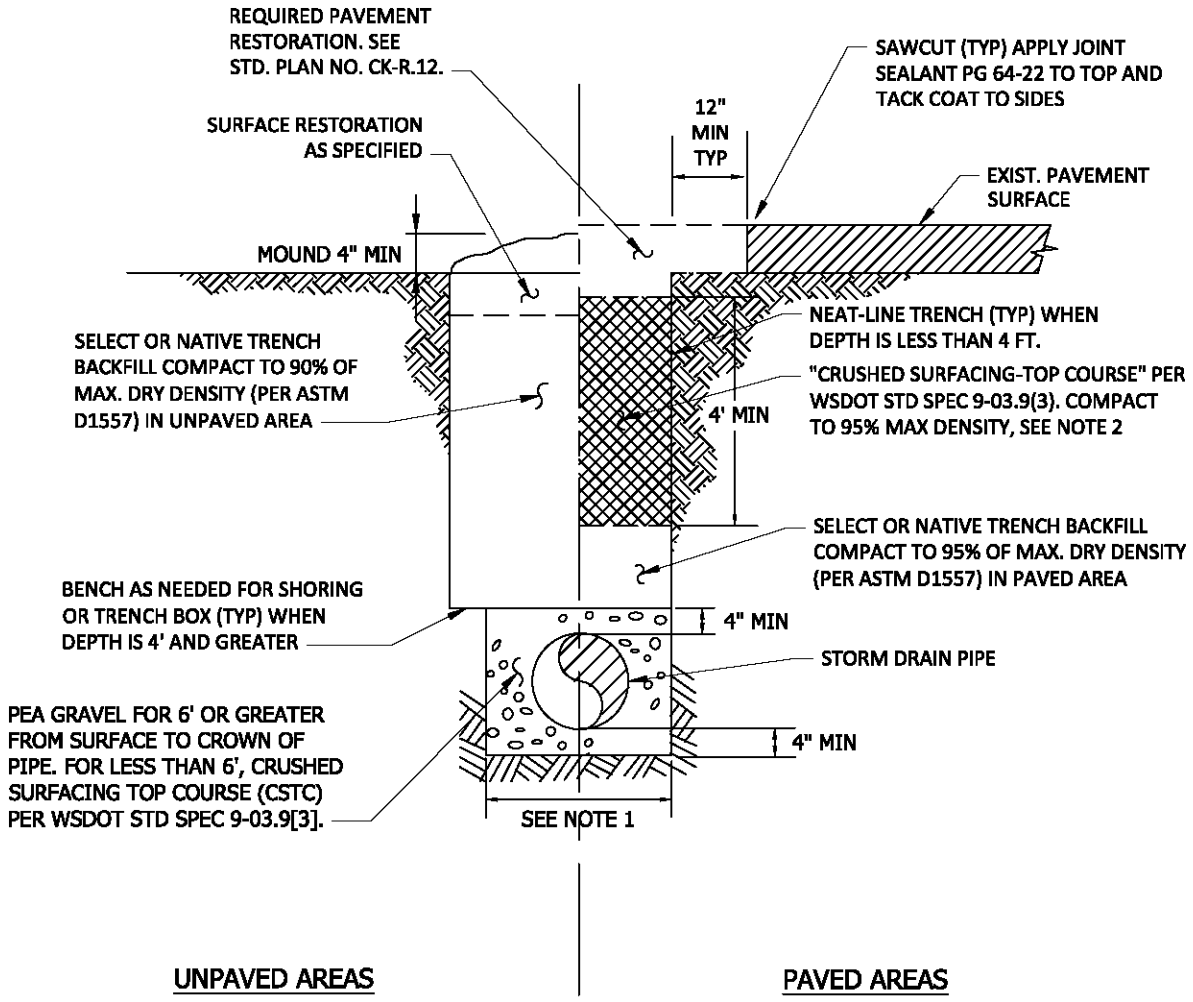
City of Kirkland

APPENDIX B

PRE-APPROVED PLANS

City of Kirkland

LAST REVISED: 1/2020



NOTES:

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

2. WHERE TRENCH IS PERPENDICULAR TO TRAVELED LANES, BACKFILL FULL DEPTH WITH CRUSHED SURFACING–TOP COURSE. WHERE TRENCH IS PARALLEL TO TRAVELED LANES, BACKFILL THE TOP 4' OF TRENCH TO SUBGRADE WITH CRUSHED SURFACING–TOP COURSE. SUITABLE EXCAVATED MATERIAL MAY BE USED PROVIDED 95% MAX. COMPACTION DENSITY (ASTM D1557) CAN BE ACHIEVED.

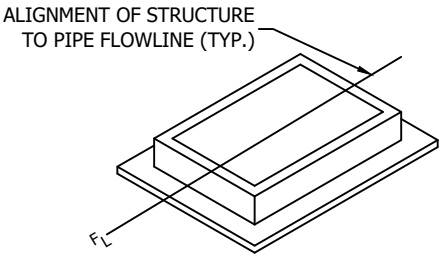
3. SEE OVERLAY POLICY R–7.

CITY OF KIRKLAND

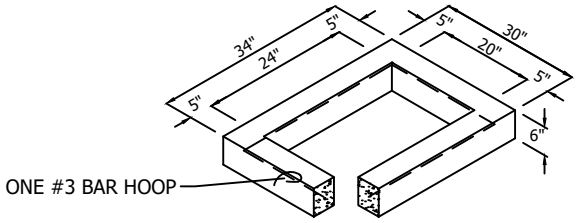
PLAN NO. CK- D.02

STORM TRENCH DETAIL

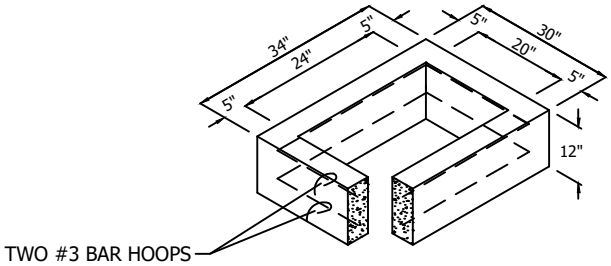
LAST REVISED: 01/2021



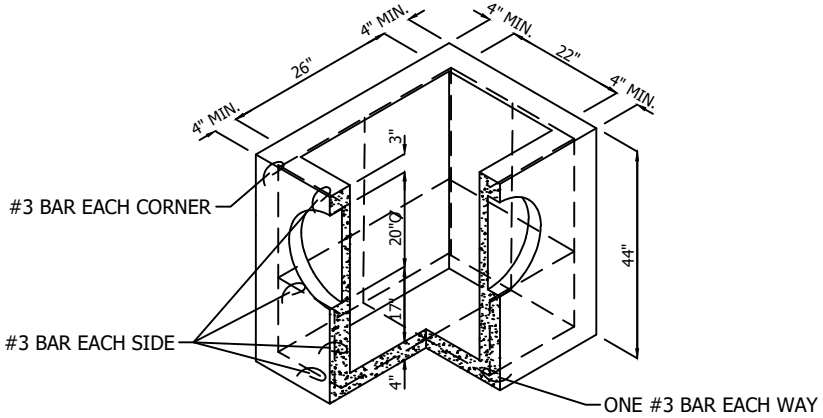
FRAME AND GRATE
(SEE STANDARD DETAILS D.11 THROUGH D.16A)



6" RISER SECTION



12" RISER SECTION



PRECAST BASE SECTION
(MEASUREMENT AT THE TOP OF THE BASE)

NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & 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 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. 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 DIAM. PLUS CATCH BASIN WALL THICKNESS.
6. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIAM. OF 20". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
7. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2" PER FOOT.
9. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
10. FRAME AND GRATE SHALL BE INSTALLED WITH FLANGE DOWN.
11. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.
12. ACCEPTABLE PIPE SIZES ARE 6", 8", 12" OR 15".
13. ROUND SOLID LIDS REQUIRED WHENEVER CATCH BASIN DOES NOT COLLECT SURFACE WATER.
14. ROUND CONCRETE RISERS ARE REQUIRED FOR ROUND SOLID LOCKING LIDS.
15. ALL NEW PVC PIPES SHALL BE INSTALLED WITH SAND COLLARS AND A NON-SHRINK GROUT. JETSET NOT ALLOWED.

CITY OF KIRKLAND

PLAN NO. CK - D.07

CITY OF KIRKLAND WASHINGTON

CATCH BASIN TYPE 1

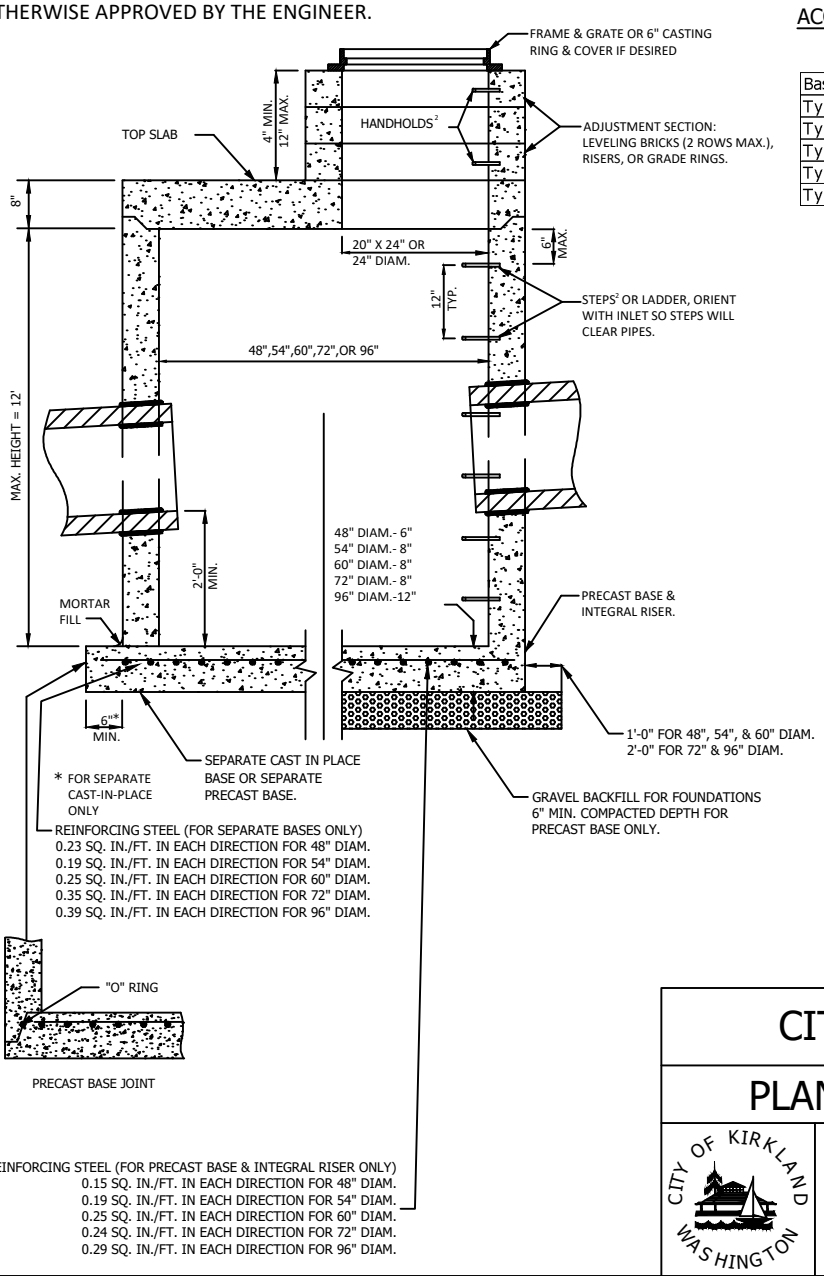
LAST REVISED: 01/2021

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 STANDARD SPECIFICATIONS.
2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN CATCH BASIN SHALL HAVE 6" MIN. CLEARANCE. SEE STD. DTL. NO. CK-D.12, CATCH BASIN DETAILS. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HANDHOLD BETWEEN THE LAST STEP AND TOP OF THE FINISHED GRADE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. CATCH BASIN FRAMES AND GRATES OR COVERS SHALL BE IN ACCORDANCE WITH SEC. 7.05 OF THE STANDARD SPECIFICATIONS. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
6. 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 1" MIN. CLEARANCE.
7. MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT.
8. FOR DETAILS SHOWING LADDER, STEPS, HANDRAILS AND TOP SLABS, SEE STD. DTLS. NO. CK-D.12 AND CK-S.14.
9. ALL MANHOLE JOINTS SHALL USE A CONFINED RUBBER GASKET AND GROUTED (INSIDE AND OUT) TO MEET ASTM C-443 SPECIFICATIONS.
10. ROUND SOLID LOCKING LIDS REQUIRED IN SIDEWALK AND PLANTER AREAS.
11. ALL NEW PIPES SHALL BE INSTALLED WITH EITHER A KOR-N-SEAL BOOT, OR SAND COLLARS AND A NON-SHRINK GROUT. JETSET NOT ALLOWED.

ACCEPTABLE PIPE SIZES:

	Pipe Size								
Basin Type	6"	8"	12"	15"	18"	24"	30"	36"	48"
Type II-48" CB	X	X	X	X	X	X	X		
Type II-54" CB	X	X	X	X	X	X	X	X	
Type II-60" CB	X	X	X	X	X	X	X	X	
Type II-72" CB	X	X	X	X	X	X	X	X	X
Type II-96" CB	X	X	X	X	X	X	X	X	X

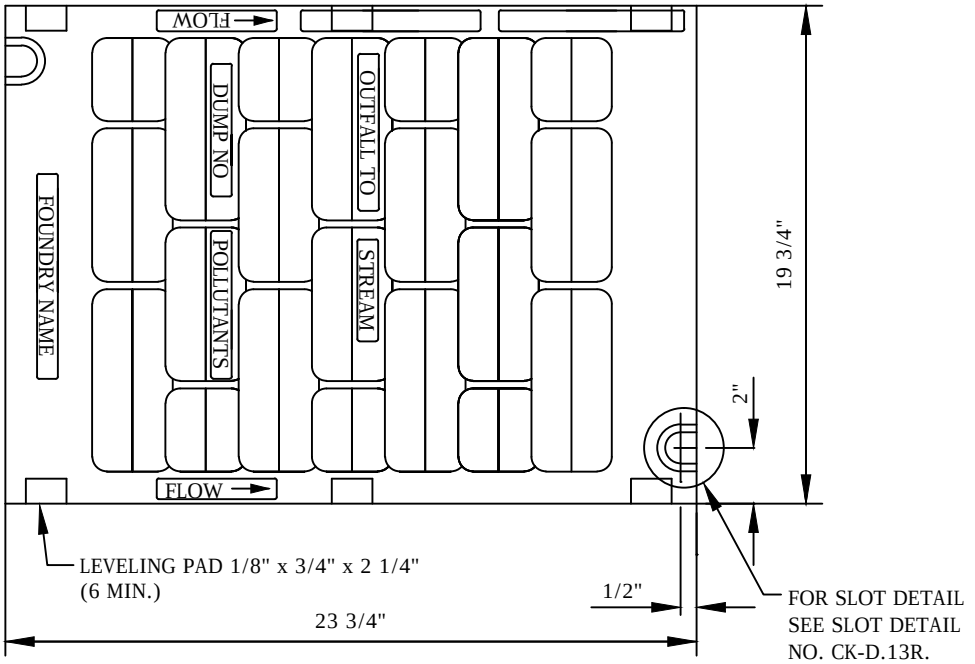


CITY OF KIRKLAND

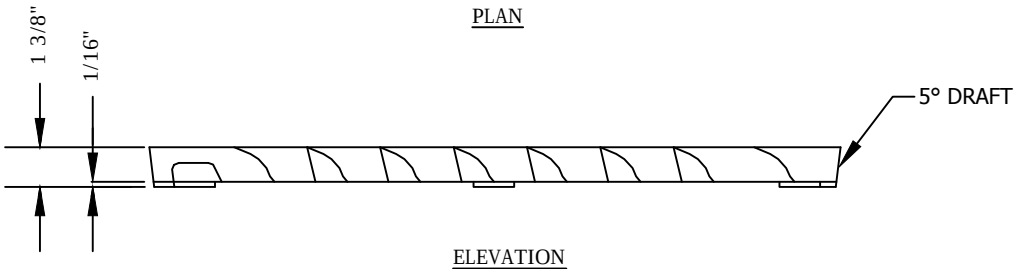
PLAN NO. CK - D.09

CATCH BASIN TYPE 2 48",54",60",72",96"

LAST REVISED: 1/2018



PLAN



ELEVATION

NOTES:

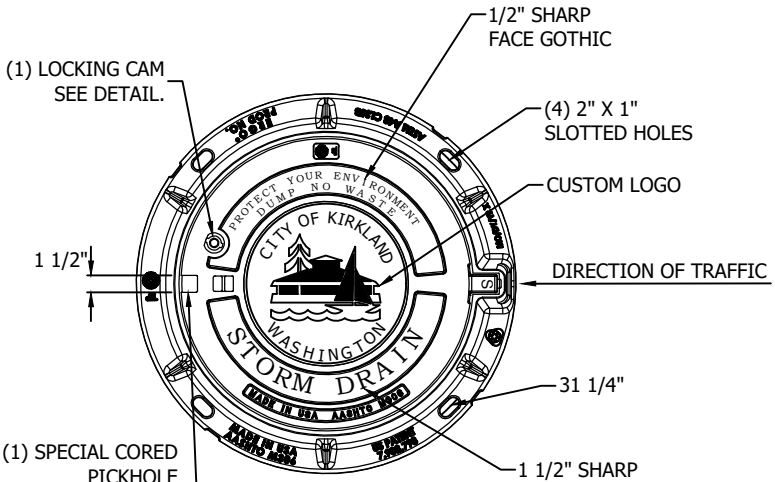
1. USE EAST JORDAN IRON WORKS OR EQUAL TWO BOLT LOCK CAPABILITY THAT MEETS WSDOT SPEC. MANUFACTURER SUBJECT TO APPROVAL BY CITY.
2. USE WITH TWO LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG. NOTE SLOT DETAIL.
3. MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80-55-06.
4. "OUTFALL TO STREAM DUMP NO POLLUTANTS" MAY BE LOCATED ON BORDER AREA.
5. SHALL CONFORM TO SEC. 7.05 OF THE STANDARD SPECIFICATIONS.
6. WELDING IS NOT PERMITTED.
7. EDGES SHALL HAVE 0.125" RADIUS, 0.125" CHAMBER OR COMPLETE DEBURRING.
8. USE A BI-DIRECTIONAL VANED GRATE AT ANY LOW POINT OR WHEN FLOWS COME FROM MULTIPLE DIRECTIONS.
9. NO EXPANSION MATERIAL IN THE FLOW LINE, WHERE CONCRETE COMES TO FRAME.
10. FRAME AND COVER SHALL BE H-20 LOADING RATED IF INSTALLED IN ROADWAY.

CITY OF KIRKLAND

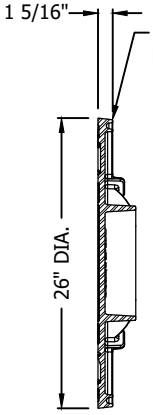
PLAN NO. CK- D.14

VANED GRATE FOR CATCH BASIN AND INLET

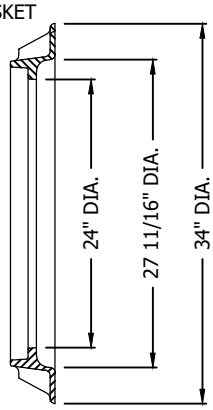
LAST REVISED: 01/2021



PLAN VIEW



COVER SECTION



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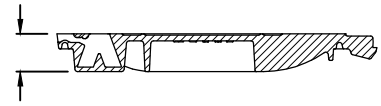

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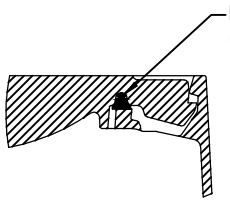
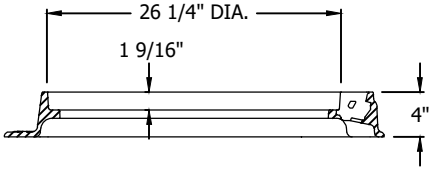


HINGE & GASKET VIEW



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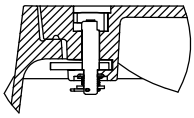
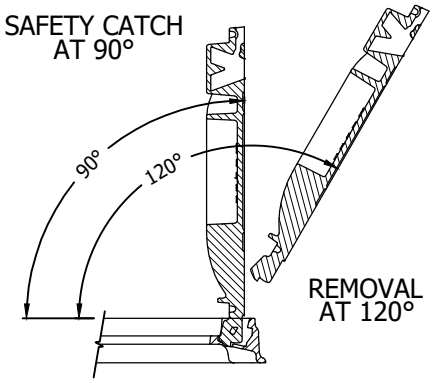


CAM LOCK VIEW



HINGE POSITONS

NOTES:

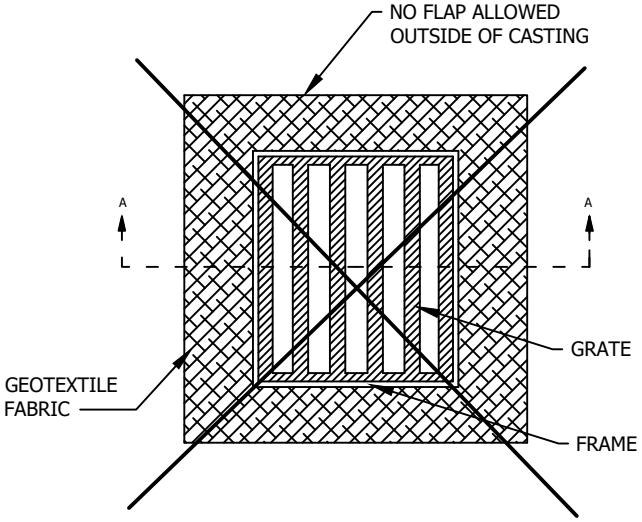
1. VERIFY SLOTTED FRAMES ARE THOROUGHLY FILLED IN WITH MORTAR FOR EFFICIENT INTERACTION WITH IRON AND STRUCTURE.
2. VERIFY BEDDING MORTAR IS NOT IN CONTACT WITH AREA UNDER LID FLANGE THAT WILL INTERFERE WITH CAMLOCK.
3. INSTALL PLUG IN LOCK HOLE TO KEEP LOCK FREE OF FOREIGN MATERIAL.
4. 24 INCH MANHOLE LID IS FITTED WITH AN INFILTRATION PLUG LOCATED IN THE HINGE HOUSING OF THE FRAME. VERIFY PLUG IS PROPERLY INSTALLED BEFORE INSTALLING THE FRAME.
5. REQUIRED ON ALL ARTERIALS, COLLECTORS OR ANY TIME THAT THE IRON WILL BE WITHIN THE TRAVEL LANE.
6. LID SHALL BE MARKED "STORM DRAIN".
7. CITY OF KIRKLAND LOGO REQUIRED.
8. LID MUST BE COVERED WITH TAR PAPER BEFORE OVERLAY.
9. PRODUCT SUPPLIED BY EAST JORDAN IRON WORKS, OR APPROVED EQUAL.
10. FRAME AND COVER SHALL BE H-20 LOADING RATED AND BE AT MINIMUM 7" TALL IF INSTALLED IN ROADWAY.

CITY OF KIRKLAND

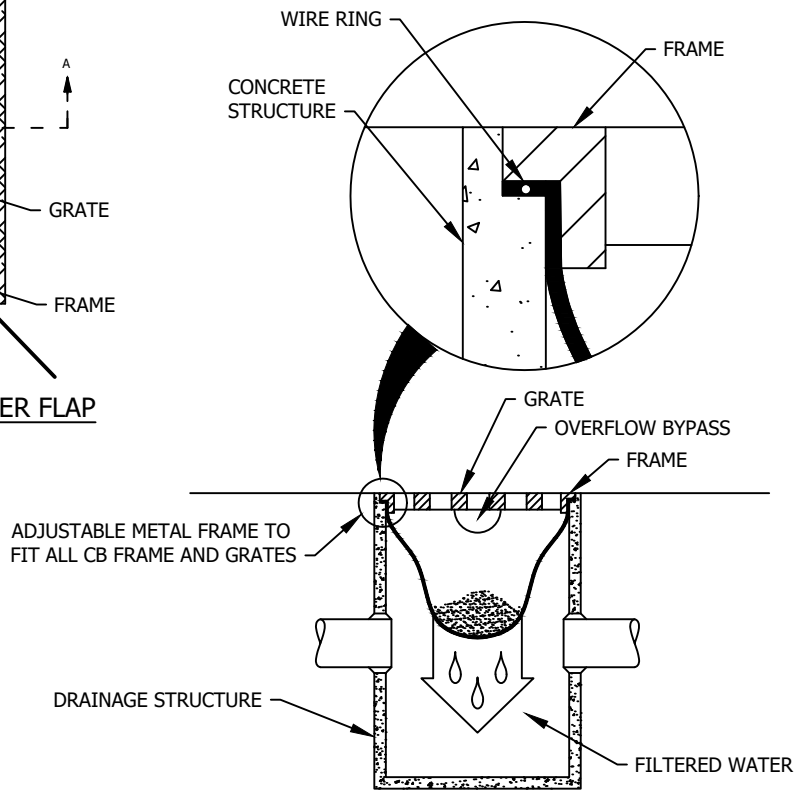
PLAN NO. CK - D.18A

MODIFIED 24" MANHOLE FRAME W/ HINGED COVER

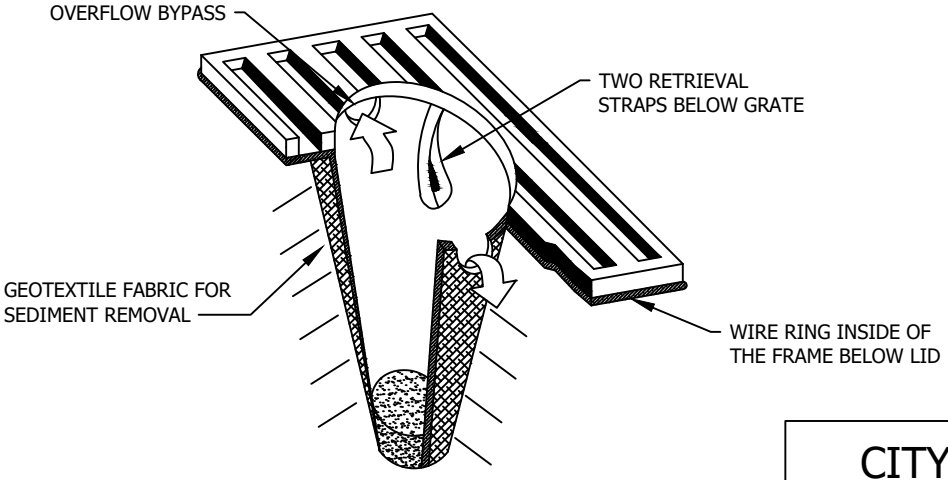
LAST REVISED: 01/2020



PROTECTION INSERSET WITH OUTER FLAP
(NOT ALLOWED)



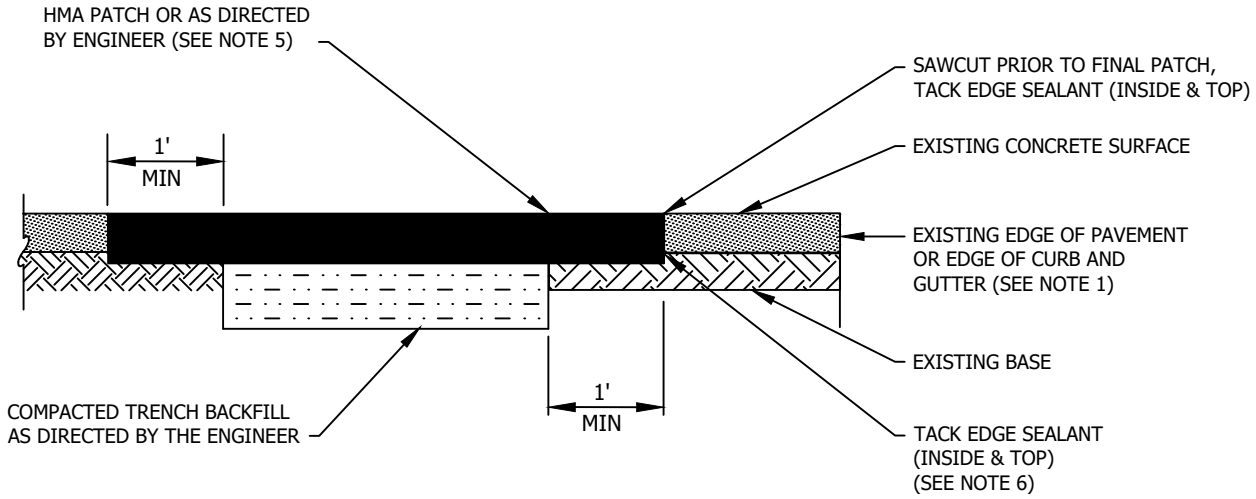
STORM DRAIN PROTECTION
INSERT SECTION A-A



STORM DRAIN PROTECTION INSERT
ISOMETRIC VIEW (TYP.)

CITY OF KIRKLAND	
PLAN NO. CK- E.11	
CITY OF KIRKLAND WASHINGTON	STORM DRAIN PROTECTION INSERT

LAST REVISED: 01/2020



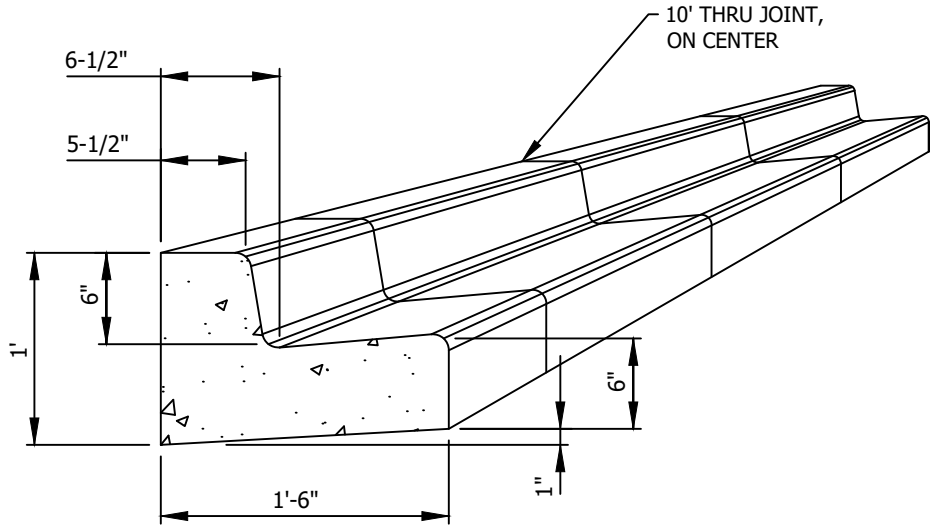
TYPICAL PATCH FOR PAVEMENT

NOTES:

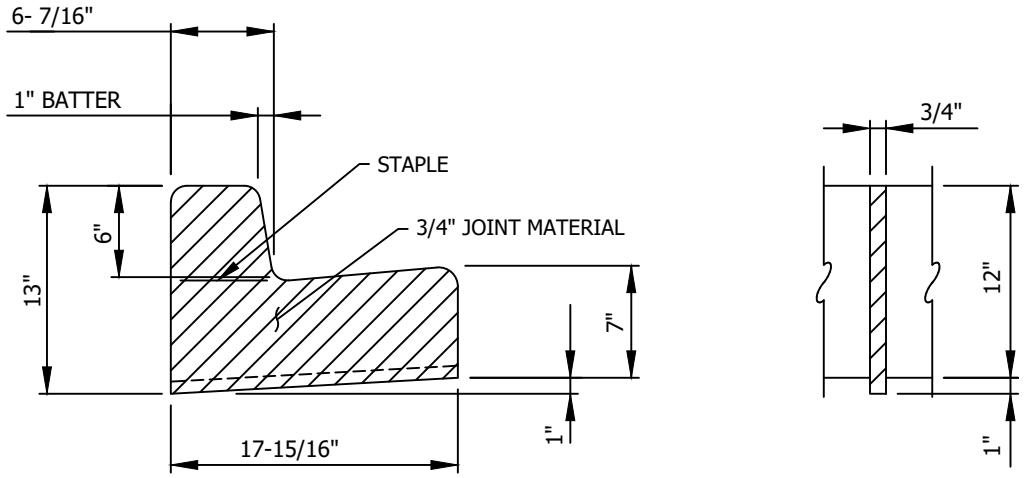
1. IF THE DISTANCE FROM THE EDGE OF PATCH TO THE EDGE OF PAVEMENT OR CURB AND GUTTER IS LESS THAN 3', THE PATCH MUST CONTINUE TO THE EXISTING EDGE; UNLESS ROADWAY IS OVERLAID WITHIN 60 DAYS.
2. HOT MIX ASPHALT SHALL BE CLASS 1/2".
3. ALL TRENCH BACKFILL SHALL BE CRUSHED SURFACING TOP COURSE MATERIAL FOR PERPENDICULAR TRENCHES, OR AS DIRECTED BY ENGINEER.
4. HMA CLASS 1/2" MAY BE USED IN LIEU OF ATB.
5. PATCH MUST ALWAYS BE 1" DEEPER THAN EXISTING ASPHALT; MAX 6" DEEP, OR AS DIRECTED BY ENGINEER.
6. TOP SEAL-USE PG 64-22 AND PROVIDE A SAND BLANKET TO ALLEVIATE TRAILING.
7. REFER TO COK STD. PLAN NO. CK-R.13C FOR REQUIREMENTS FOR GEOTECH BORING ASPHALT PATCHES.

CITY OF KIRKLAND	
PLAN NO. CK- R.12	
CITY OF KIRKLAND WASHINGTON	RESTORATION DETAIL AND PAVEMENT PATCHING

LAST REVISED:01/2020



TYPICAL SECTION FOR CURB & GUTTER, TYPE A



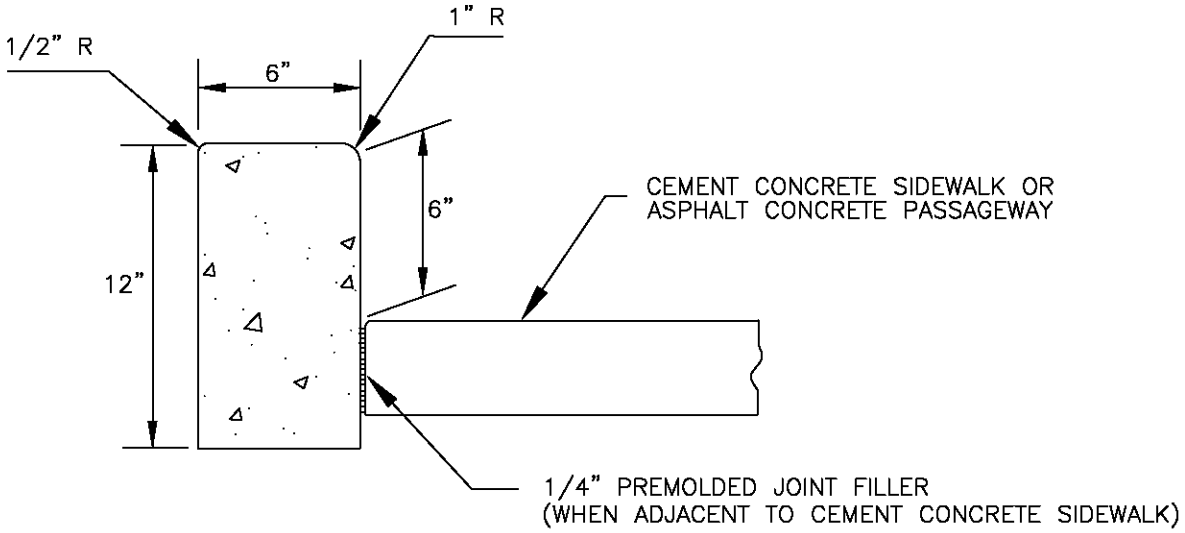
JOINT DETAIL

NOTES:

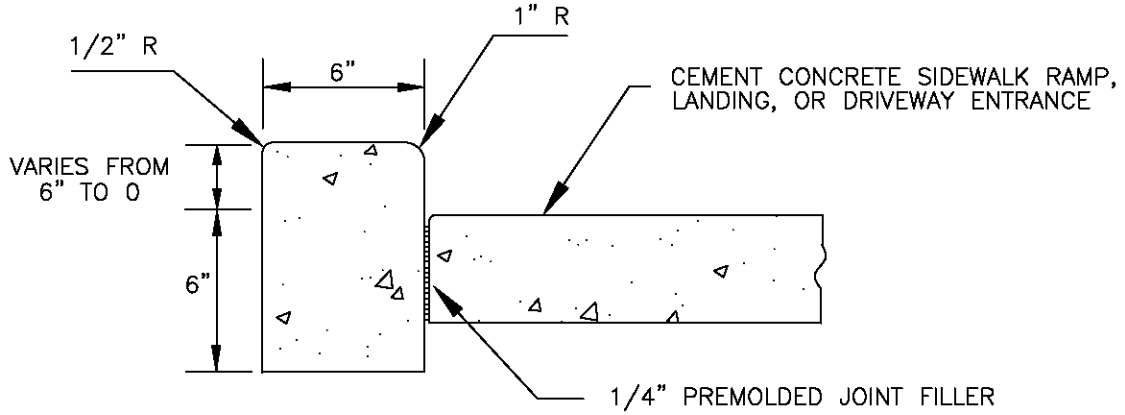
1. FORMS SHALL BE STEEL AND SET TRUE TO LINE AND GRADE (INSPECTION IS REQUIRED PRIOR TO PLACEMENT OF CONCRETE) UNLESS SPECIFIED DIFFERENTLY BY CITY PROJECT ENGINEER.
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 4000.
3. BASE COURSE SHALL BE 4" OF 5/8" MINUS CRUSHED ROCK.
4. SURVEY REQUIRED FOR CURB ALIGNMENT.

CITY OF KIRKLAND	
PLAN NO. CK–R.17	
CITY OF KIRKLAND WASHINGTON	CONCRETE CURB AND GUTTER, TYPE "A"

LAST REVISED:02/12/10



CEMENT CONCRETE PEDESTRIAN CURB



CEMENT CONCRETE PEDESTRIAN CURB

AT SIDEWALK RAMPS & LANDINGS, AND DRIVEWAY ENTRANCES

NOTES

1. FORMS SHALL BE STEEL AND SET TRUE TO LINE AND GRADE (INSPECTION REQUIRED PRIOR TO PLACEMENT OF CONCRETE).
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 4000.
3. BASE COURSE SHALL BE 4" OF 5/8" MINUS CRUSHED ROCK.
4. SEE CK-R.17 FOR CURB EXPANSION AND CONTRACTION JOINT SPACING.

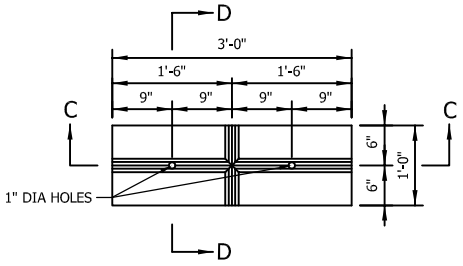
CITY OF KIRKLAND

PLAN NO. CK-R.17A

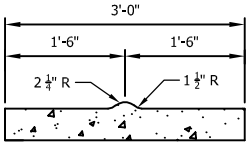
CITY OF KIRKLAND WASHINGTON

CEMENT CONCRETE PEDESTRIAN CURB

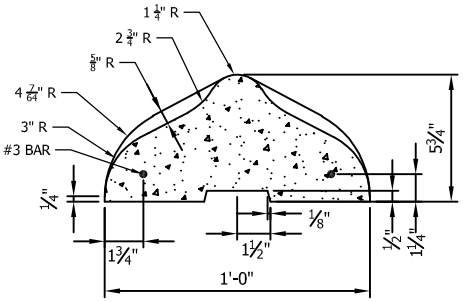
LAST REVISED:01/2020



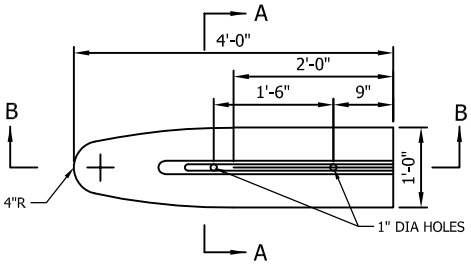
CURB PLAN



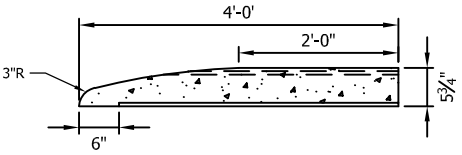
SECTION C-C



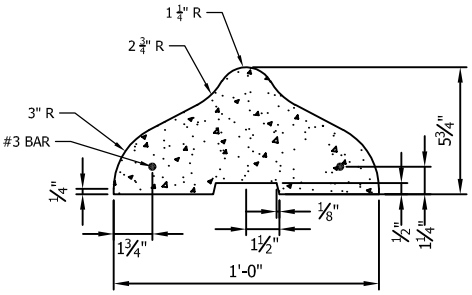
SECTION D-D



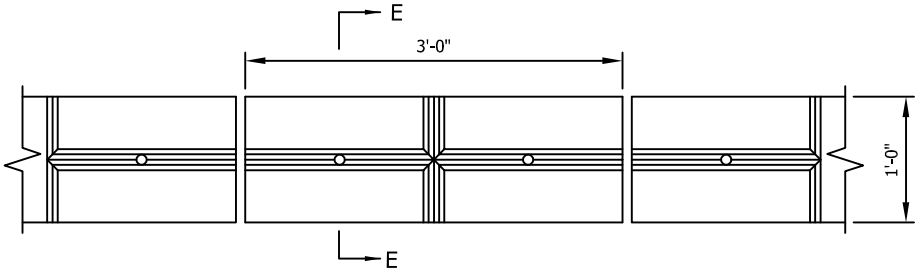
NOSING



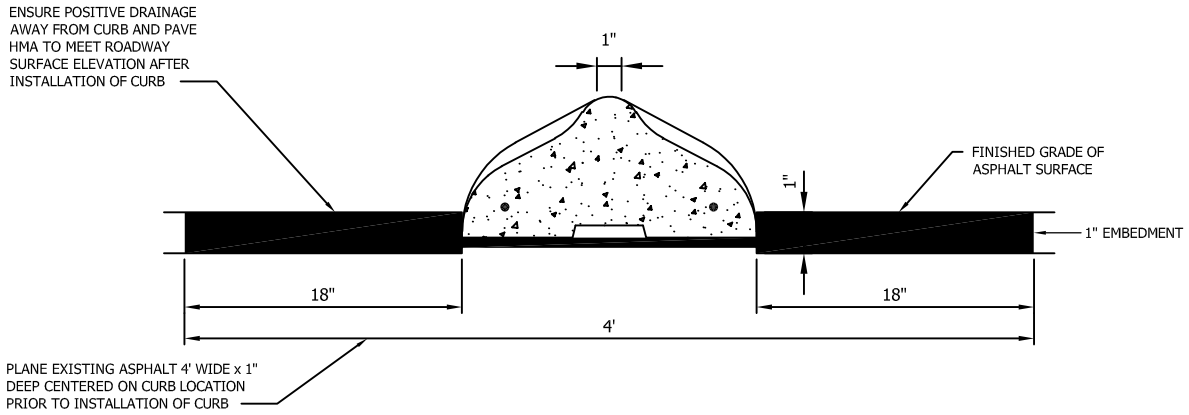
SECTION B-B



SECTION A-A



INSTALLATION DETAIL FOR STRAIGHT PRECAST TRAFFIC CURB



SECTION E-E

NOTES:

1. ALL JOINTS BETWEEN ASPHALT PATCH AND EXISTING PAVEMENT SHALL BE SEALED.

2. THE ADHESIVE SHALL MEET THE REQUIREMENTS OF SECTION 9.26 OF THE WSDOT STANDARD SPECIFICATION. USE APPROPRIATE ADHESIVE TYPE FOR EXISTING CONDITIONS.

3. MEDIAN CURB SHALL BE PAINTED. PAINT SHALL MEET SECTION 9.34.2 OF THE WSDOT STANDARD SPECIFICATION.

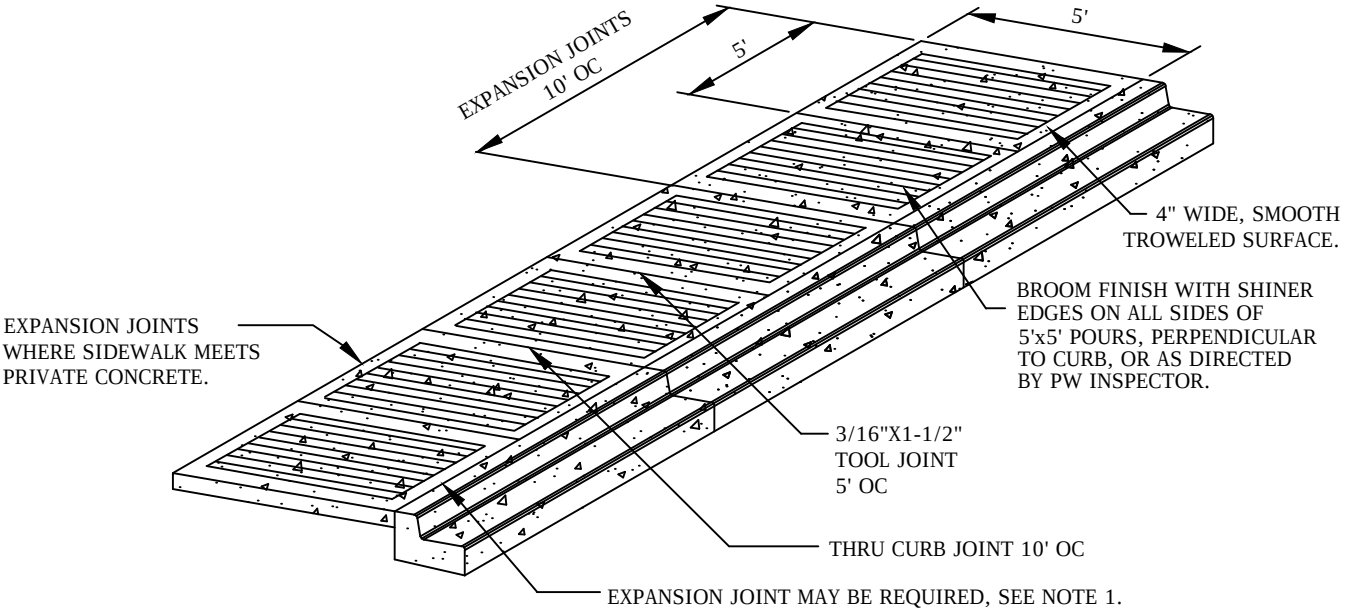
CITY OF KIRKLAND

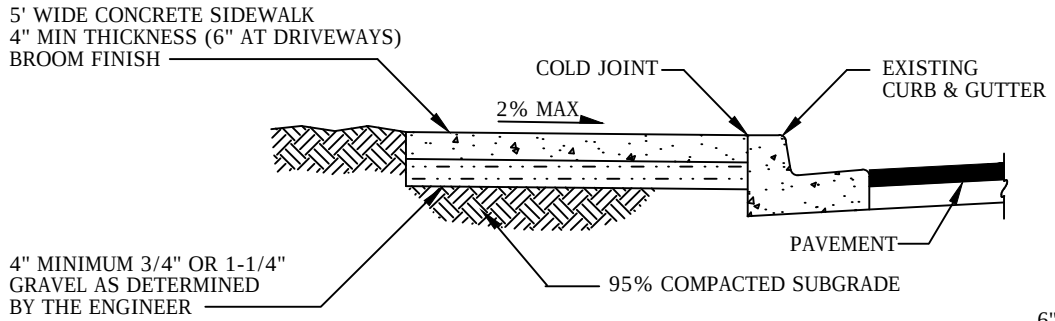
PLAN NO. CK–R.19A

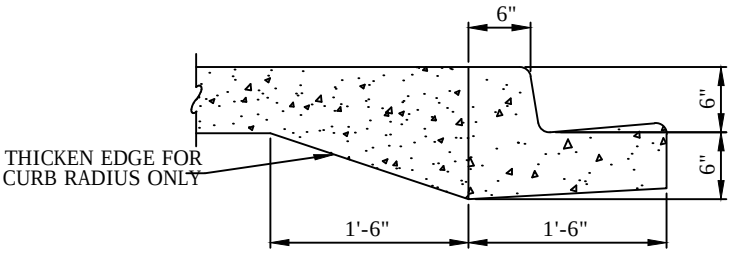
CITY OF KIRKLAND WASHINGTON

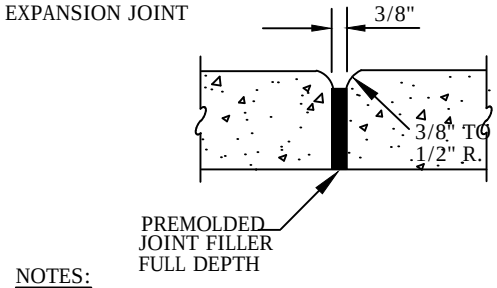
MEDIAN CURB

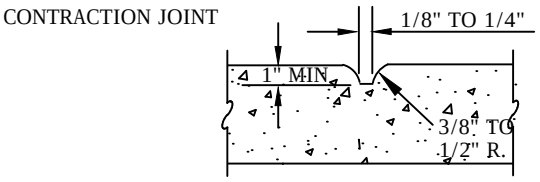
LAST REVISED: 1/1/18











NOTES:

1. SIDEWALK AND CURB & GUTTER CANNOT BE POURED MONOLITHICALLY. EXPANSION JOINT WILL BE REQUIRED WHEN CONCRETE SIDEWALK IS SURROUNDED BY OTHER HARD SURFACES (E.G., DRIVEWAY); OR AS DIRECTED BY PW INSPECTOR.
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 4000 PSI MINIMUM, WITH AIR ENTRAINMENT. NO COLOR OR TINT SHALL BE ADDED.
3. FORMS SHALL BE SET TRUE TO LINE AND GRADE AND SHALL BE STEEL UNLESS OTHERWISE APPROVED BY INSPECTOR.
4. SIDEWALK SHALL NOT BE POURED IN THE RAIN. SEE POLICY R-8, PLACING CONCRETE OR ASPHALT IN ADVERSE WEATHER CONDITIONS.

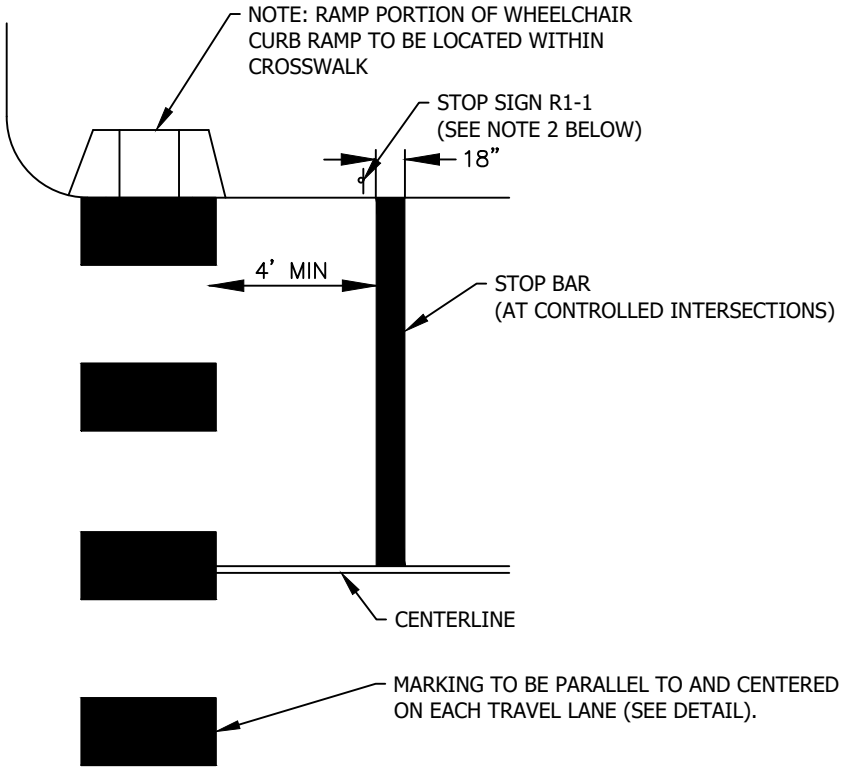
CITY OF KIRKLAND

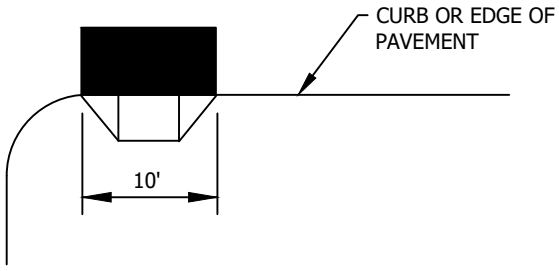
PLAN NO. CK- R.23

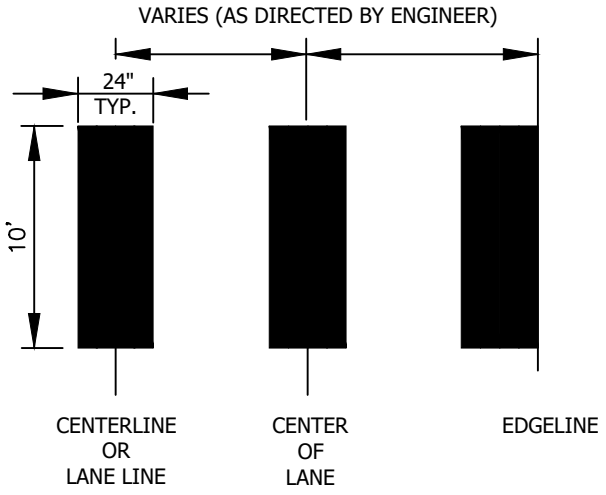
CITY OF KIRKLAND WASHINGTON

SIDEWALK SECTION

LAST REVISED:01/2020







DETAIL

NOTES:

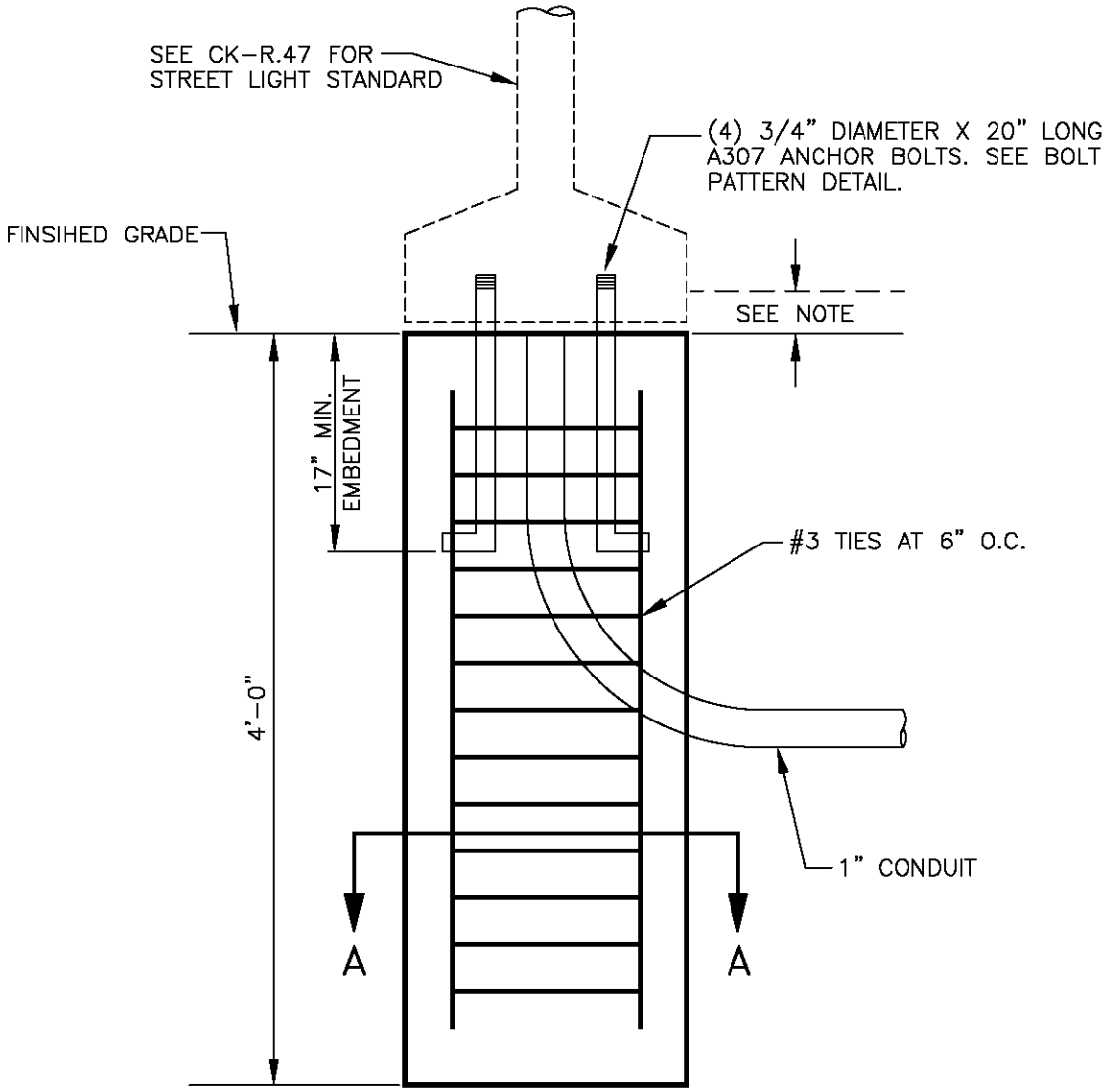
1. MARKINGS SHALL BE THERMOPLASTIC.
2. STOP SIGN LOCATION ADJACENT TO STOP BAR, OR AS DIRECTED BY ENGINEER

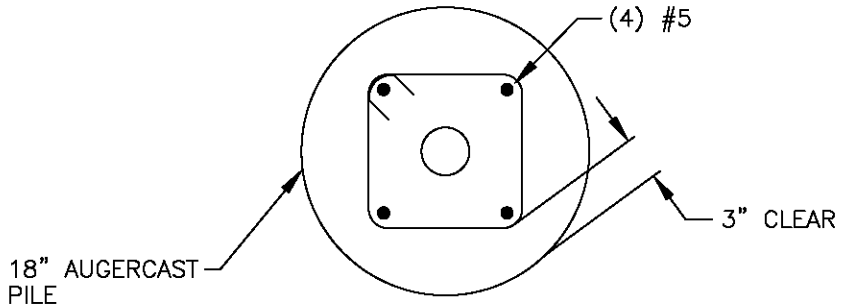
CITY OF KIRKLAND

PLAN NO. CK–R.28

CROSSWALK AND STOP BAR DETAIL

LAST REVISED: 11/30/00





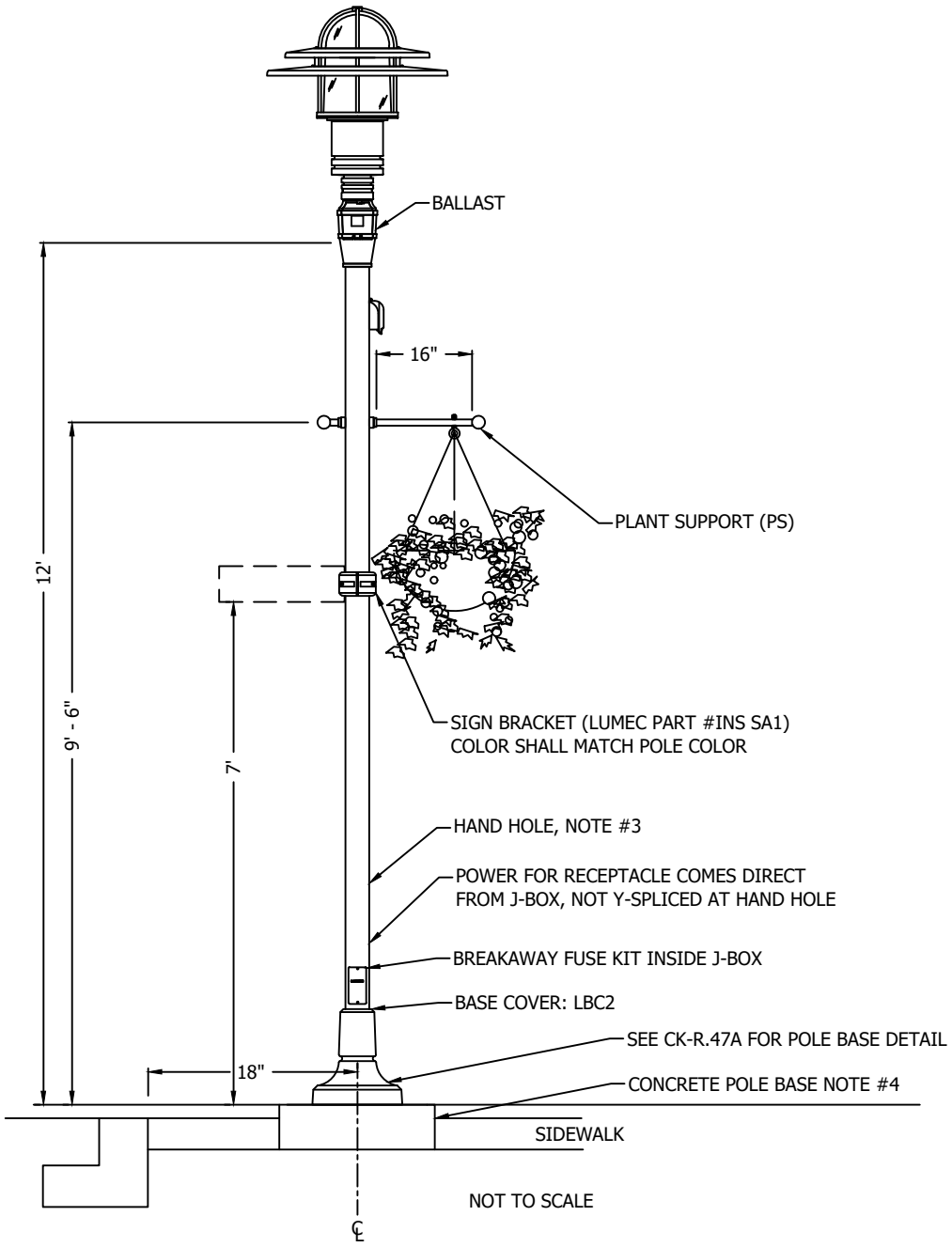
SECTION A–A

NOTE:

IF SLOPE OF GRADE EXCEEDS 2% THEN FLAT TOP OF PILE WILL EXTEND ABOVE GRADE AROUND ALL OF IT'S CIRCUMFERENCE.

CITY OF KIRKLAND	
PLAN NO. CK–R.47A	
CITY OF KIRKLAND WASHINGTON	POLE BASE DETAIL

LAST REVISED: 01/2021



NOTES:

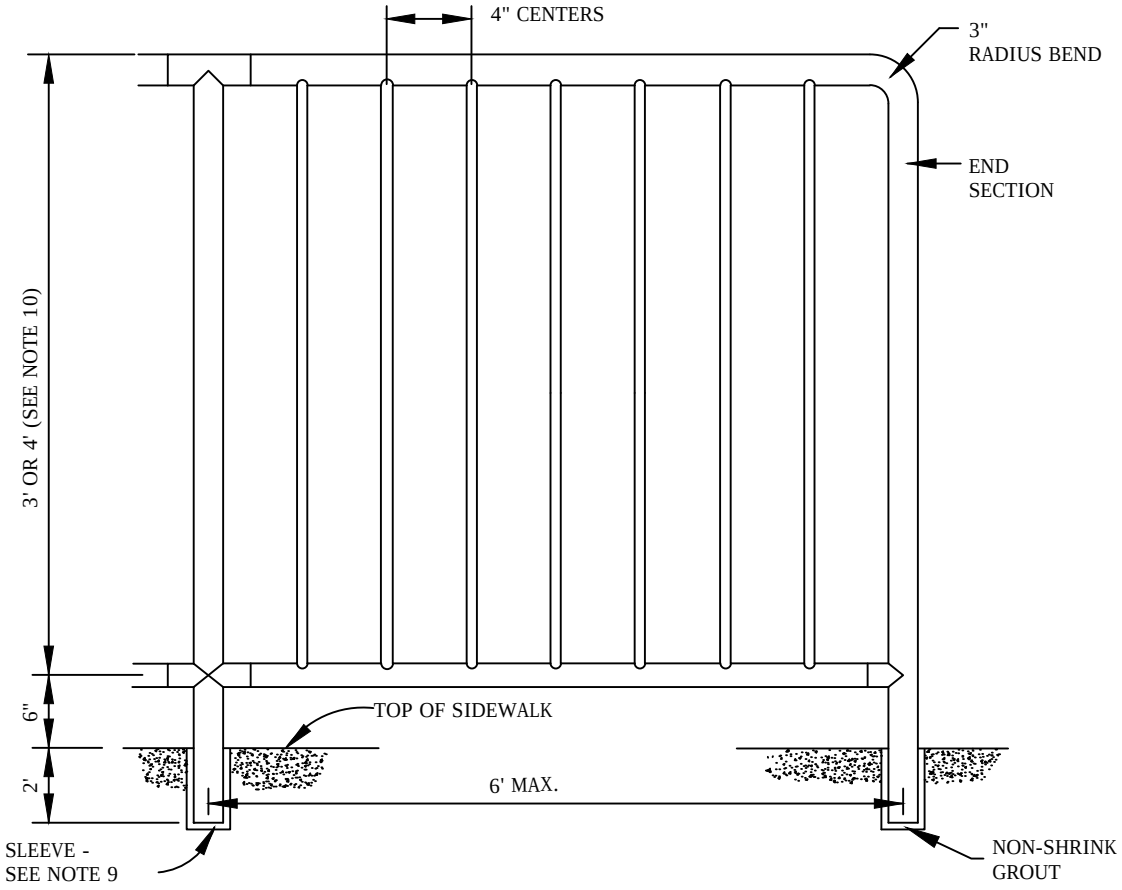
1. INSTALL PHOTO ELECTRIC CELL (P.E.C.) ON LIGHTING CABINET. SEE CITY OF KIRKLAND INSPECTOR FOR PART NUMBERS OR EQUIVALENT. FACTORY INSTALLED P.E.C. IS NOT ACCEPTABLE.
2. THE ONLY CONNECTION MADE AT HAND HOLE IS THE POLE GROUNDING CONNECTION.
3. WITH SLOPED SIDE WALKS, THE POLE BASE MUST PROTRUDE ABOVE FINISHED GRADE SO THAT BASE COVER WILL SIT LEVEL.
4. PS ORIENTATION UNDERNEATH LIGHT UNLESS OTHERWISE DESIGNATED.
5. LIGHTS SHALL BE GENERALLY SPACED AT 60' ON CENTER.
6. ALL PEDESTRIAN LIGHTS SHALL HAVE 1 SIGN BRACKET.
7. ALL SPLICE CONNECTIONS IN J-BOX SHALL BE MADE USING:
   A. C-TAP (COPPER CRIMP)
   B. 3M 2000 MASTIC COVER
   C. 3M SUPER 88 TAPE

CITY OF KIRKLAND

PLAN NO. CK - R.47M

TOTEM LAKE PEDESTRIAN STREET LIGHT STANDARD

LAST REVISED: 1/1/18



PIPE SCHEDULE

(ALL DIMENSIONS O.D.)

PANEL HEIGHT	TOP RAIL/POST	BOTTOM RAIL	BALUSTER
3'	1.90"	1.90"	.840"
4'	2.875"	2.375"	.840"

NOTES

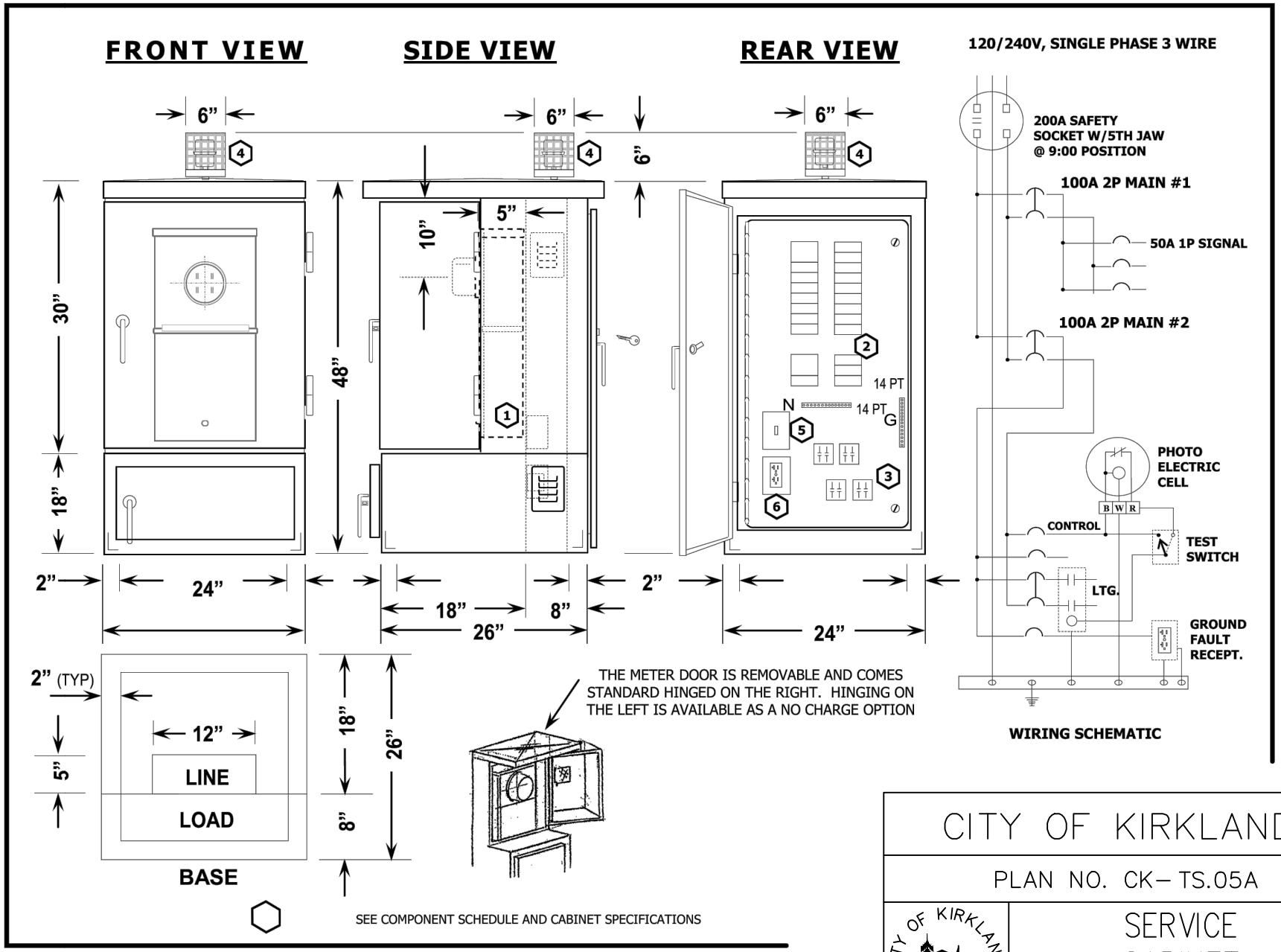
1. RAILING SHALL BE ALUMINUM PIPE RAIL OR APPROVED EQUIVALENT. INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS.
2. SHOP DRAWINGS OF RAILING SHALL BE SUBMITTED FOR APPROVAL SHOWING COMPLETE DIMENSIONS AND DETAILS OF FABRICATION AND INCLUDING AN ERECTION DIAGRAM. MATERIALS BEING USED SHALL BE SPECIFIED IN THE SHOP DRAWINGS.
3. ALL ALUMINUM PARTS SHALL BE GIVEN A CLEAR ANODIC COATING AT LEAST 0.0006 INCH THICK AND BE HOT WATER SEALED AND SHALL HAVE A UNIFORM FINISH.
4. PIPE RAILING AND PIPE RAILING SPLICES MAY BE HEATED TO NOT MORE THAN 400°F FOR A PERIOD NOT TO EXCEED 30 MINUTES TO FACILITATE FORMING OR BENDING.
5. CUTTING SHALL BE DONE BY SAWING OR MILLING AND ALL CUTS SHALL BE TRUE AND SMOOTH. FLAME CUTTING WILL NOT BE PERMITTED.
6. PIPE RAILING, PIPE BALUSTERS AND PIPE RAILING SPLICES SHALL BE ADEQUATELY WRAPPED TO ENSURE SURFACE PROTECTION DURING HANDLING AND TRANSPORTATION TO THE JOB SITE.
7. WELDING OF ALUMINUM SHALL BE IN ACCORDANCE WITH THE LATEST AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
8. ALLOW FOR EXPANSION AT APPROXIMATELY EVERY FOURTH POST.
9. RAILS, POSTS AND FORMED ELBOWS SHALL BE A.S.T.M B-241 OR B-429 ALLOY, 6063-T6 SCHEDULE 40 (STD. PIPE). BRACKETS, ENDCAPS AND OTHER FITTINGS SHALL BE A.S.T.M. 6063-T5. SPLICES AND REINFORCING SLEEVES SHALL BE DRAWN ALUMINUM TUBING 6063-T832. SLEEVE I.D. SHALL BE 1" GREATER THAN POST O.D.
10. PANEL HEIGHT: 3 FEET FOR PEDESTRIAN USES
    4 FEET FOR COMBINED BICYCLE AND PEDESTRIAN USES

CITY OF KIRKLAND

PLAN NO. CK- R.51

CITY OF KIRKLAND WASHINGTON

SAFETY RAILING IN SIDEWALK



NOTES:
SKYLINE ELECTRIC & MFG. CO. OR EQUAL

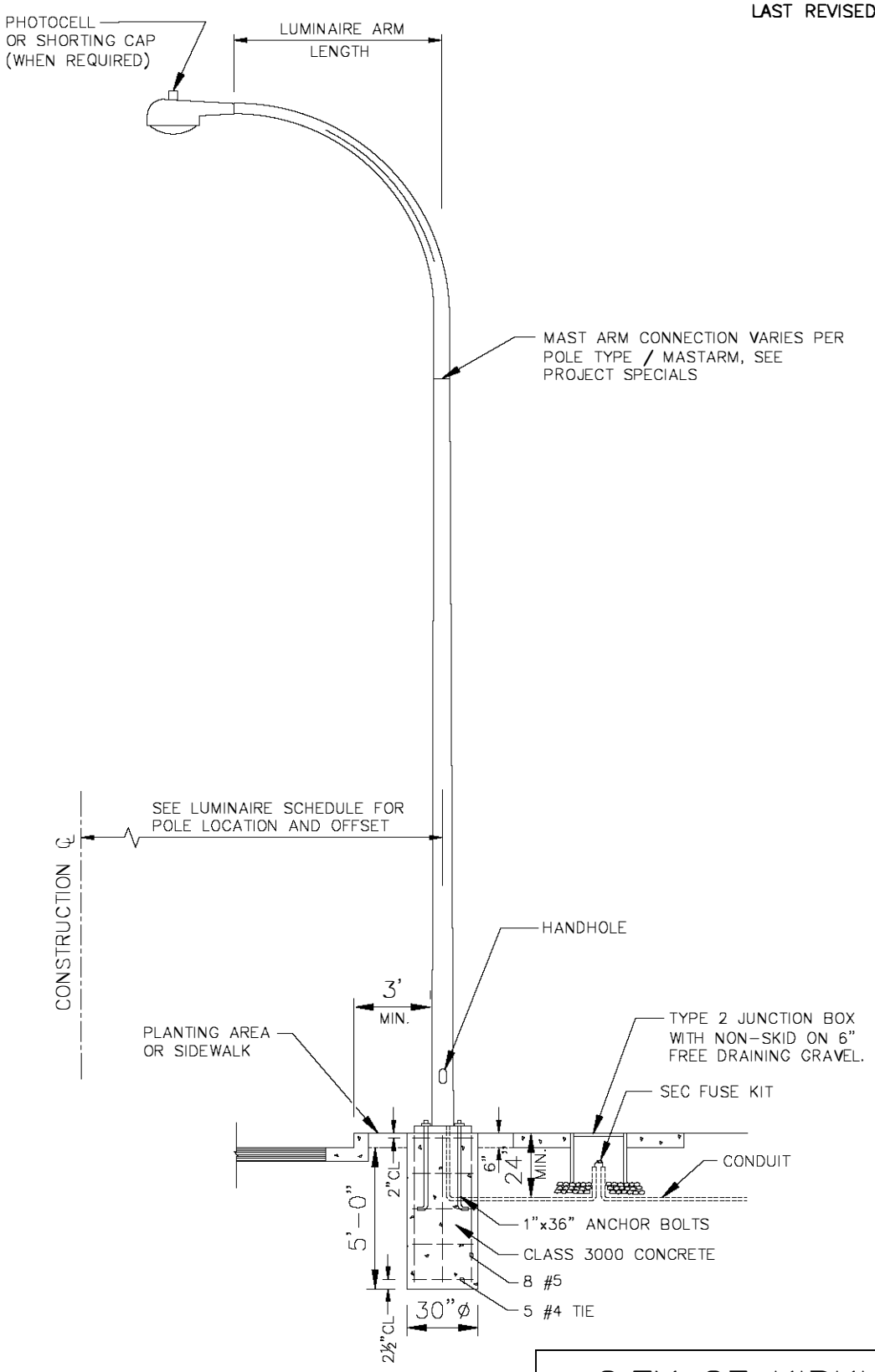
CITY OF KIRKLAND

PLAN NO. CK– TS.05A

CITY OF KIRKLAND WASHINGTON

SERVICE CABINET 62460–R1

LAST REVISED: 1/1/18

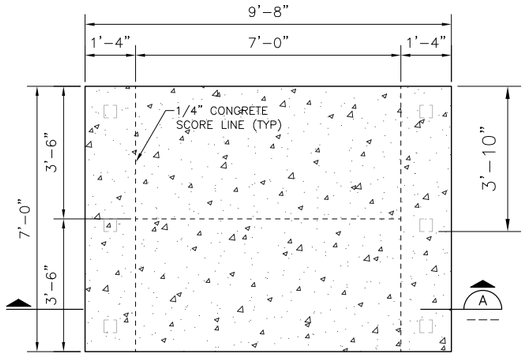


CITY OF KIRKLAND

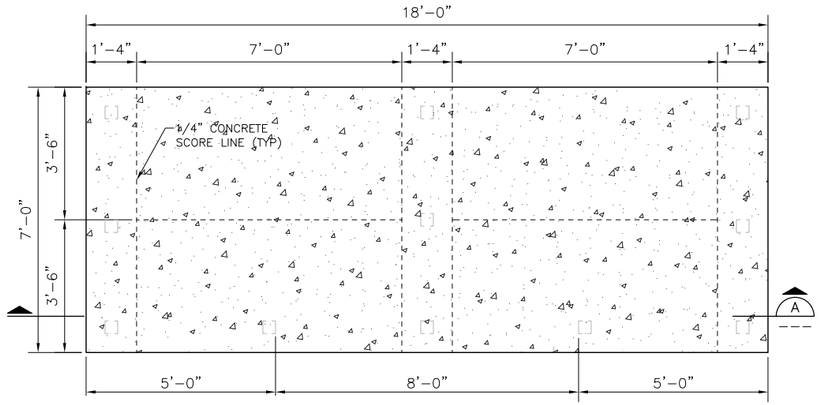
PLAN NO. CK-TS.08

CITY OF KIRKLAND WASHINGTON

ROADWAY LIGHTING DETAIL



B11 FOOTING DETAIL 2
SCALE: NONE



B12 FOOTING DETAIL 3
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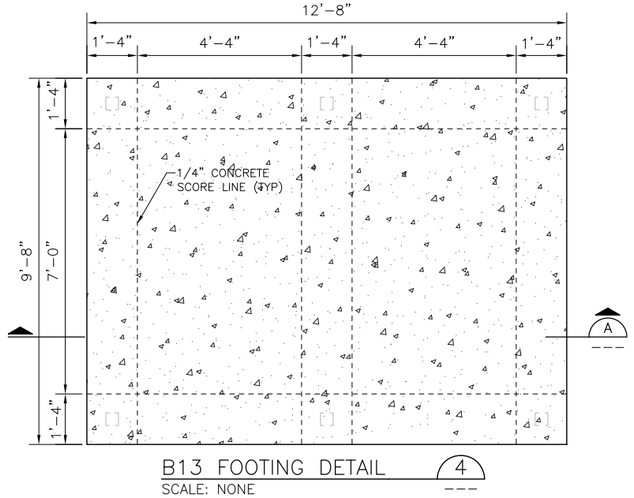

B13 FOOTING DETAIL 4
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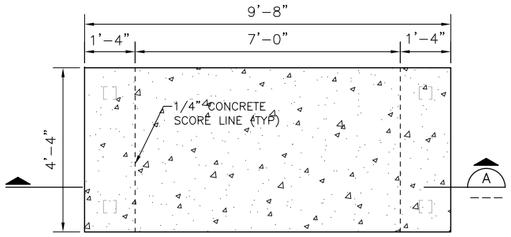
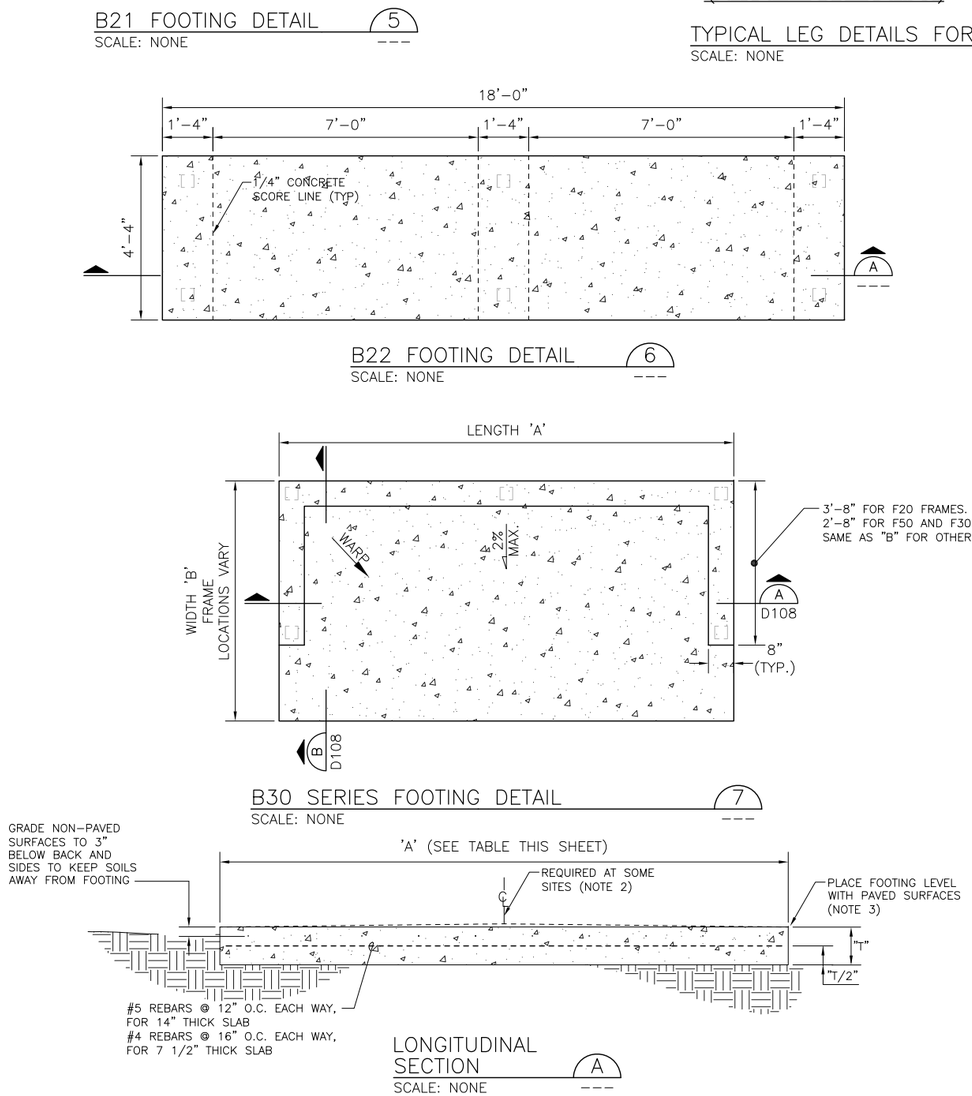


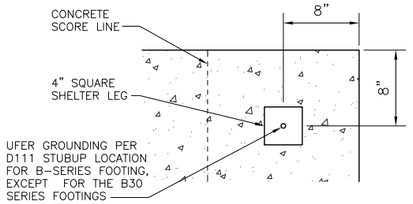
B21 FOOTING DETAIL 5
SCALE: NONE

B22 FOOTING DETAIL 6
SCALE: NONE

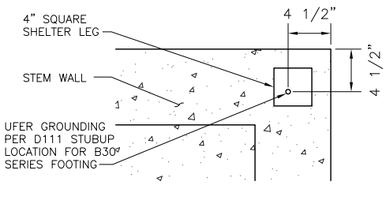
B30 SERIES FOOTING DETAIL 7
SCALE: NONE



LONGITUDINAL SECTION A
SCALE: NONE



TYPICAL LEG DETAIL @ CORNER FOR B-SERIES FOOTING (EXCEPT B30 SERIES)



TYPICAL LEG DETAIL @ CORNER FOR B30 SERIES FOOTING

TYPICAL LEG DETAILS FOR B-SERIES FOOTINGS 8
SCALE: NONE

FOOTING DIMENSIONS				
FOOTING TYPE	SHELTER FRAME TYPE	LENGTH 'A'	WIDTH 'B'	SLAB THICKNESS 'T'
B11	PER PLAN	9'-8"	7'-0"	7 1/2"
B12	PER PLAN	18'-0"	7'-0"	7 1/2"
B13	PER PLAN	12'-8"	9'-8"	7 1/2"
B21	PER PLAN	9'-8"	4'-4"	14"
B22	PER PLAN	18'-0"	4'-4"	14"
B31	F11	9'-0"	6'-4"	7 1/2"
B31	F21	9'-0"	4'-4"	14"
B31	F31 OR F51	9'-0"	4'-4"	14"
B32	F12	17'-4"	6'-4"	7 1/2"
B32	F13	12'-0"	9'-0"	7 1/2"
B32	F14	17'-4"	6'-4"	7 1/2"
B32	F22 OR F52	17'-4"	4'-4"	14"
B32	F32	17'-4"	4'-4"	14"

GENERAL NOTES:

1. "℄" INDICATES AREAS FOR FUTURE SHELTER LEGS. AVOID PLACING REINFORCEMENT IN THESE AREAS.
2. FOR SITES WITH SLOPES LESS THAN 0.5% IN 'A' DIMENSION, INCREASE DIMENSION AT MIDDLE OF FOOTING BY 1" TO ASSURE PROPER DRAINAGE OF SURFACE WATER.
3. JOINT PER DET 3/D101 TO ISOLATE EDGES FROM PAVEMENT, SIDEWALKS, OR OTHER STRUCTURES.
4. WHEN USING B-32 FOOTING WITH DOUBLE FRAMES, USE A LONGER BEARING SHOE TO SUPPORT THE FRONT MIDDLE LEG (BY METRO).
5. SEE DET D111 FOR CONDUIT AND GROUNDING WIRE.

KCMT 2020-2021 STANDARD DETAILS

No.	REVISION	BY	APP'D	DATE

811 Know what's below. Call before you dig.

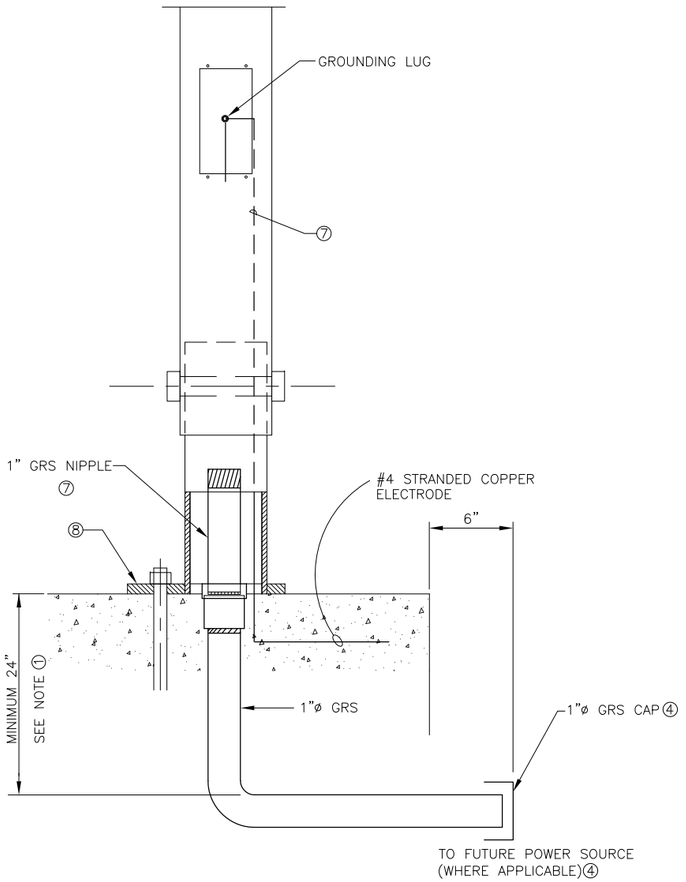
DESIGNED: K. CHANG YUEN	APPROVED: D. CRIPPEN
DRAWN: G. CAREY	
CHECKED: K. CHANG YUEN	PROJECT NO: -
CHECKED: C. ASQUITH	CONTRACT NO: -

King County METRO

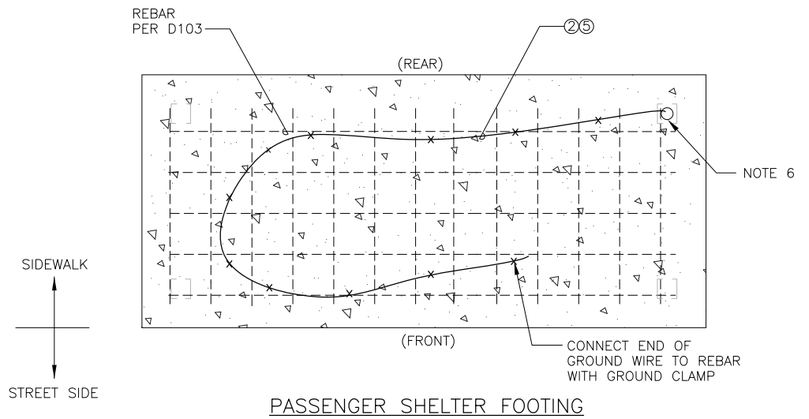
METRO TRANSIT CAPITAL DIVISION
TRANSIT PASSENGER FACILIITES - IMPROVEMENTS

STANDARD SHELTER FOOTING PLANS, SECTIONS AND DETAILS

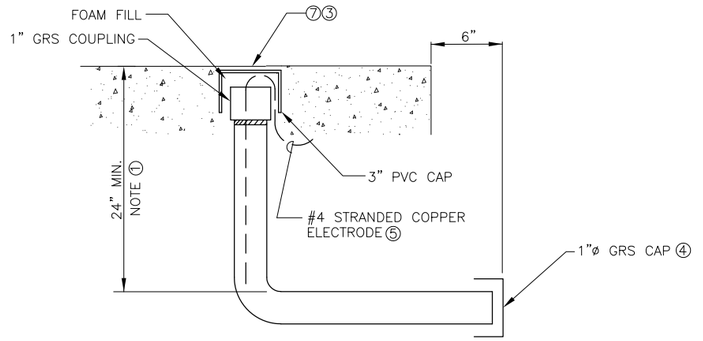
DATE: 4/2020
DRAWING NO: D103
SHEET NO: 9 OF 20



INTERNAL SHELTER SOLAR LIGHTING
SCALE: NTS



PASSENGER SHELTER FOOTING
(SEE DWGS D101 & D103 FOR SHELTER FOOTING DETAILS AND DIMENSIONS)



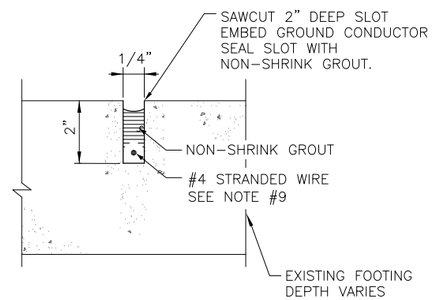
DETAIL "1"
INTERNAL SHELTER LIGHTING
BURIED CONDUIT AND GROUNDING ELECTRODE
SCALE: NTS

GENERAL NOTES:

1. THIS CONDUIT/GROUNDING ELECTRODE DESIGN IS FOR BUS STOPS WHERE HARD–WIRE ELECTRICAL CONNECTION IS NOT READILY AVAILABLE. IT ALLOWS FOR FUTURE HARD–WIRE CONNECTION FOR 110V SHELTER LIGHTING AND/OR GROUNDING FOR A SOLAR SHELTER LIGHTING SYSTEM.

CONSTRUCTION NOTES: ◯

1. CONDUIT SHALL BE INSTALLED 24" BELOW FINISHED GRADE.
2. FOR SHELTER GROUNDING, TIE 25 FEET OF #4 STRANDED COPPER GROUNDING ELECTRODE TO THE SHELTER FOUNDATION REBARS WITH TIE WIRES. LEAVE 2 FEET AT THE END FOR ATTACHMENT TO THE GROUNDING LUG ON THE SHELTER LEG. PROVIDE ONE HOLE COPPER LUG SHORT BARREL THOMAS & BETTS #54130 ON END OF GROUND WIRE. SEE DETAIL "1" AND NOTE 3 BELOW. (REFER TO NOTE 11 ON D101 IF SHELTER FOOTING IS DESIGNED FOR BOTH INTERIM STANDARD SHELTER AND FUTURE RAPIDRIDE SHELTER).
3. PLACE THE 2 FT #4 COPPER ELECTRODE INTO THE 1" DIA GRS CONDUIT AS SHOWN IN DETAIL "1". SECURE 1" GRS COUPLING IN PLACE. SEAL THE GRS CONDUIT/COUPLING WITH DUCT TAPE. CAP THE ASSEMBLY WITH A 3" PVC CAP AND FILL VOID WITH SPRAY–ON FOAM. TOP OF PVC CAP SHALL BE ¼" BELOW THE FINISHED CONCRETE GRADE.
4. IF NO SPECIFIED CONNECTION TO A POWER SOURCE, THE 1" GRS CONDUIT SHALL BE EXTENDED 6 INCHES BEYOND THE EDGE OF SHELTER FOUNDATION AND CAPPED.
5. THE #4 STRANDED COPPER GROUND ELECTRODE SHALL BE ENCLOSED BY AT LEAST 2" OF CONCRETE IN ACCORDANCE WITH NEC 250.52 (A) (3).
6. FOR STANDARD METRO SHELTERS, ELECTRICAL LEG SHALL BE AT THE REAR RIGHT CORNER. FOR RAPID RIDE SHELTERS, ELECTRICAL LEG SHALL BE AT THE REAR LEFT CORNER. (LOOKING INTO SHELTER) SEE TABLE ON DWG. D101 AND D103 FOR EXACT LOCATIONS OF THE ELECTRICAL LEG FOR VARIOUS FOOTING TYPES.
7. (INFORMATION FOR METRO'S SHELTER CREW: PRIOR TO INSTALLING SHELTER WITH A SOLAR LIGHTING SYSTEM, CHIP AWAY THE ¼" CONCRETE COVER AND REMOVE THE 3" PVC CAP. PULL OUT THE #4 COPPER ELECTRODE. CONNECT THE ELECTRODE TO THE SHELTER LEG VIA A GROUNDING LUG. SEAL THE 1" DIA GRS WITH A WATER–TIGHT PLUG FOR FUTURE USE.)
8. ALL WORK ABOVE FINISHED GRADE IS BY OTHERS.
9. SAW 8"X2"X1/4" GROOVE IN EXISTING SHELTER FOOTING. CLEAN THE GROOVE AND EMBED GROUND CONDUCTOR. LEAVING 6" EXPOSED ABOVE SURFACE FILL GROOVE WITH NON–SHRINK GROUT.



SOLAR SHELTER FOOTING RETROFIT
SECTION D
SCALE: 3/4"=1'–0"

No.	REVISION	BY	APP'D	DATE
△				
△				
△				
△				

KCMT 2020-2021 STANDARD DETAILS

811 Know what's below. Call before you dig.

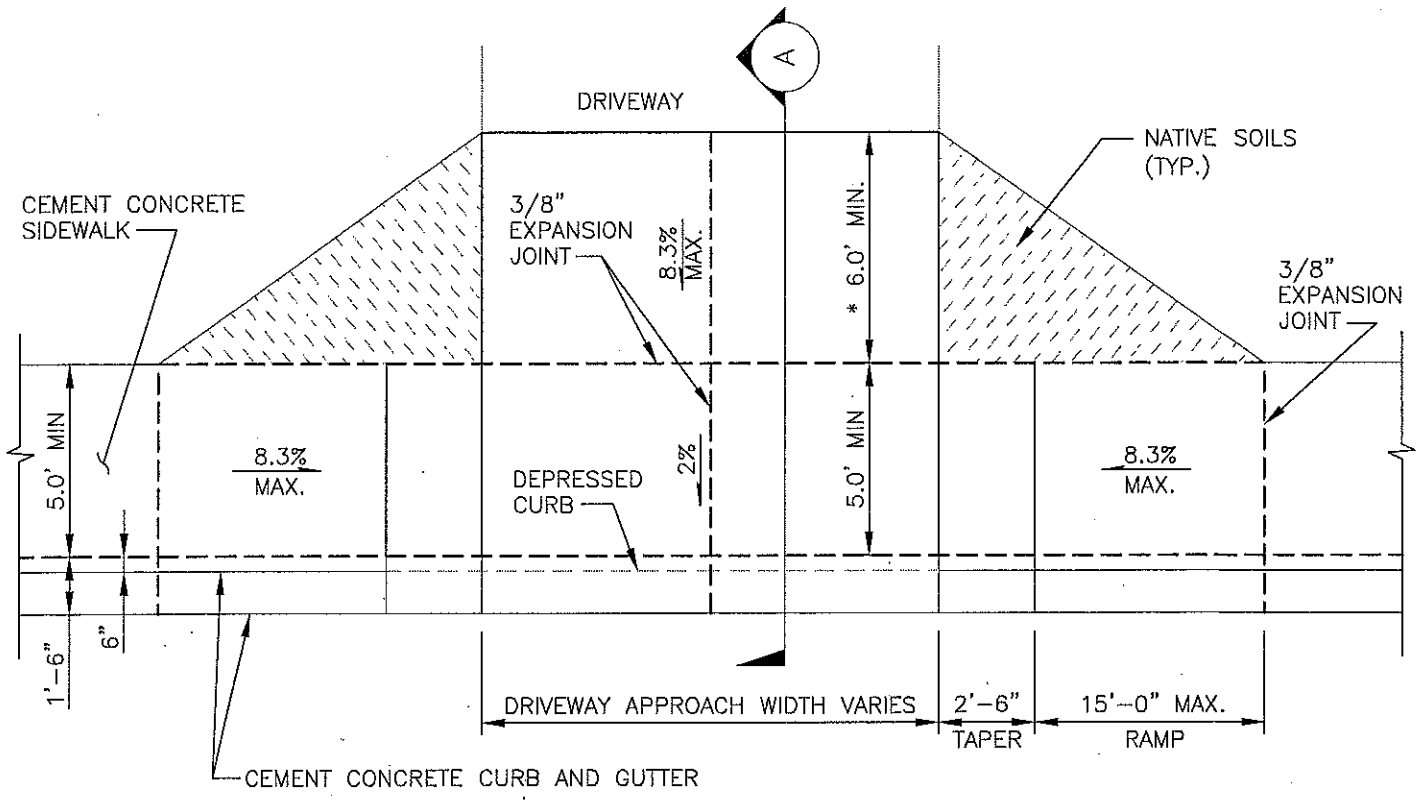
DESIGNED: S. ANOD	APPROVED: D. CRIPPEN
DRAWN: M. MANIMTIM	
CHECKED:	PROJECT NO: -
CHECKED: C. REYNOLDS	CONTRACT NO: -

King County METRO

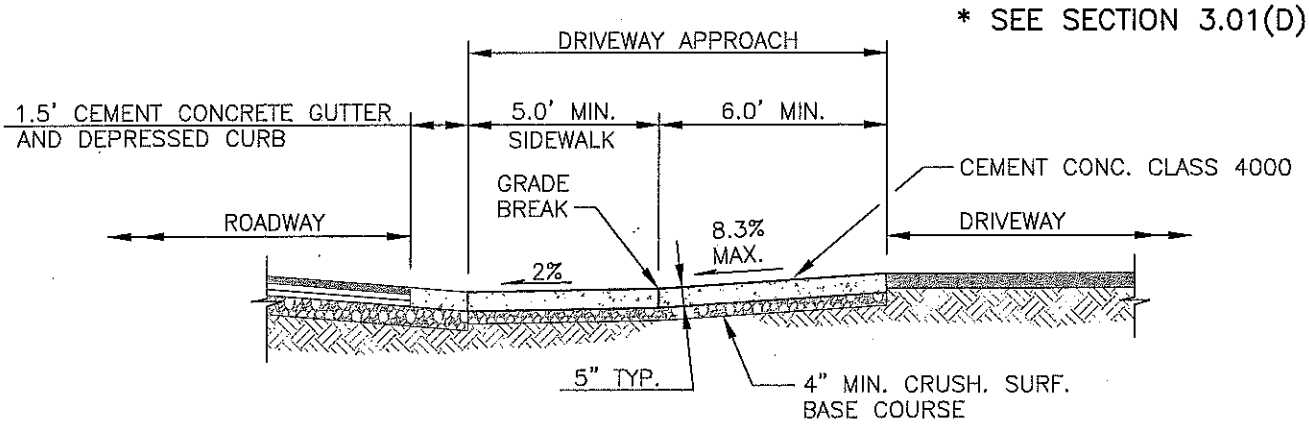
METRO TRANSIT CAPITAL DIVISION
TRANSIT PASSENGER FACILIITES - IMPROVEMENTS

INTERNAL SOLAR
SHELTER LIGHTING
ELECTRICAL DETAILS

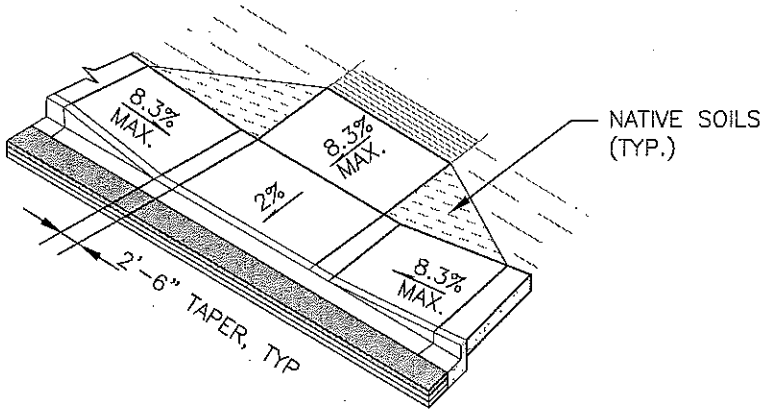
DATE: 4/2020
DRAWING NO: D111
SHEET NO: 19 OF 20



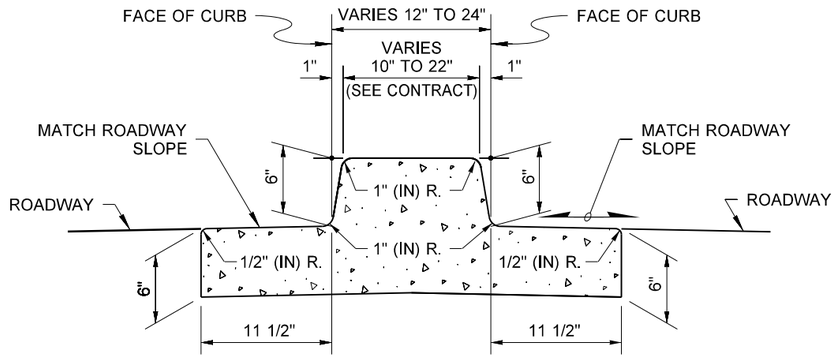
* SEE SECTION 3.01(D)



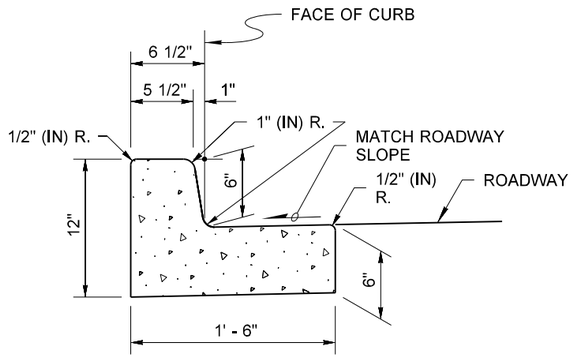
SECTION A



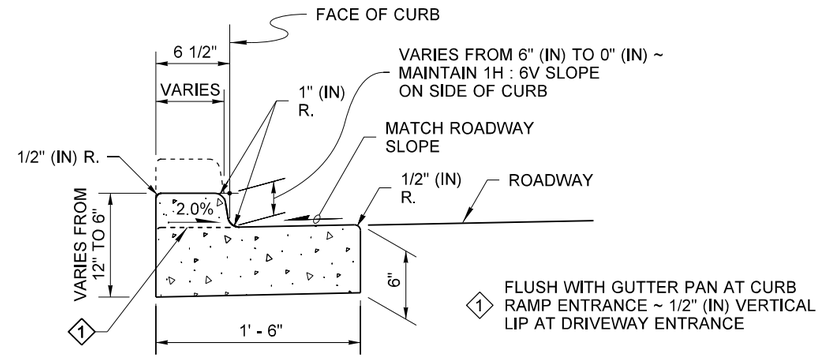
VIEW



DUAL-FACED CEMENT CONCRETE TRAFFIC CURB AND GUTTER



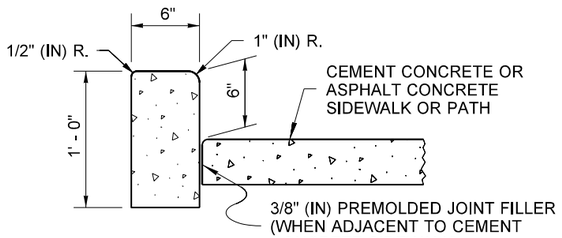
CEMENT CONCRETE TRAFFIC CURB AND GUTTER



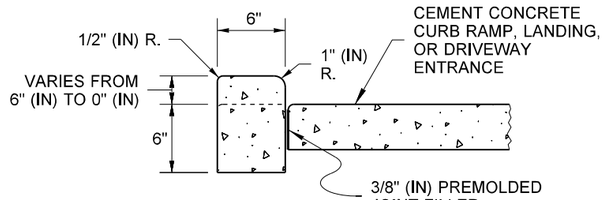
DEPRESSED CURB AND GUTTER SECTION

AT CURB RAMPS AND DRIVEWAY ENTRANCES

DRAWN BY: FERN LIDDELL



CEMENT CONCRETE PEDESTRIAN CURB

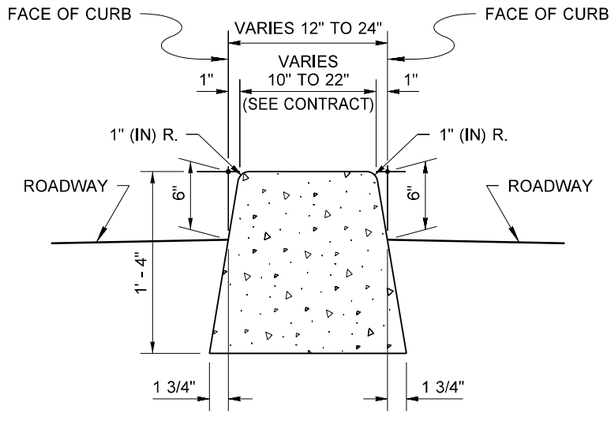


CEMENT CONCRETE PEDESTRIAN CURB

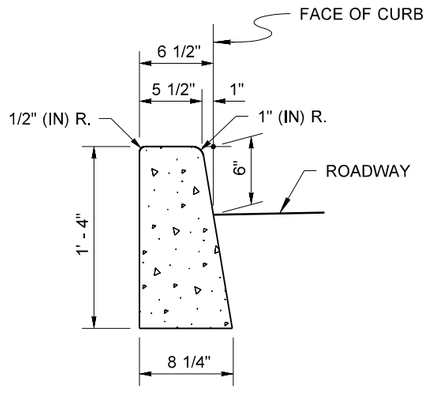
AT CURB RAMPS, LANDINGS, AND DRIVEWAY ENTRANCES

NOTE

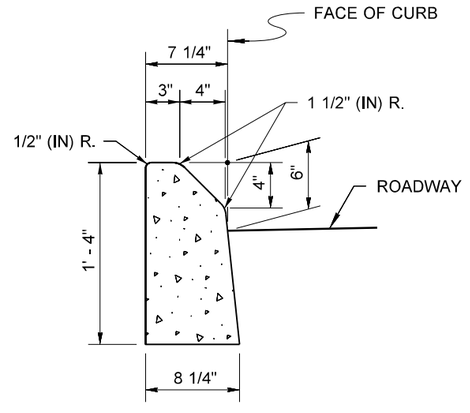
1. See **Standard Plan F-30.10** for Curb Expansion and Contraction Joint spacing. See **Standard Specification, Sections 8-04 and 9-04** for additional requirements.



DUAL-FACED CEMENT CONCRETE TRAFFIC CURB



CEMENT CONCRETE TRAFFIC CURB



MOUNTABLE CEMENT CONCRETE TRAFFIC CURB

Michael S Fleming

Digitally signed by Michael S Fleming
Date: 2020.09.24 07:39:38 -07'00'

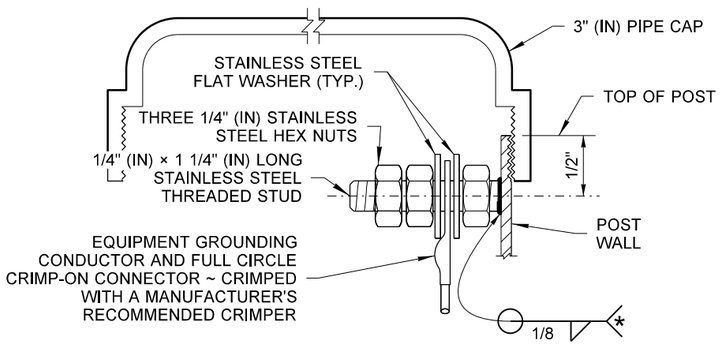
CEMENT CONCRETE CURBS

STANDARD PLAN F-10.12-04

SHEET 1 OF 1 SHEET

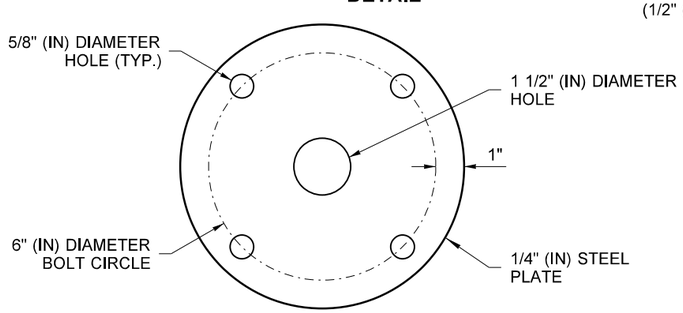
APPROVED FOR PUBLICATION
Date: 2020.09.24 07:57:43 -07'00'
STATE DESIGN ENGINEER
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL

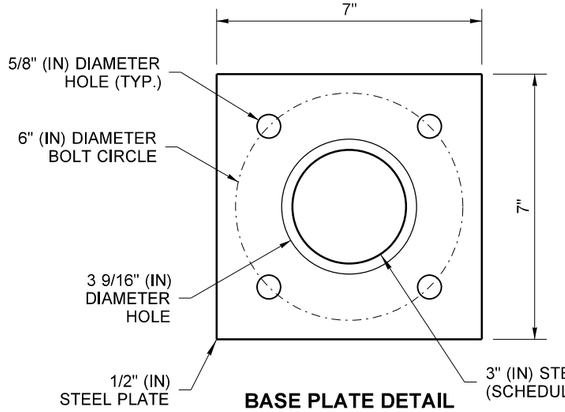


GROUNDING CONNECTION DETAIL

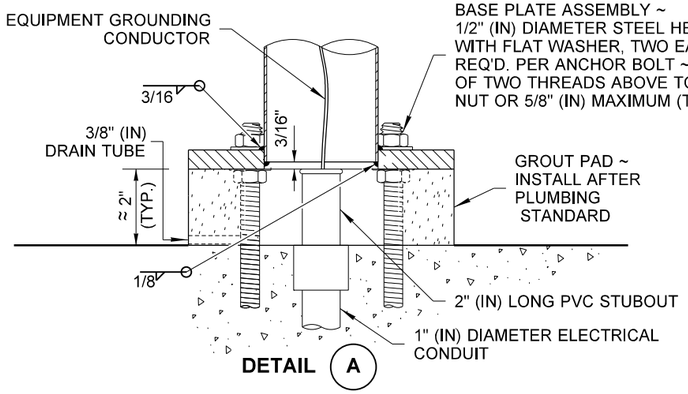
* WELD STUD TO POLE WALL TO MAXIMUM EXTENT POSSIBLE (1/2" (IN) MINIMUM WELD)



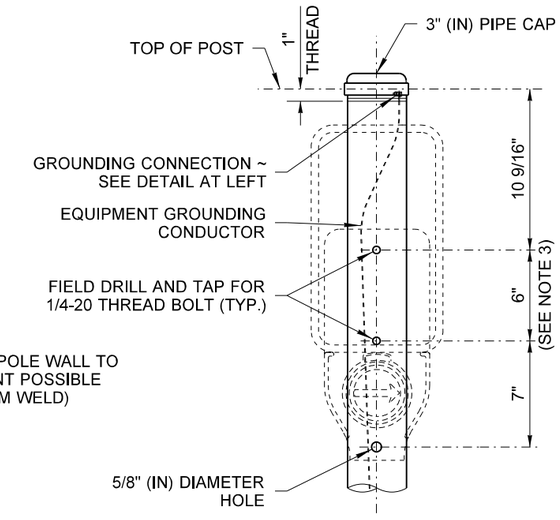
ANCHOR BOLT TEMPLATE



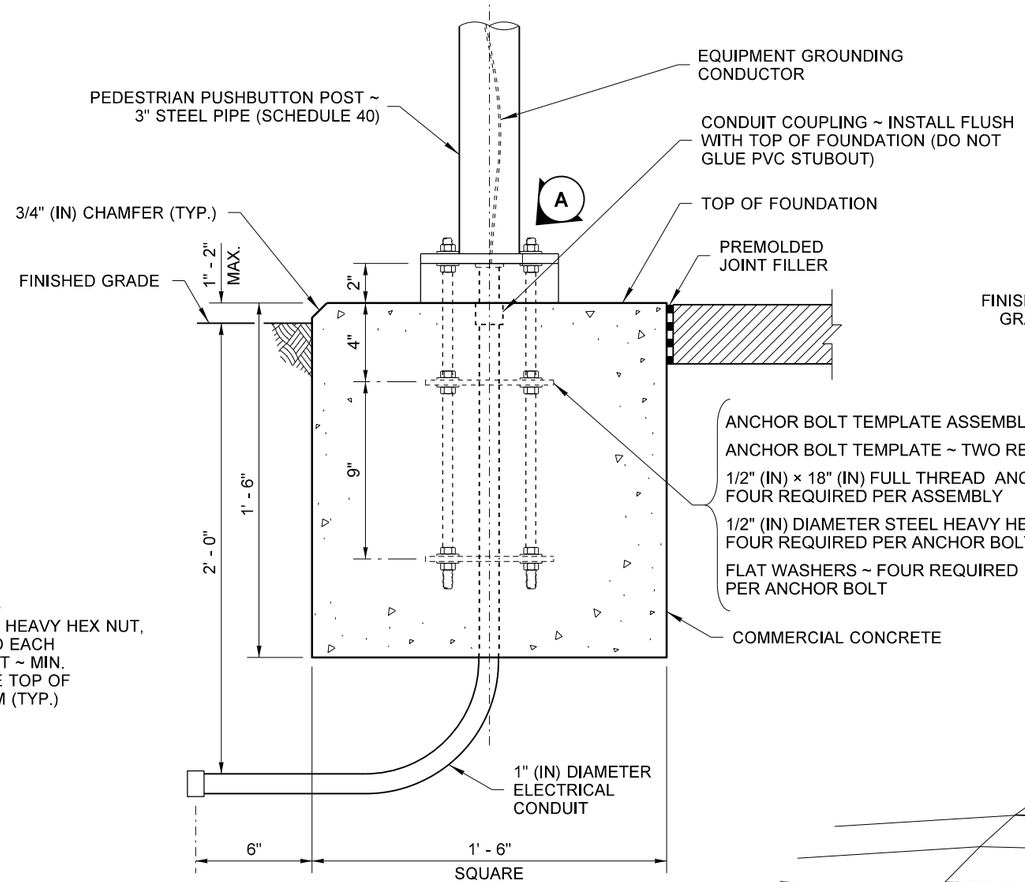
BASE PLATE DETAIL



DETAIL A



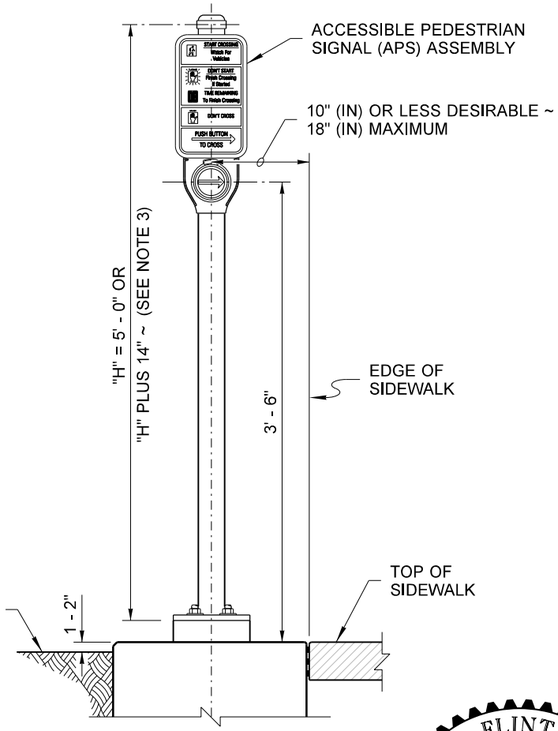
POST DETAIL



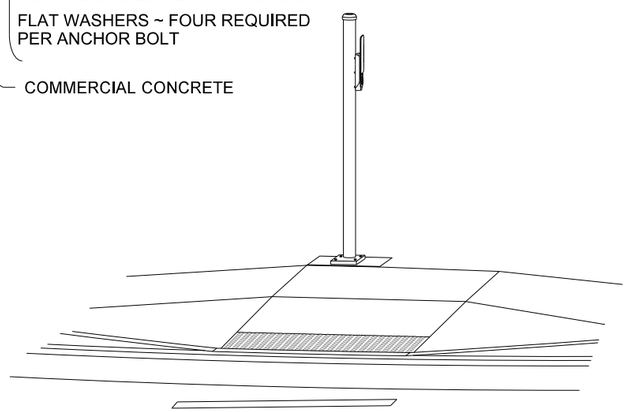
FOUNDATION DETAIL

NOTES

1. See **Standard Plan J-20.26** for Accessible Pedestrian Pushbutton details.
2. Where shown in the plans, install plaque (R10-32P) "PUSH BUTTON FOR 2 SECONDS FOR EXTRA CROSSING TIME" above the Accessible Pedestrian Signal (APS) assembly. Add 14" (in) to post height to accommodate plaque and leave a 2" (in) space between signs.
3. Mounting distances vary between manufacturers. See manufacturers recommendations for mounting information.
4. Junction Box serving the Standard shall preferably be located 5' - 0" (10' - 0" Max.) from the Standard.
5. Two button installation may require adaptor(s).



ELEVATION



PERSPECTIVE VIEW

ACCESSIBLE PEDESTRIAN PUSHBUTTON POST (PPB) AND FOUNDATION

STANDARD PLAN J-20.10-04

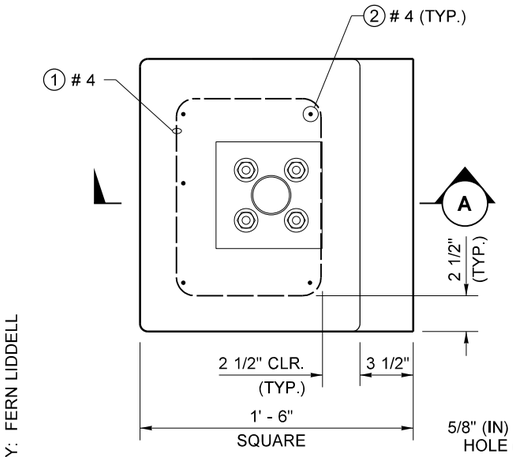
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

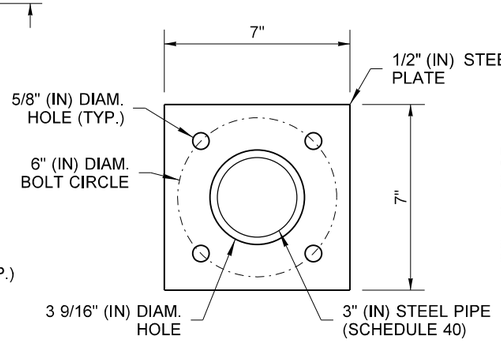
STATE DESIGN ENGINEER

Washington State Department of Transportation

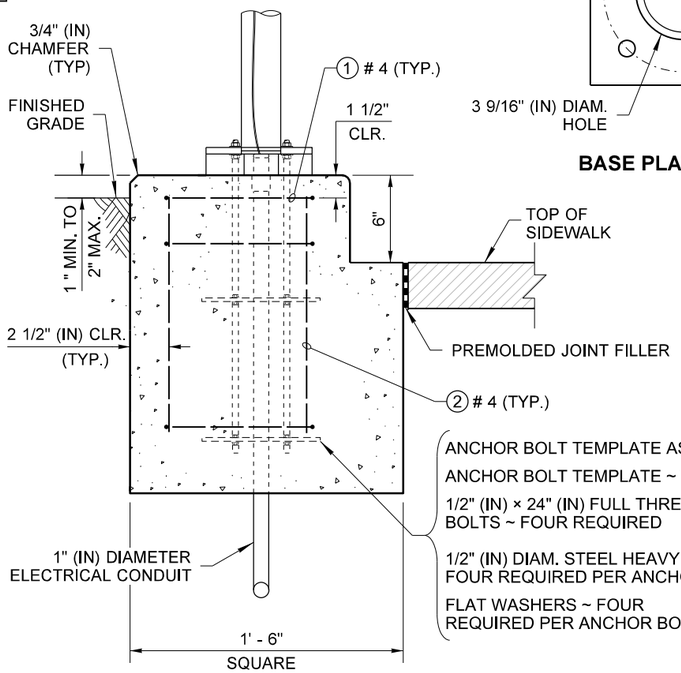
DRAWN BY: FERN LIDDELL



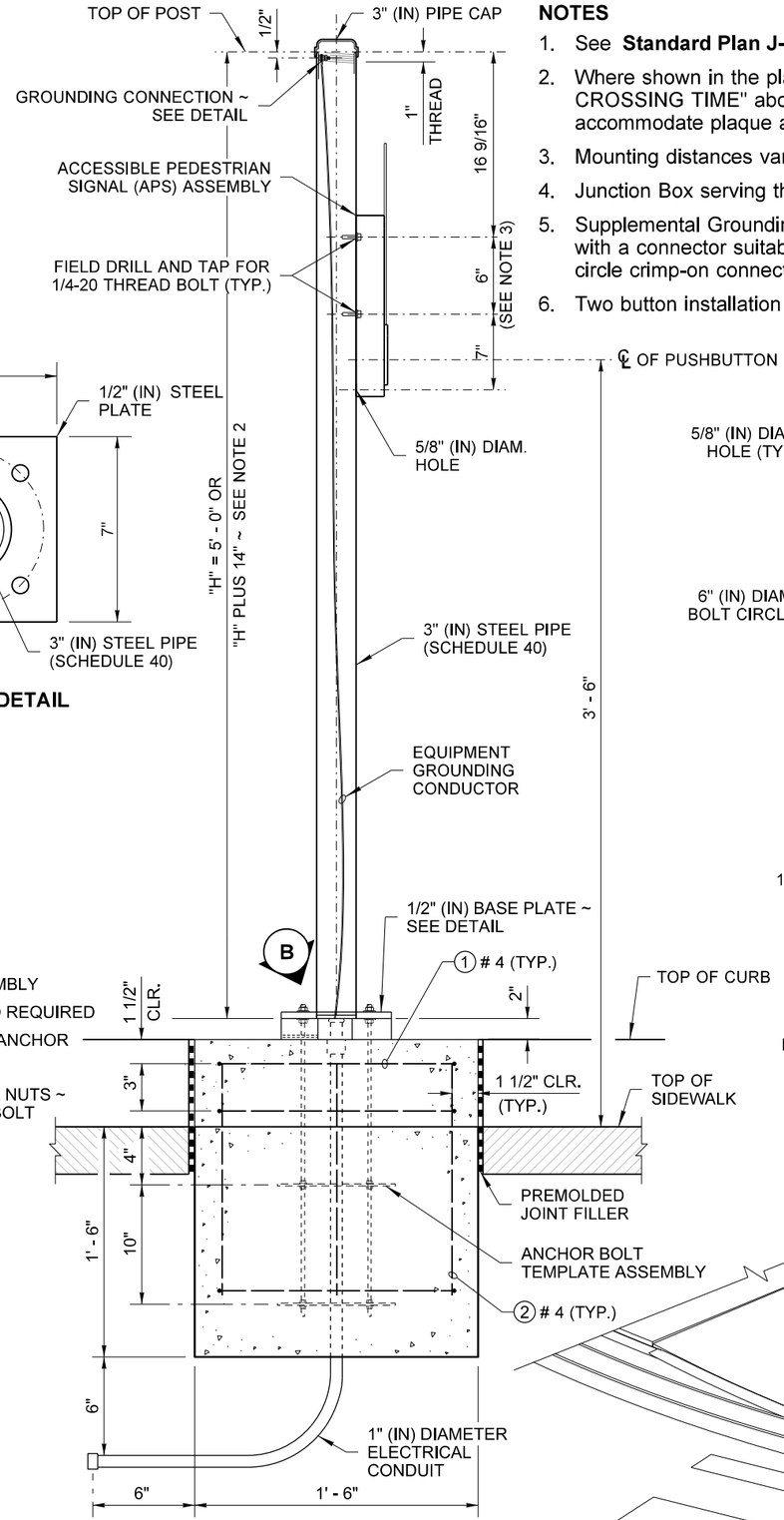
PLAN VIEW



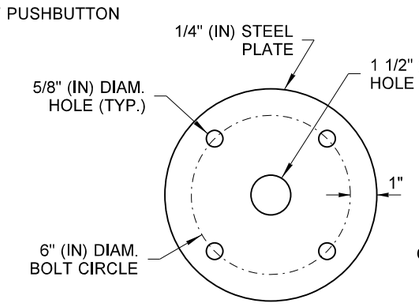
BASE PLATE DETAIL



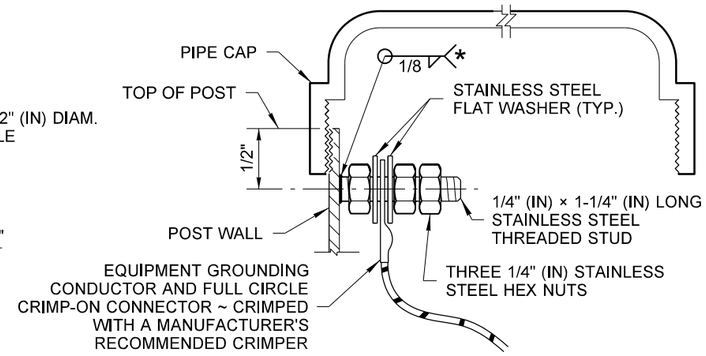
SECTION (A)



ELEVATION



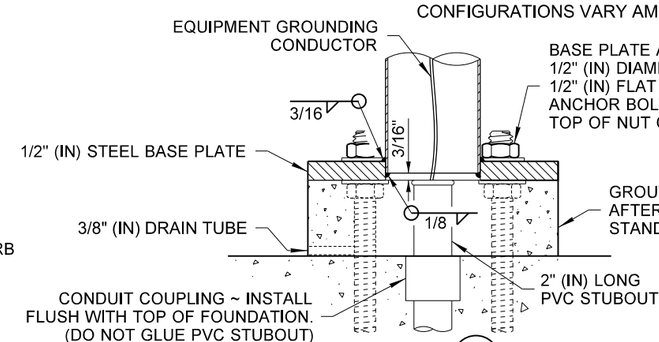
ANCHOR BOLT TEMPLATE



GROUNDING CONNECTION DETAIL

* WELD STUD TO POLE WALL TO MAXIMUM EXTENT POSSIBLE ~ 1/2" (IN) MINIMUM WELD

CONFIGURATIONS VARY AMONG DIFFERENT MANUFACTURERS



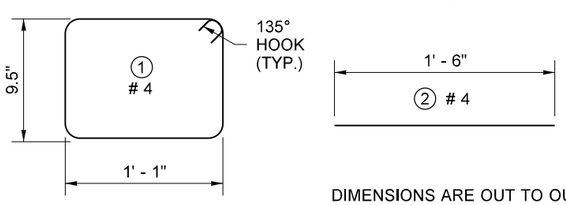
SECTION (B)

NOTES

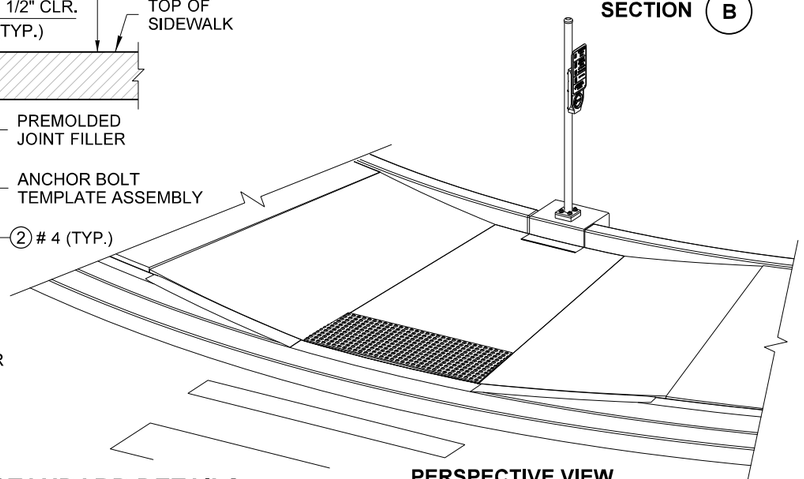
1. See **Standard Plan J-20.26** for Accessible Pedestrian Pushbutton details.
2. Where shown in the plans, install plaque (R10-32P) "PUSH BUTTON FOR 2 SECONDS FOR EXTRA CROSSING TIME" above the Accessible Pedestrian Signal (APS) assembly. Add 14" (in) to the PPB post height to accommodate plaque and leave a 2" (in) space between signs.
3. Mounting distances vary between manufacturers. See manufacturers recommendations for mounting information.
4. Junction Box serving the Standard shall preferably be located 5' - 0" (10' - 0" Max.) from the Standard.
5. Supplemental Grounding Conductor shall be non-insulated #4 AWG stranded copper and shall be clamped to vertical rebar with a connector suitable for use embedded in concrete: Provide 3' - 0" min. slack. Attach to pole grounding stud with a full circle crimp-on connector (crimped with a manufacturer recommended crimper).
6. Two button installation may require adaptor(s).

REINFORCING STEEL BENDING DIAGRAM

SEE **STD. SPEC. SECTN. 9-07.1(2)** FOR BENDING DIAMETERS



DIMENSIONS ARE OUT TO OUT



PERSPECTIVE VIEW

TYPE PPB STANDARD DETAILS

ACCESSIBLE PEDESTRIAN PUSHBUTTON WITH CURB BASE STANDARD PLAN J-20.11-03

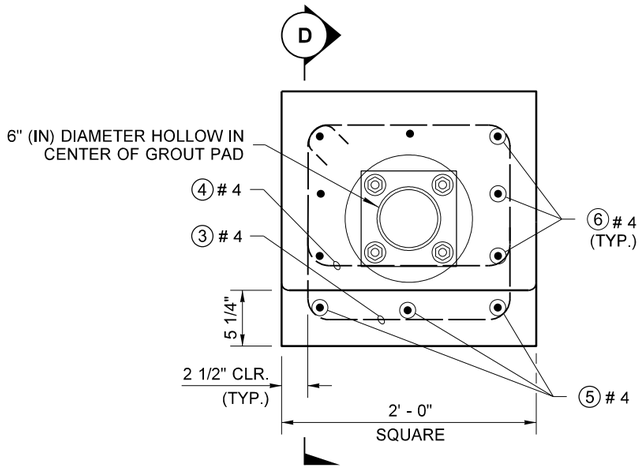
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER

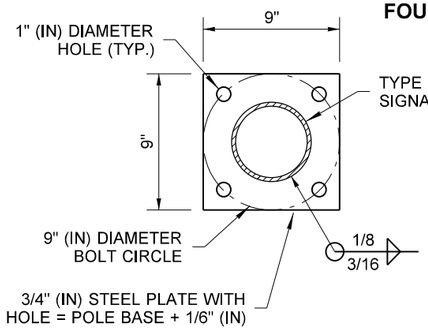
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



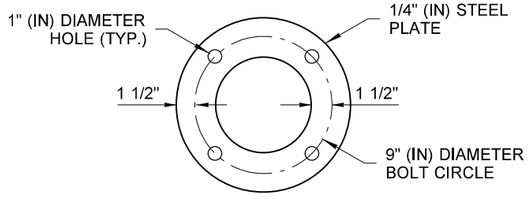
PLAN VIEW

FOUNDATION DETAILS



BASE PLATE DETAIL

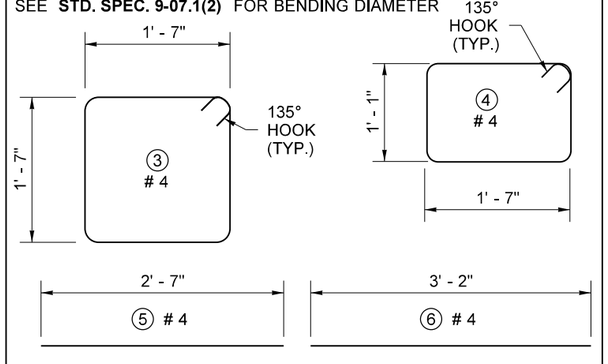
REINFORCING STEEL QUANTITIES LIST				
MARK	③	④	⑤	⑥
QTY.	3	2	3	7



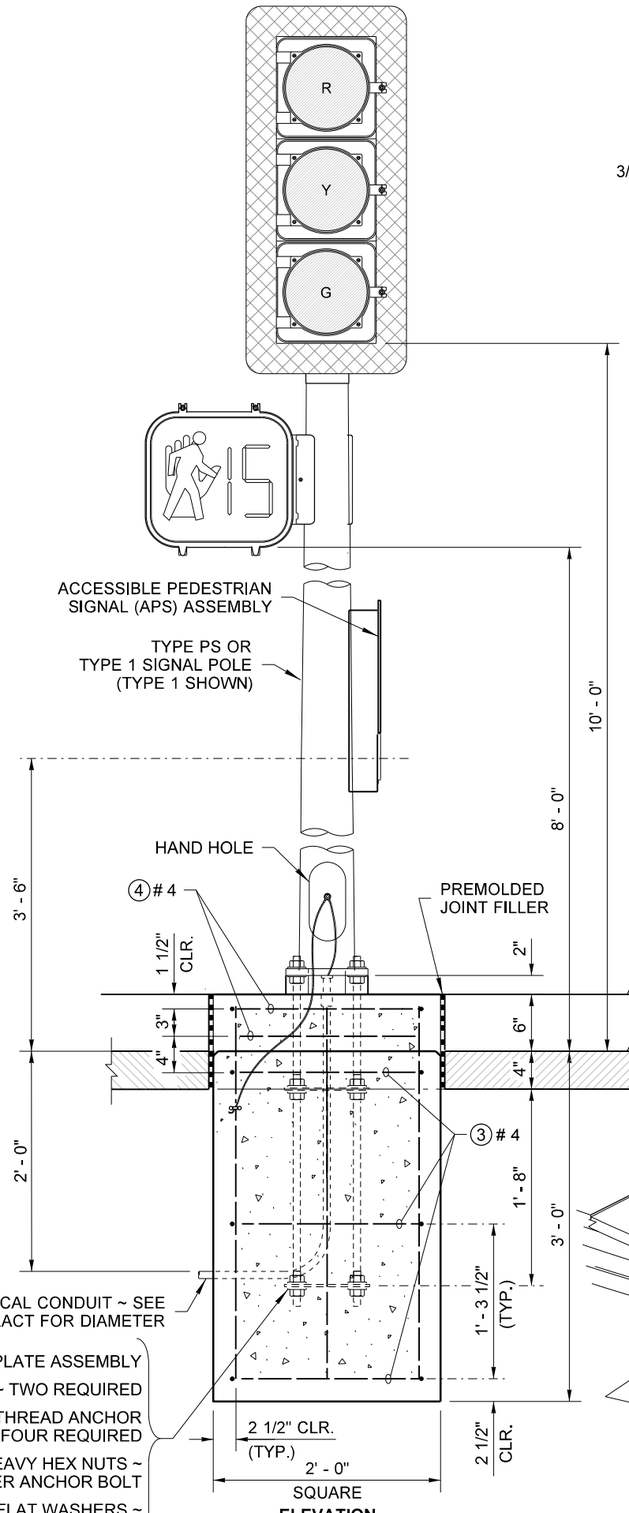
ANCHOR BOLT TEMPLATE

REINFORCING STEEL BENDING DIAGRAM

SEE **STD. SPEC. 9-07.1(2)** FOR BENDING DIAMETER

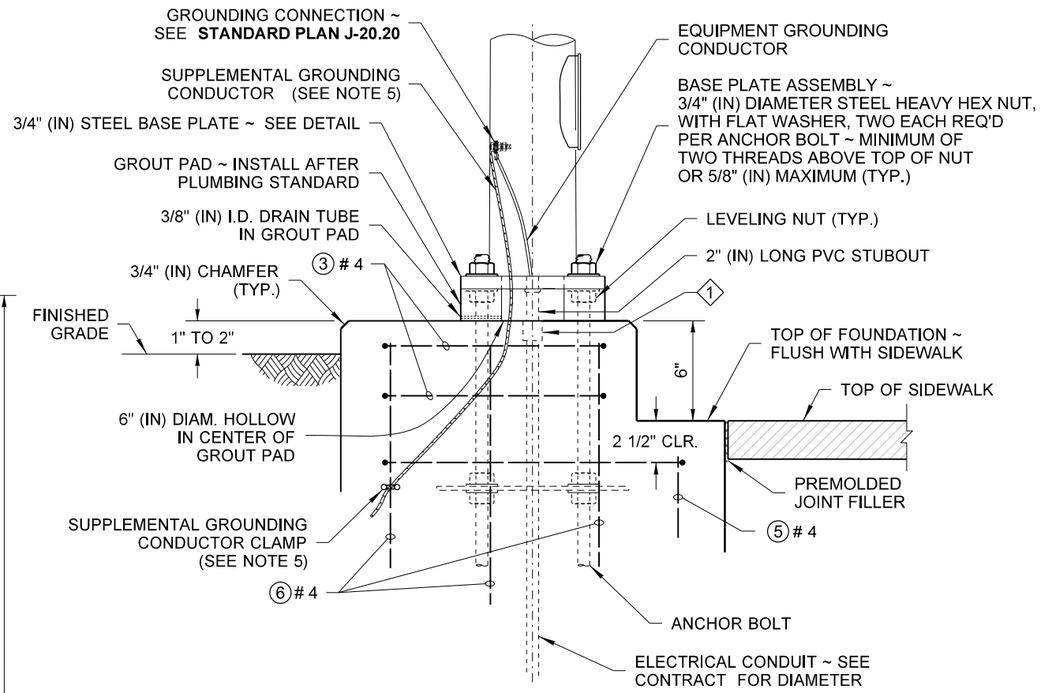


DIMENSIONS ARE OUT TO OUT



ELEVATION

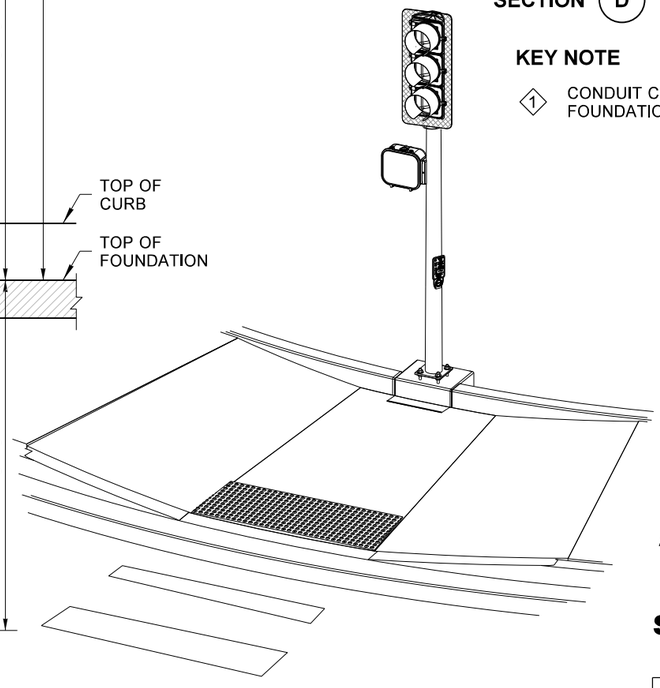
FOUNDATION DETAIL



SECTION (D)

KEY NOTE

① CONDUIT COUPLING ~ INSTALL FLUSH WITH TOP OF FOUNDATION. (DO NOT GLUE PVC STUBOUT)



PERSPECTIVE VIEW

TYPE 1 SIGNAL STANDARD DETAILS

WILLIAM FLINT JACKSON
STATE OF WASHINGTON
48821
REGISTERED
PROFESSIONAL ENGINEER

ACCESSIBLE PEDESTRIAN PUSHBUTTON WITH CURB BASE STANDARD PLAN J-20.11-03

SHEET 2 OF 2 SHEETS

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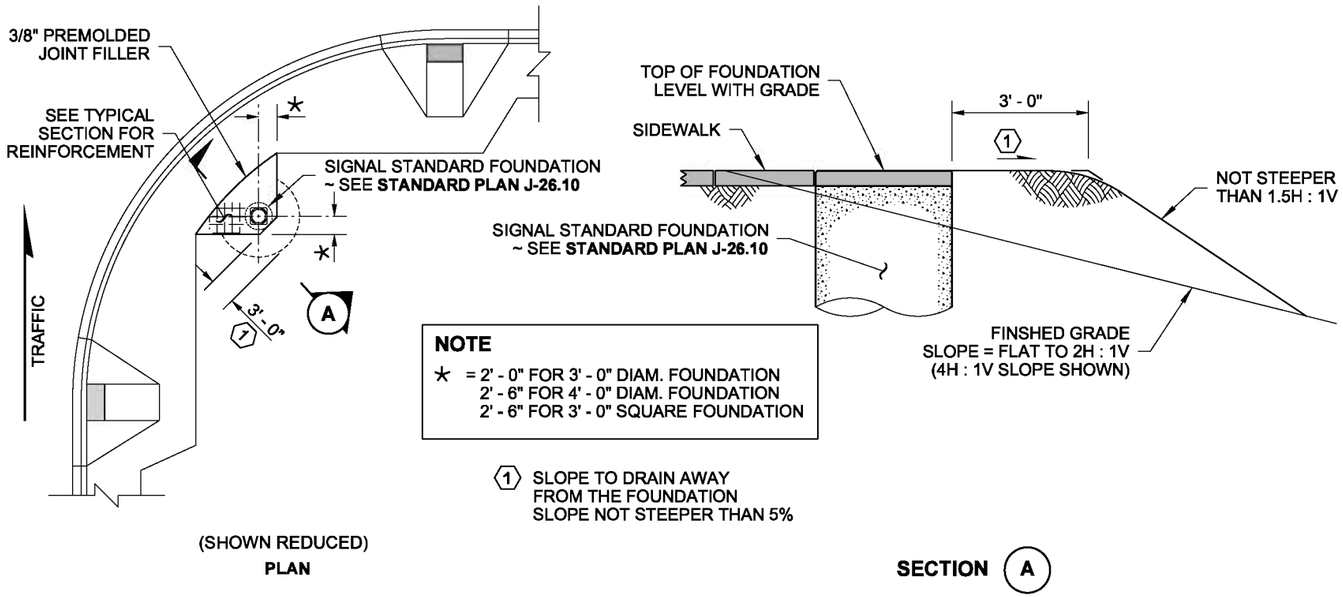
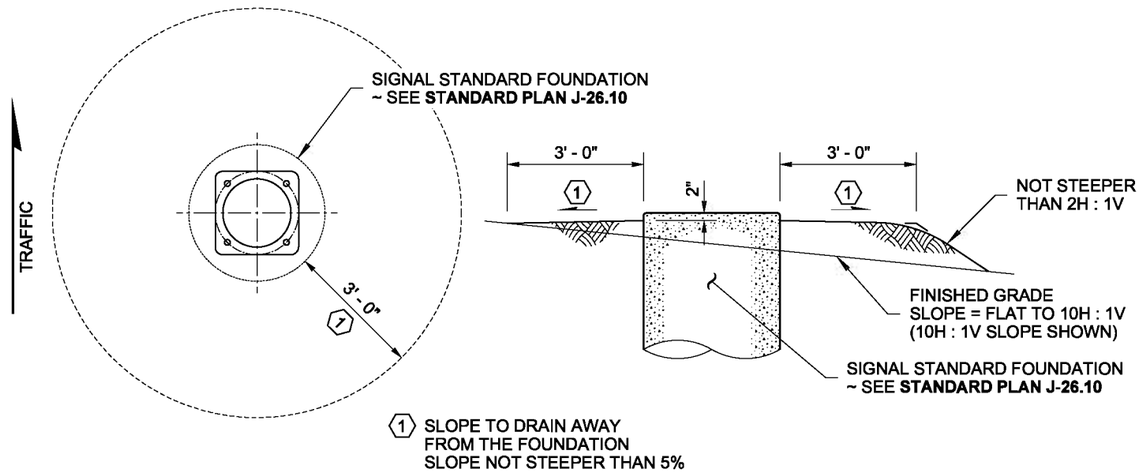


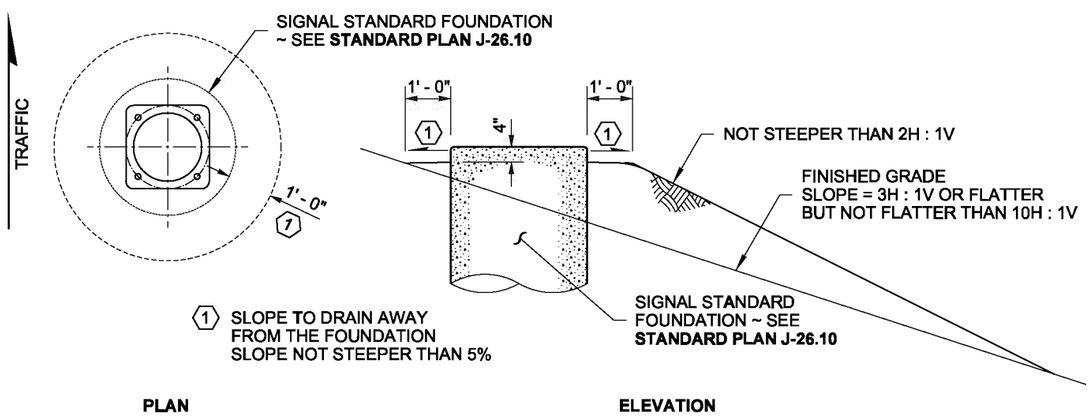
FOUNDATION IN OR NEAR SIDEWALK

CASE A



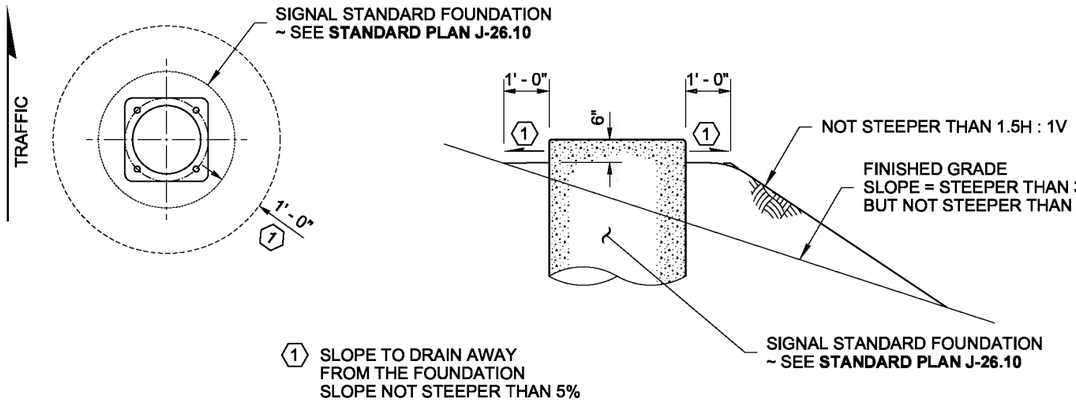
EXISTING GRADE OR FILL SLOPE = FLAT TO 10H : 1V

CASE B



EXISTING GRADE OR FILL SLOPE = 10H : 1V TO ≤ 3H : 1V

CASE C



EXISTING GRADE OR FILL SLOPE = > 3H : 1V TO 2H : 1V

CASE D

THEODORE JOSEPH BAILEY
STATE OF WASHINGTON
39820
REGISTERED
PROFESSIONAL ENGINEER

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SIGNAL STANDARD FOUNDATION PLACEMENTS

STANDARD PLAN J-26.15-01

SHEET 1 OF 3 SHEETS

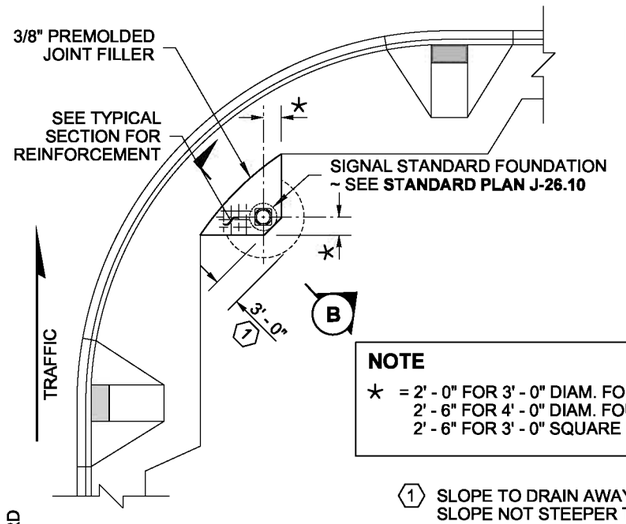
APPROVED FOR PUBLICATION

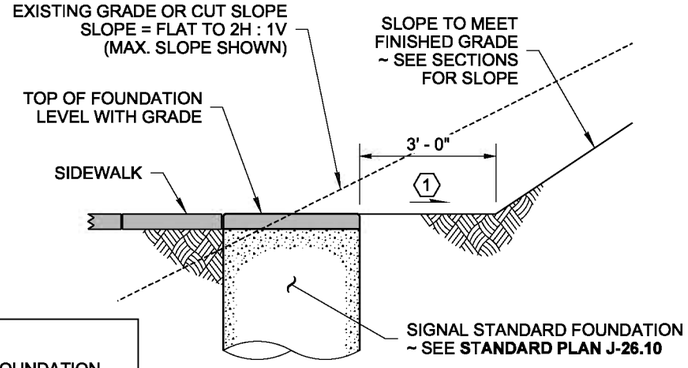
Pasco Bakotich III — STATE DESIGN ENGINEER

05/17/12 — DATE

Washington State Department of Transportation

DRAWN BY: LISA CYFORD





NOTE

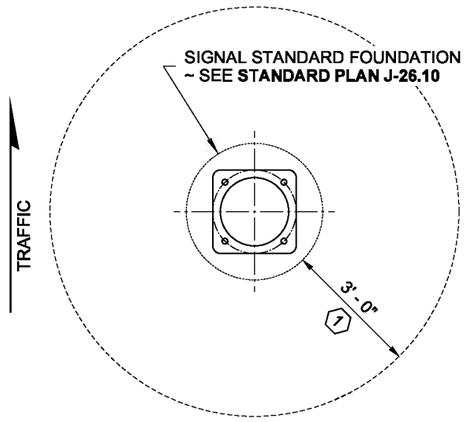
* = 2' - 0" FOR 3' - 0" DIAM. FOUNDATION
2' - 6" FOR 4' - 0" DIAM. FOUNDATION
2' - 6" FOR 3' - 0" SQUARE FOUNDATION

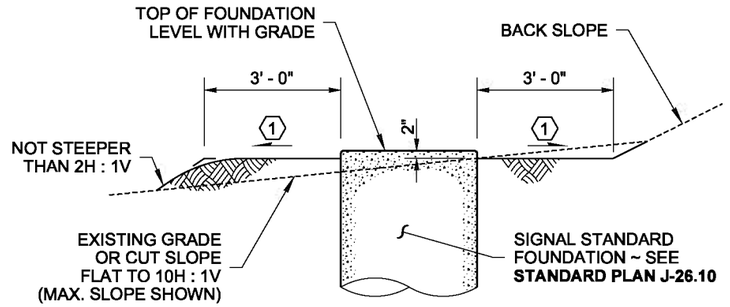
1 SLOPE TO DRAIN AWAY FROM THE FOUNDATION SLOPE NOT STEEPER THAN 5%

(SHOWN REDUCED)
PLAN

SECTION B

FOUNDATION IN OR NEAR SIDEWALK
CASE E

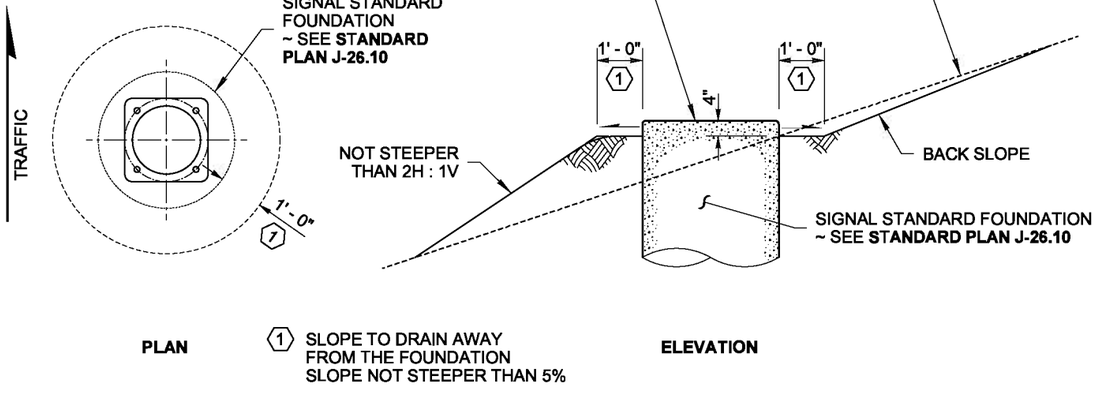




1 SLOPE TO DRAIN AWAY FROM THE FOUNDATION SLOPE NOT STEEPER THAN 5%

PLAN **ELEVATION**

EXISTING GRADE OR CUT SLOPE FLAT TO 10H : 1V
CASE F

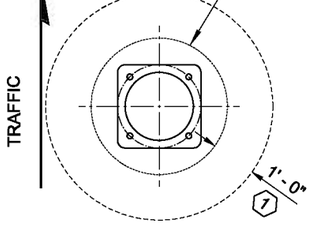


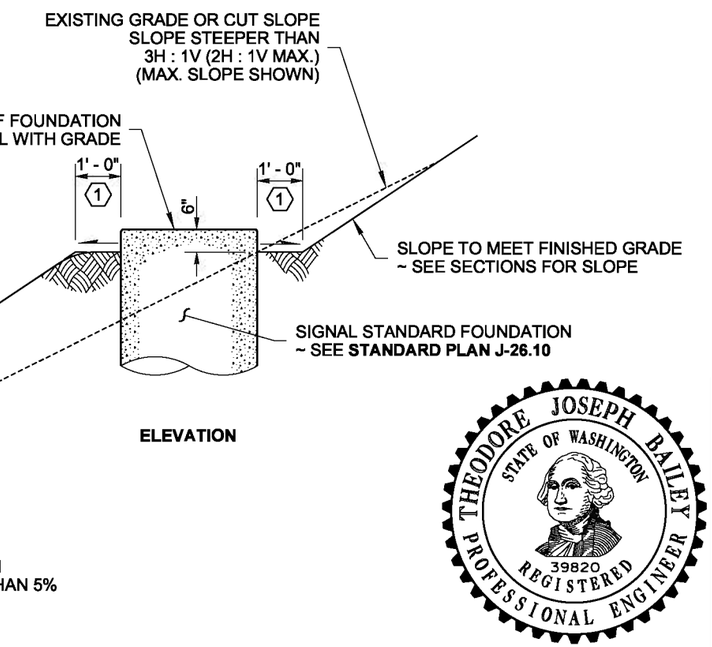
PLAN

1 SLOPE TO DRAIN AWAY FROM THE FOUNDATION SLOPE NOT STEEPER THAN 5%

ELEVATION

EXISTING GRADE OR CUT SLOPE 10H : 1V TO ≤ 3H : 1V
CASE G





PLAN **ELEVATION**

1 SLOPE TO DRAIN AWAY FROM THE FOUNDATION SLOPE NOT STEEPER THAN 5%

EXISTING GRADE OR CUT SLOPE STEEPER THAN 3H : 1V (2H : 1V MAX.)
CASE H

DRAWN BY: LISA CYFORD

THEODORE JOSEPH BAILEY
STATE OF WASHINGTON
39820
REGISTERED
PROFESSIONAL ENGINEER

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SIGNAL STANDARD FOUNDATION PLACEMENTS

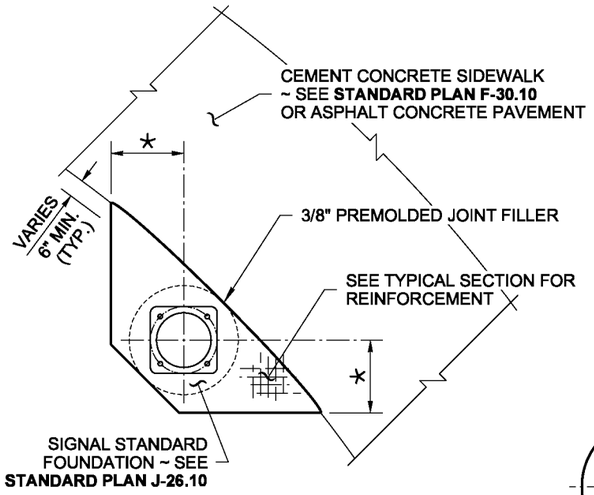
STANDARD PLAN J-26.15-01

APPROVED FOR PUBLICATION

Pasco Bakotich III — STATE DESIGN ENGINEER — *05/17/12* — DATE

Washington State Department of Transportation

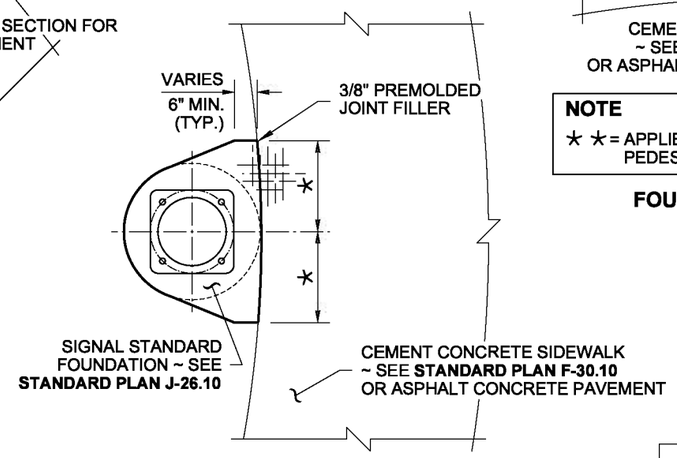
DRAWN BY: LISA CYFORD



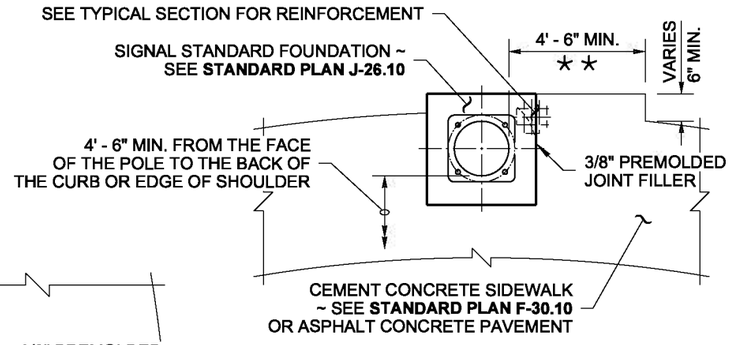
DUAL PEDESTRIAN PUSH BUTTON

NOTE

★ = 2' - 0" FOR 3' - 0" DIAM. FOUNDATION
2' - 6" FOR 4' - 0" DIAM. FOUNDATION
2' - 6" FOR 3' - 0" SQUARE FOUNDATION



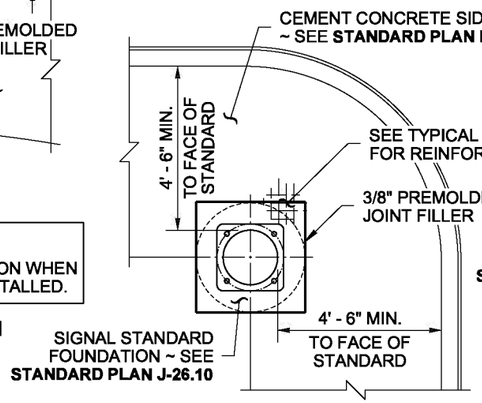
SINGLE PEDESTRIAN PUSH BUTTON

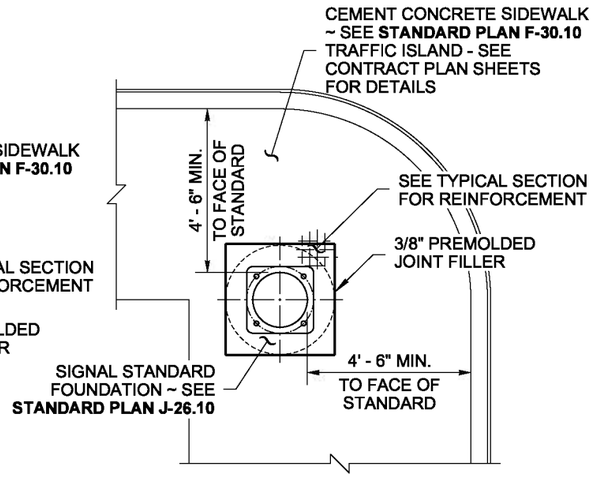


NOTE

★★ = APPLIES TO THE SIDE OF THE FOUNDATION WHEN PEDESTRIAN PUSH BUTTON IS TO BE INSTALLED.

FOUNDATION PARTIALLY WITHIN SIDEWALK SECTION





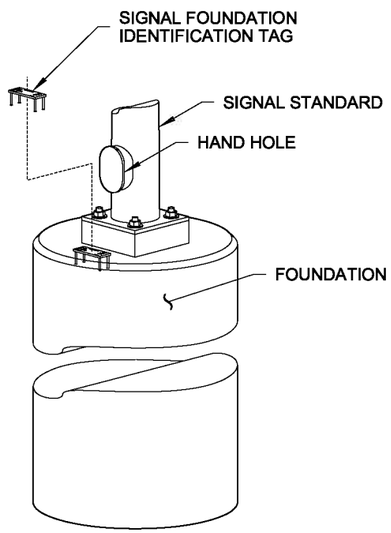
FOUNDATION WITHIN SIDEWALK OR TRAFFIC ISLAND SECTION

NOTE

REFER TO CONTRACT DOCUMENTS FOR PROJECT SPECIFIC INTERSECTION LAYOUTS & TRAFFIC ISLAND MATERIAL TYPE

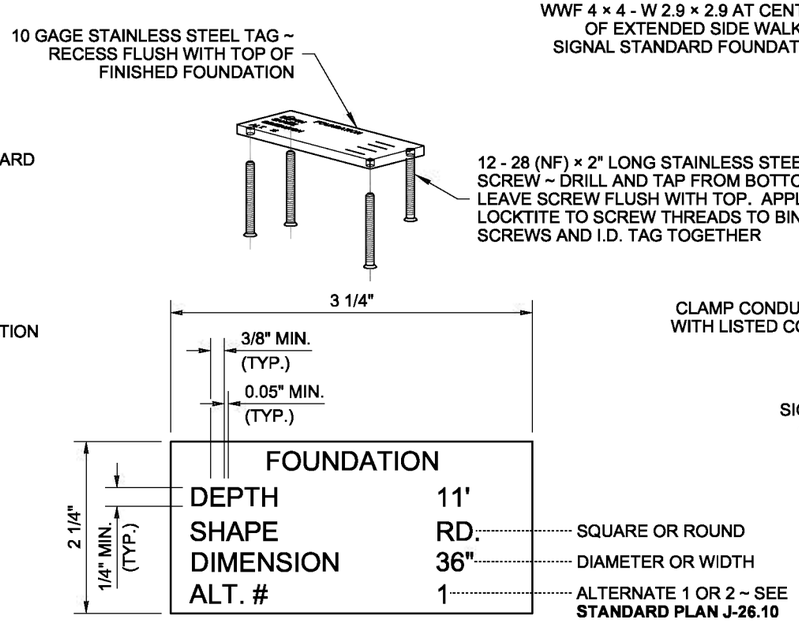
FOUNDATION PARTIALLY WITHIN SIDEWALK SECTION

FOUNDATION OUTSIDE THE SIDEWALK SECTION



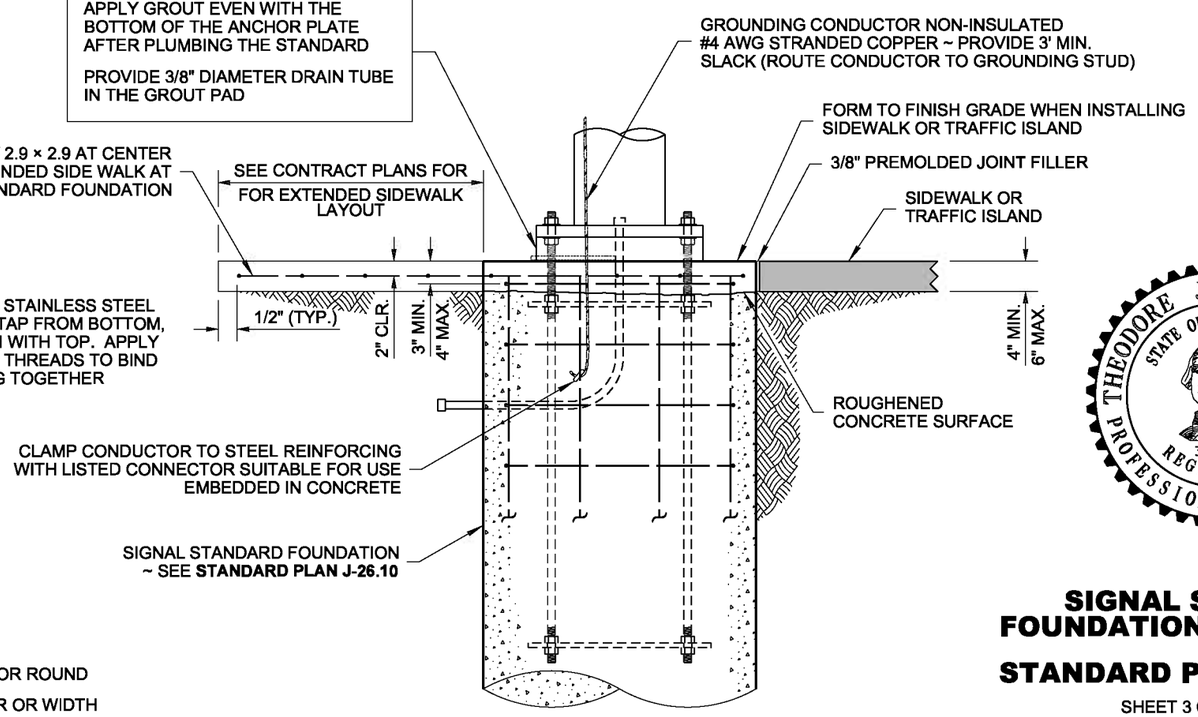
OBLIQUE VIEW

REINFORCING AND ANCHOR BOLTS NOT SHOWN FOR CLARITY (GROUT PAD OPTION SHOWN)



SIGNAL FOUNDATION IDENTIFICATION TAG DETAIL

TEXT SHALL BE ENGRAVED 0.014" DEEP



NOTE

FOUNDATION REINFORCING ONLY PARTIALLY SHOWN FOR CLARITY.
~ SEE **STANDARD PLAN J-26.10** FOR DETAILS NOT SHOWN.

TYPICAL SECTION

THEODORE JOSEPH BAILEY
STATE OF WASHINGTON
39820
REGISTERED
PROFESSIONAL ENGINEER

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SIGNAL STANDARD FOUNDATION PLACEMENTS

STANDARD PLAN J-26.15-01

SHEET 3 OF 3 SHEETS

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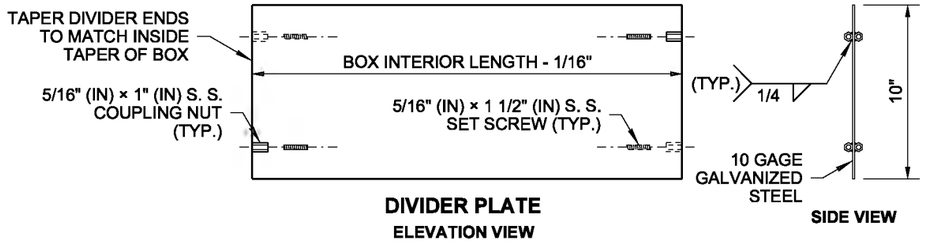
Pasco Bakotich III — STATE DESIGN ENGINEER

05/17/12 — DATE

Washington State Department of Transportation

DRAWN BY: LISA CYFORD



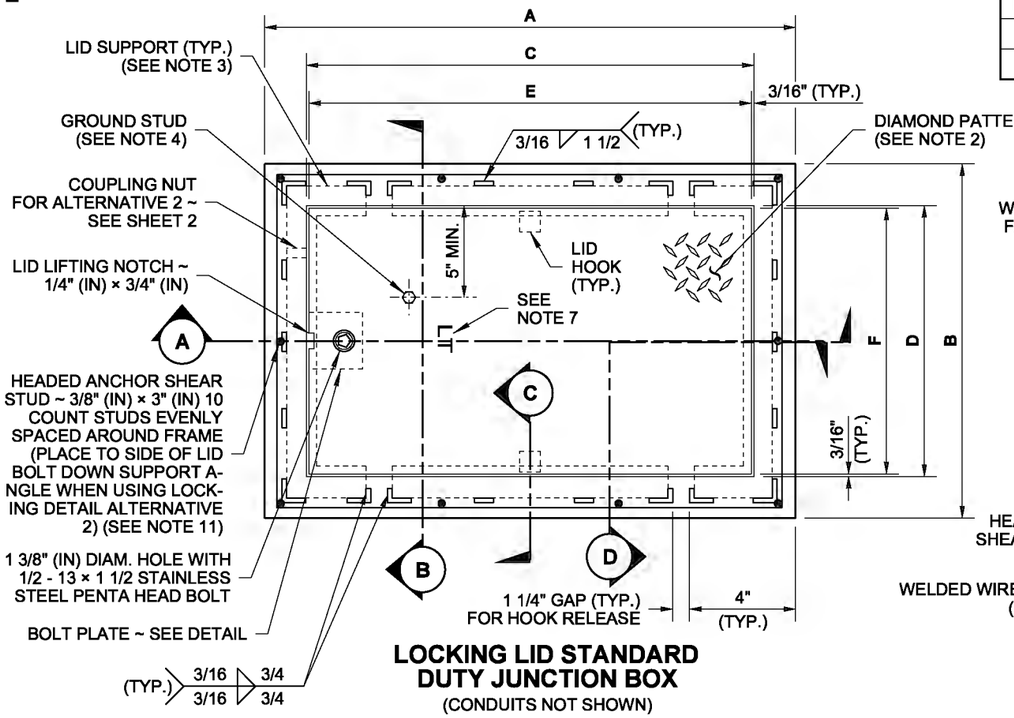
DIVIDER PLATE
ELEVATION VIEW
(FOR TYPE 2 JUNCTION BOX ONLY)

JUNCTION BOX DIMENSION TABLE

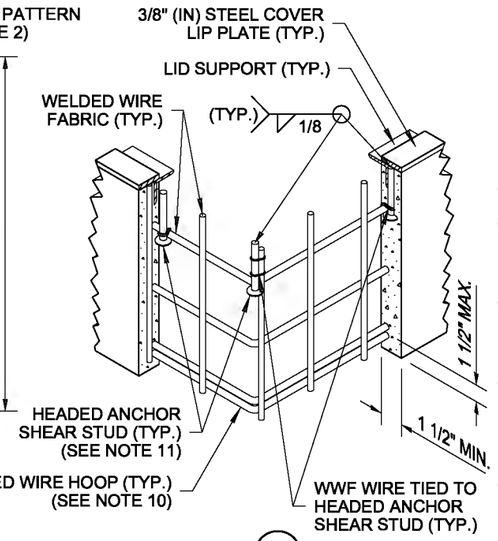
MARK	ITEM	BOX TYPE	
		TYPE 1	TYPE 2
A	OUTSIDE LENGTH OF JUNCTION BOX	22"	33"
B	OUTSIDE WIDTH OF JUNCTION BOX	17"	22 1/2"
C	INSIDE LENGTH OF JUNCTION BOX	18" ~ 19"	28" ~ 29"
D	INSIDE WIDTH OF JUNCTION BOX	13" ~ 14"	17" ~ 18"
E	LID LENGTH	17 5/8"	28 5/8"
F	LID WIDTH	12 5/8"	18 1/8"
	CAPACITY ~ CONDUIT DIAMETER	6"	12"

NOTES

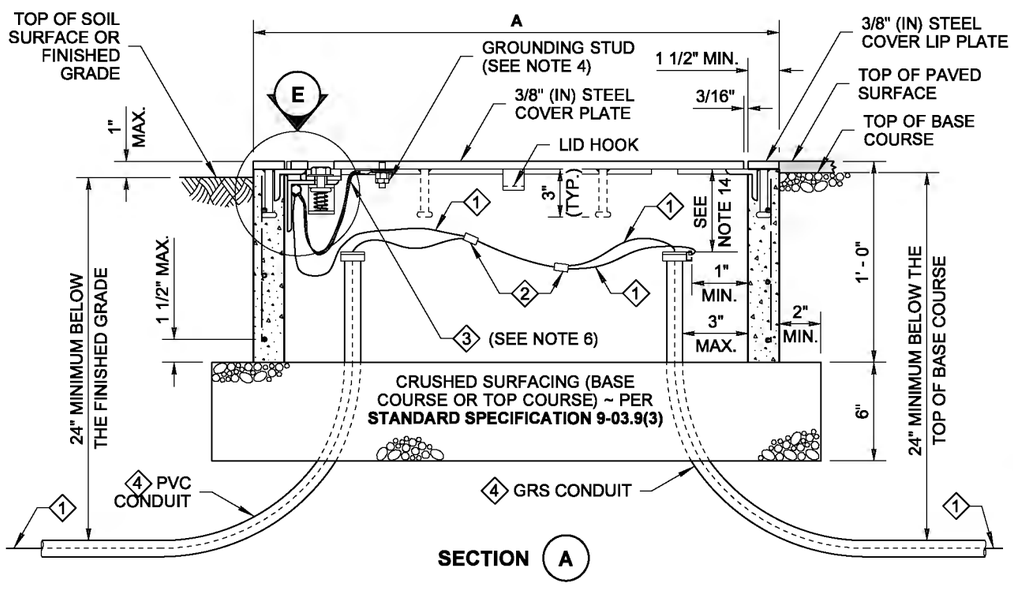
1. All box dimensions are approximate. Exact configurations vary among manufacturers.
2. Minimum lid thickness shown. Junction Boxes installed in sidewalks, walkways, and shared-use paths shall have a slip-resistant coating on the lid and lip cover plate, and shall be installed with the surface flush with and matched to the grade of the sidewalk, walkway, or shared-use path. The non-slip lid shall be identified with permanent markings on the underside, indicating the type of surface treatment (see Contract Documents for details) and the year of manufacture. The permanent marking shall be 1/8" (in) line thickness formed with a mild steel weld bead and shall be placed prior to hot-dip galvanizing.
3. Lid support members shall be 3/16" (in) minimum thick steel C, L, or T shape, welded to the frame.
4. A 1/4-20 NC × 3/4" (in) stainless steel ground stud shall be welded to the bottom of the lid; include (2) stainless steel nuts and (2) stainless steel flat washers.
5. Bolts and nuts shall be liberally coated with anti-seize compound.
6. Equipment Bonding Jumper shall be # 8 AWG min. × 4' (ft) of tinned braided copper.
7. The System Identification letters shall be 1/8" (in) line thickness formed with a mild steel weld bead. See Cover Marking detail. Grind off diamond pattern before forming letters. For System Identification details, see **Standard Specification 9-29.2(4)**.
8. When required in the Contract, provide a 10" (in) x 27 1/2" (in), 10 gage divider plate, complete, with fasteners, in each Type 2 Junction Box where specified.
9. When required in Contract, provide a 12" (in) deep extension for each Type 2 Junction Box where specified.
10. See the **Standard Specifications** for alternative reinforcement and class of concrete.
11. Headed Anchor Shear Studs must be welded to the Steel Cover Lip Plate and wire tied in two places to the vertical Welded Wire Fabric when in contact with each other. Wire tie all other Headed Anchor Shear Studs to the horizontal Welded Wire Fabric.
12. Lid Bolt Down Attachment Tab provides a method of retrofitting by using a mechanical process in lieu of welding. Attachment Tab shown depicts a typical component arrangement; actual configurations of assembly will vary among manufacturers. See approved manufacturers' shop drawings for specifics.
13. Unless otherwise noted in the plans or approved by the Engineer, Junction Boxes, Cable Vaults, and Pull Boxes shall not be placed within the sidewalks, walkways, shared use paths, traveled ways or paved shoulders. All Junction Boxes, Cable Vaults, and Pull Boxes placed within the traveled way or paved shoulders shall be Heavy-Duty.
14. Distance between the top of the conduit and the bottom of the Junction Box lid shall be 6" (in) min. to 8" (in) max. for final grade of new construction only. See **Standard Specification 8-20.3(5)**. Where adjustments are to be made to existing Junction Boxes, or for interim construction stages during the contract, the limits shall be from 6" (in) min. to 10" (in) max. See **Standard Specification 8-20.3(6)**.



LOCKING LID STANDARD DUTY JUNCTION BOX
(CONDUITS NOT SHOWN)



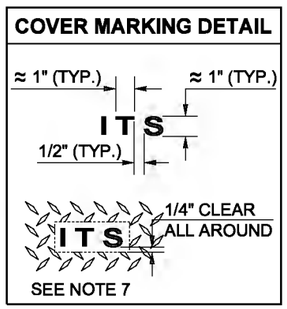
SECTION (D)
PERSPECTIVE VIEW

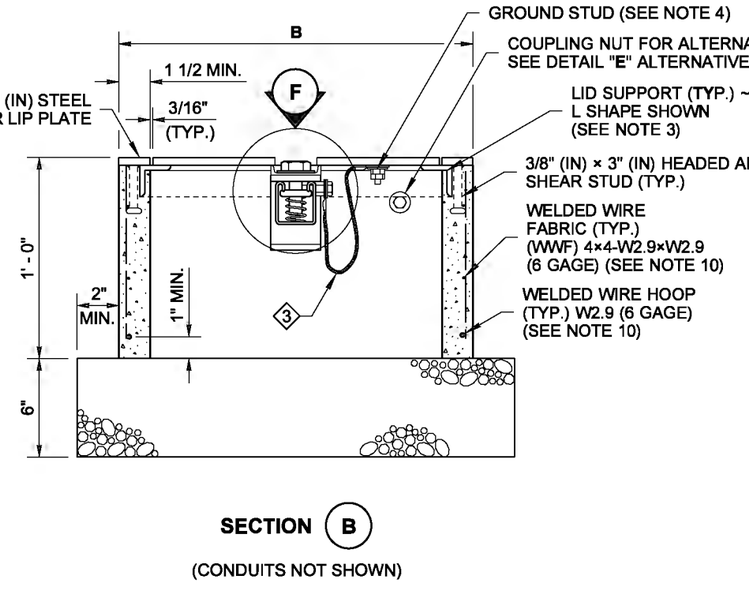


SECTION (A)

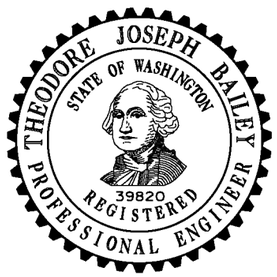
1. Equipment Grounding Conductor
2. Copper Solderless Crimp Connector
3. Equipment Bonding Jumper (See Note 6)
4. See Contract for conduit size and number

COVER MARKING DETAIL





SECTION (B)
(CONDUITS NOT SHOWN)



LOCKING LID STANDARD DUTY JUNCTION BOX TYPES 1 & 2 STANDARD PLAN J-40.10-04

SHEET 1 OF 2 SHEETS

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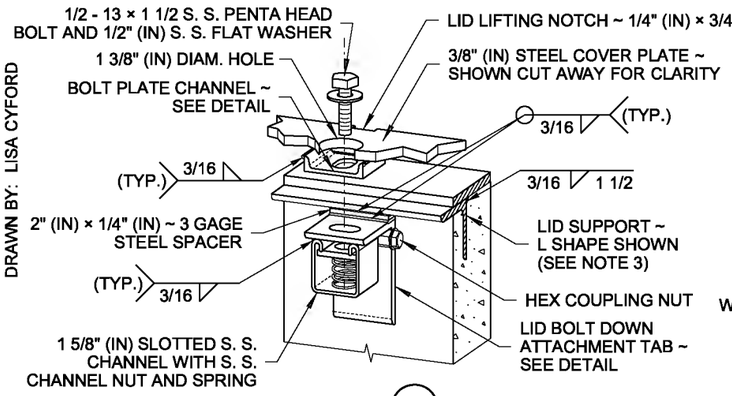
STATE DESIGN ENGINEER

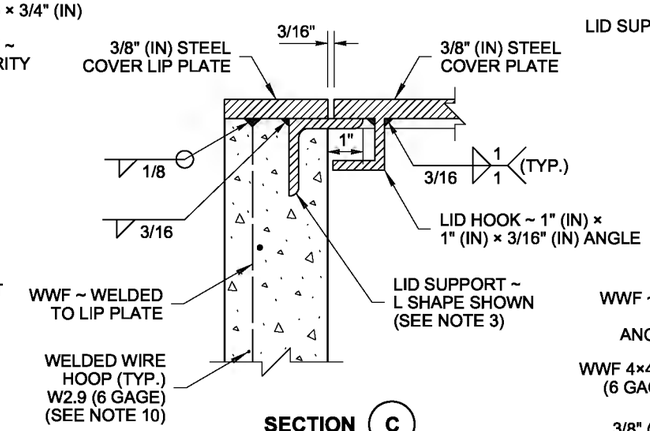
Washington State Department of Transportation

DRAWN BY: LISA CYFORD

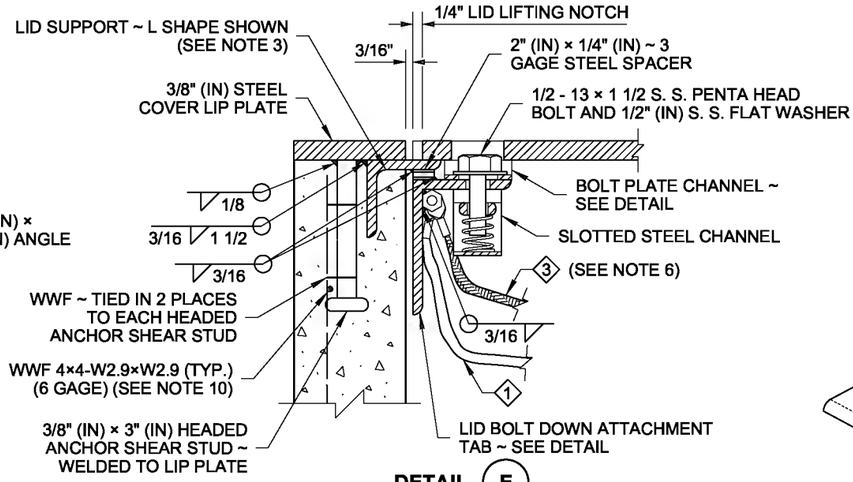


DETAIL (F)

ALTERNATIVE 1 SHOWN
PERSPECTIVE VIEW

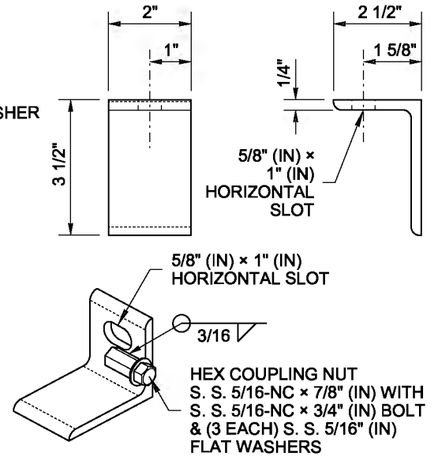


SECTION (C)

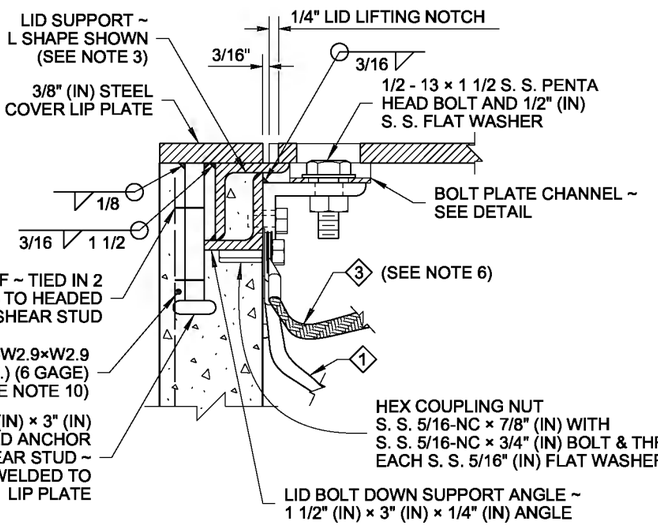


DETAIL (E)

ALTERNATIVE 1 SHOWN

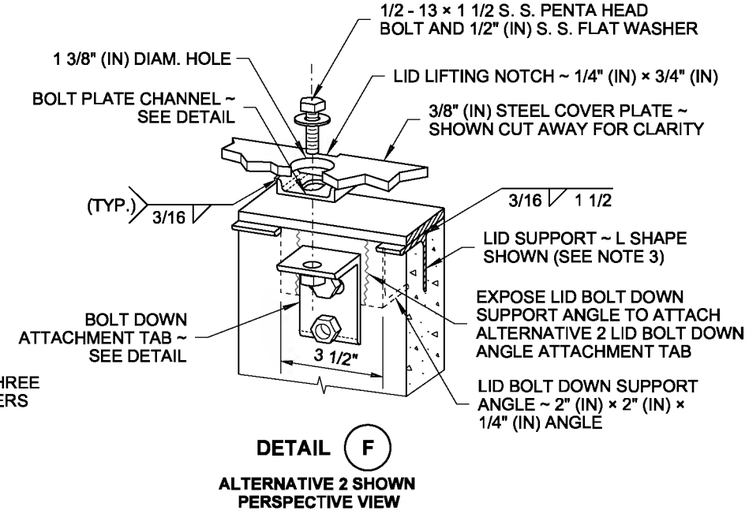


ALTERNATIVE 1
LID BOLT DOWN ATTACHMENT TAB
(SEE NOTE 12)



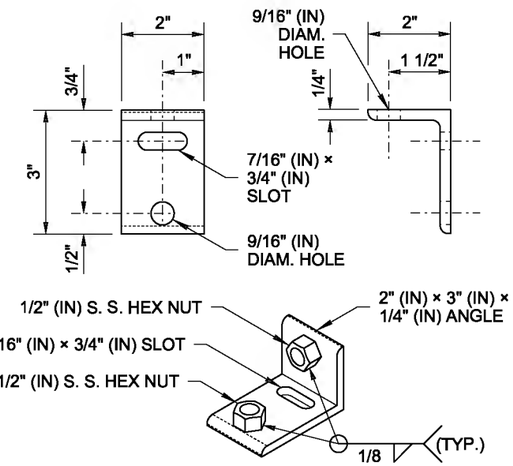
DETAIL (E)

ALTERNATIVE 2 SHOWN

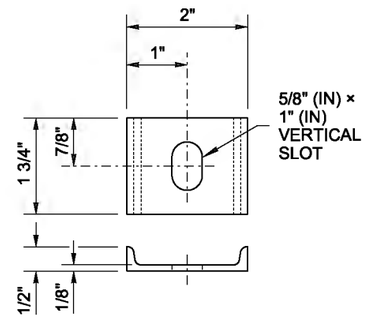


DETAIL (F)

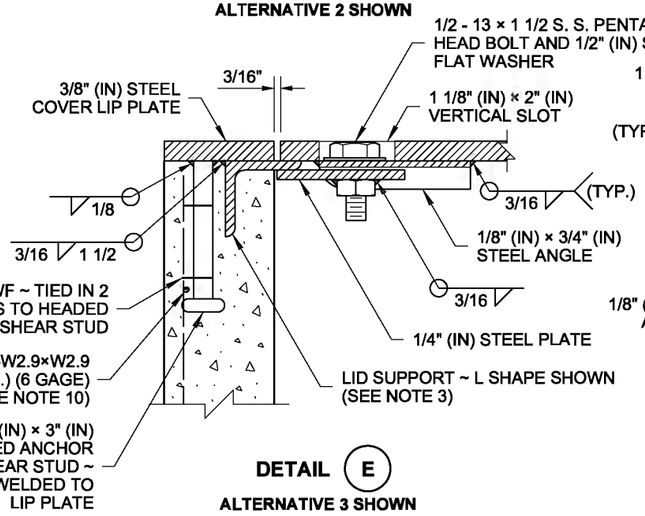
ALTERNATIVE 2 SHOWN
PERSPECTIVE VIEW



ALTERNATIVE 2
LID BOLT DOWN ATTACHMENT TAB
(SEE NOTE 12)

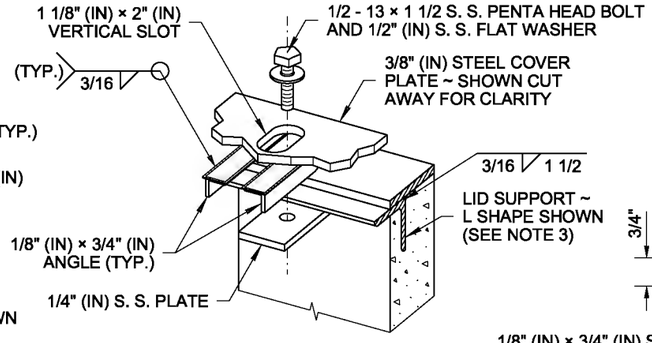


BOLT PLATE CHANNEL



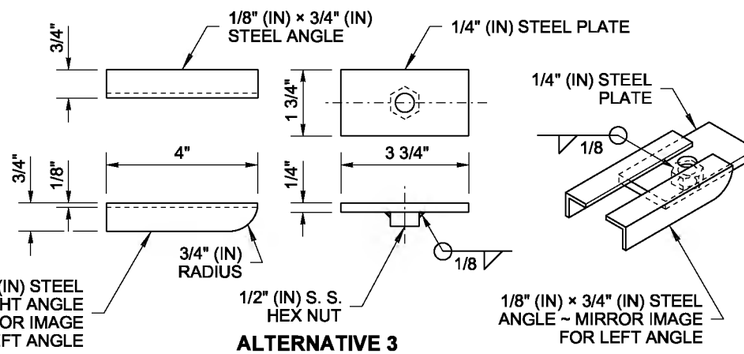
DETAIL (E)

ALTERNATIVE 3 SHOWN



DETAIL (F)

ALTERNATIVE 3 SHOWN
PERSPECTIVE VIEW



ALTERNATIVE 3
LID BOLT DOWN ATTACHMENT TAB
(SEE NOTE 12)

THEODORE JOSEPH BAILEY
STATE OF WASHINGTON
39820
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LOCKING LID STANDARD DUTY JUNCTION BOX TYPES 1 & 2 STANDARD PLAN J-40.10-04

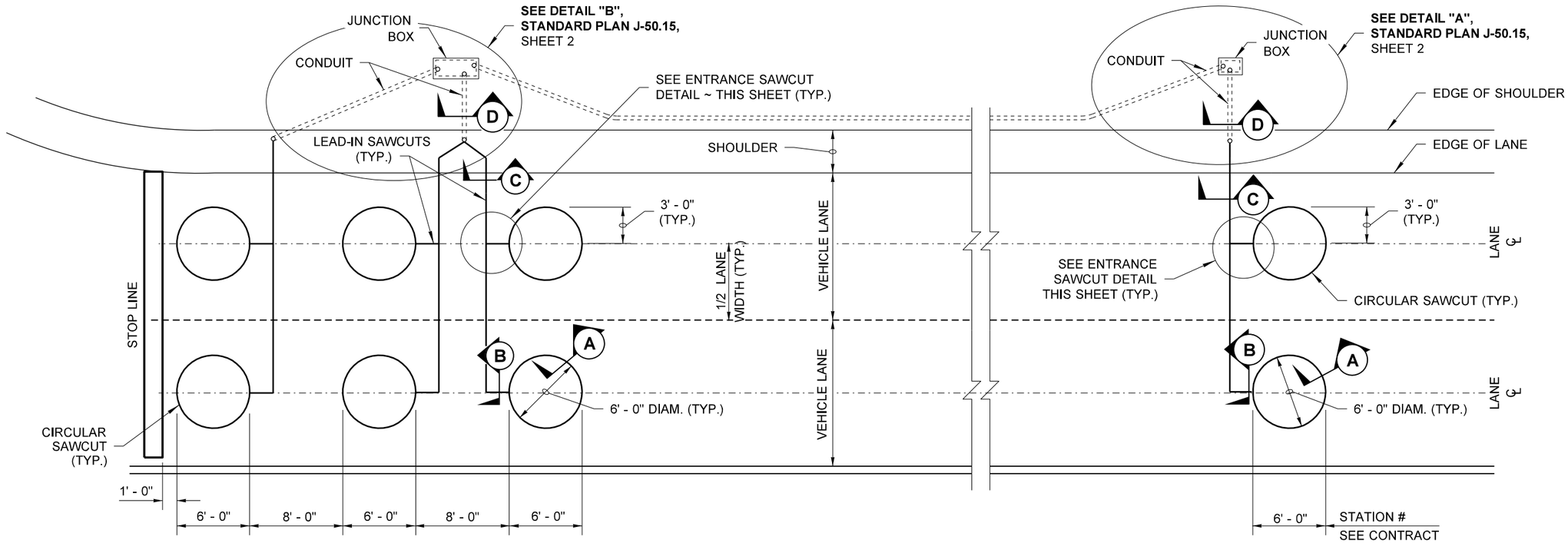
SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER

Washington State Department of Transportation

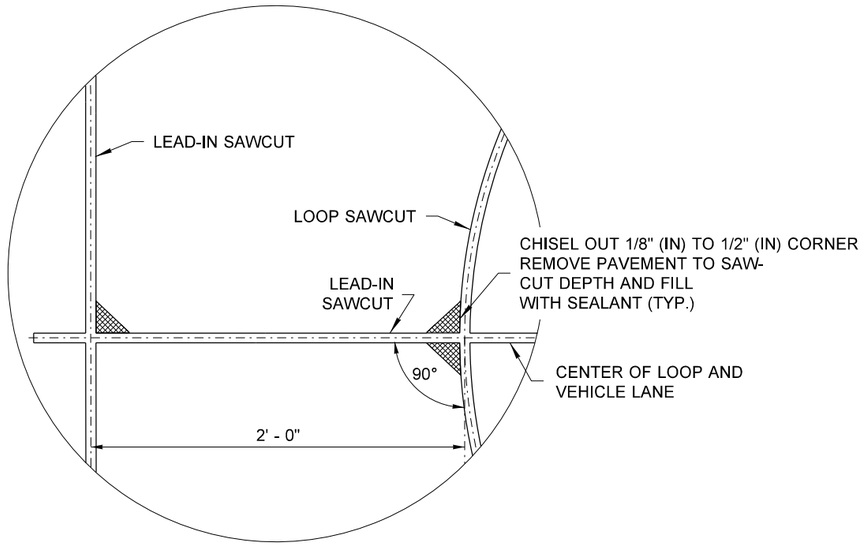
DRAWN BY: FERN LIDDELL



TYPE 3S (STOP LINE) LOOP ARRAY

TYPE 3A (ADVANCE) LOOPS

PLAN



ENTRANCE SAWCUT DETAIL

NOTES

1. For Installation Notes and Details see **Standard Plan J-50.15.**
2. For **Sections A, B, C**, and **D**, see **Standard Plan J-50.15.**
3. All of the loop lead-in wires shall return to the Junction Box
4. For additional Induction Loop Details, see **Standard Plan J-50.15.**

WILLIAM FLINT JACKSON
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TYPE 3 INDUCTION LOOP

STANDARD PLAN J-50.12-02

SHEET 1 OF 1 SHEET

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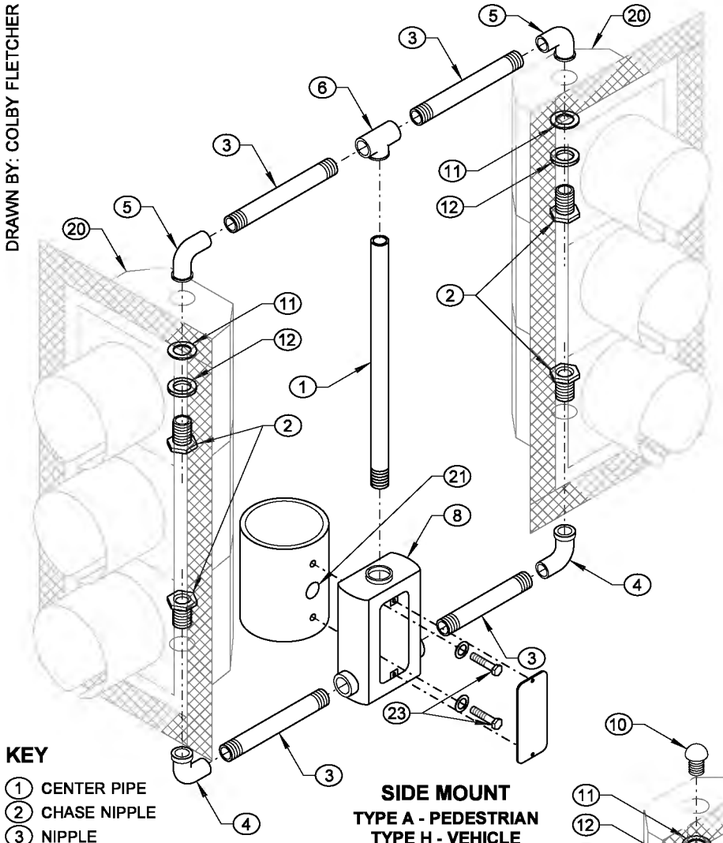
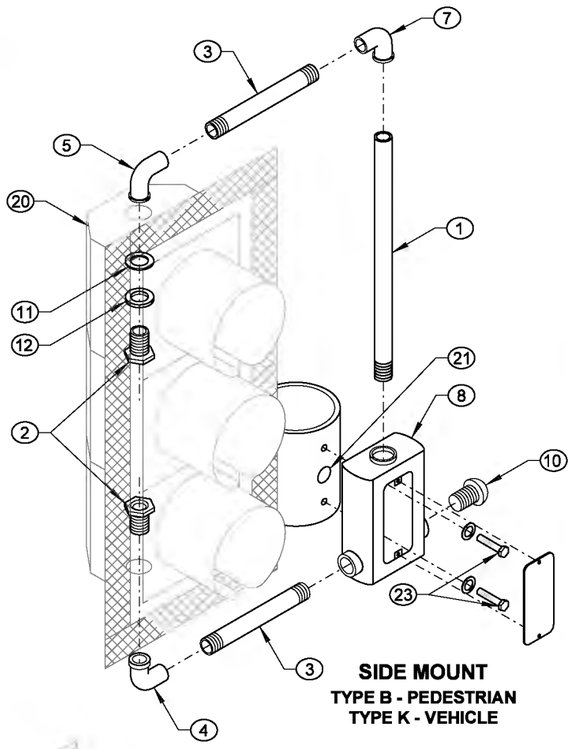
Washington State Department of Transportation

DRAWN BY: COLBY FLETCHER

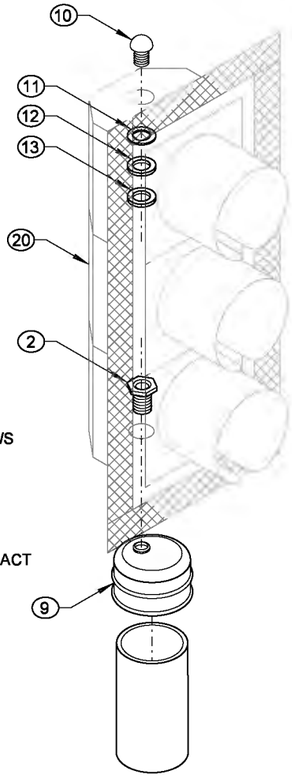


KEY

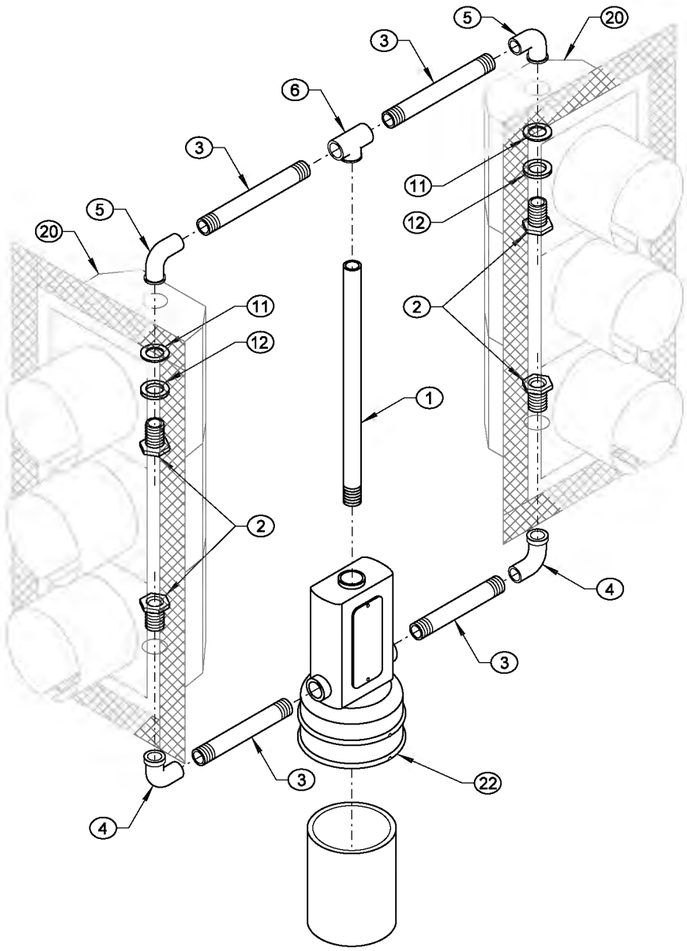
1. CENTER PIPE
2. CHASE NIPPLE
3. NIPPLE
4. SERRATED ELBOW
5. SERRATED OR FLANGED ELBOW
6. REAMED TEE WITH SET SCREW
7. REAMED ELBOW WITH SET SCREW
8. BRONZE TERMINAL COMPARTMENT WITH:
   - GASKETED COVER
   - FASTENERS
   - WIRE LEADS
   - MOUNTING SADDLE FOR SIDE MOUNTS ON ROUND/TAPERED POLES ~ OMIT SADDLE ON MULTI-SIDED POLES
   - 1/4" (IN) DIAM. DRAIN HOLE
   - 12-POSITION TERMINAL STRIP
   - WIREWAY FOR SIDE MOUNTS
9. BRONZE COLLAR ~ 4 1/4" (IN) I.D. OFFSET OPENING W/SET SCREWS
10. ORNAMENT CAP
11. NEOPRENE GASKET
12. WASHER
13. CONDUIT LOCKNUT
14. TYPE E HINGE CLAMSHELL MOUNT ~ LEFT OR RIGHT, SEE CONTRACT
15. FASTENER WITH SPACER ~
    - 1/2" (IN) LAG SCREWS ON WOOD POLE
    - 1/2" (IN) BOLTS TAPPED TO METAL POLE
16. FLATHEAD SOCKET BOLT
17. 1/2" (IN) INSERT HOLE FOR EXTERNAL WIRE ENTRANCE (REQUIRED ON TIMBER POLE MOUNTING ONLY)
18. TERMINAL BLOCK AND PHENOLIC TAG
19. INSULINER ~ 1" (IN) MIN. DIAM. HOLE
20. SIGNAL HEAD WITH BACKPLATE
21. FIELD DRILL POLE AND INSERT AN INSULINER OR SIMILAR DEVICE TO PROTECT CONDUCTORS
22. SIMILAR TO (8) WITH BRONZE INTEGRAL COLLAR
23. 1/2" (IN) DIAM. x 3" (IN) LONG BOLT WITH WASHER



SIDE MOUNT
TYPE B - PEDESTRIAN
TYPE K - VEHICLE

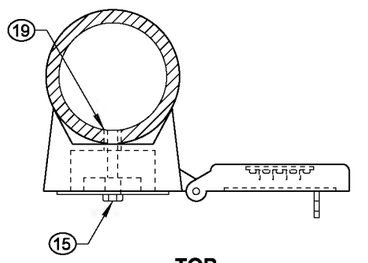


SIDE MOUNT
TYPE A - PEDESTRIAN
TYPE H - VEHICLE



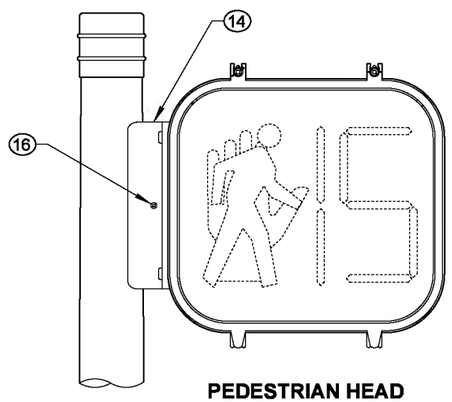
TOP MOUNT
TYPE C - PEDESTRIAN
TYPE F - VEHICLE

TOP MOUNT
TYPE D - PEDESTRIAN ~ OFFSET BRONZE COLLAR TO FRONT
OR VEHICLE (SHOWN) ~ OFFSET BRONZE COLLAR TO BACK



TOP

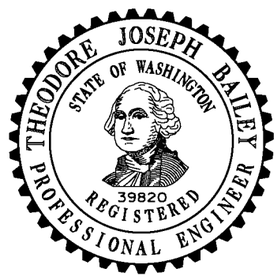
ELEVATION
TYPE E
MOUNTING DETAILS



PEDESTRIAN HEAD
SIDE MOUNT
(LEFT SIDE SHOWN)
TYPE E - COUNTDOWN LED
PEDESTRIAN HEAD

NOTES

1. See Contract for head type, mounting height, and orientation.
2. All nipples, fittings, and center pipes shall be 1 1/2" (in) diameter.
3. Install neoprene gasket inside head when flanged elbows are supplied.
4. Extend wire sheath a minimum of 1" (in) inside all signal and sign housings and terminal compartments.
5. Apply bead of silicone to the serrated ring and around the perimeter of all top openings prior to installation of fittings.
6. See **Standard Specification 9-29.16** for backplate requirements. Where required, prismatic sheeting shall be applied in accordance with the manufacturer's recommendations. The application surface of the backplate shall be cleaned, degreased with isopropyl alcohol, and dried prior to application of the sheeting.
7. Drill a 1/4" (in) drain hole in the bottom of each signal display assembly, and one in the bottom of each pedestrian head. When signal display assembly is mounted horizontally, drill a 1/4" (in) drain hole at the lowest point of each section of the signal assembly.



SIGNAL HEAD MOUNTING DETAILS ~ POLE AND POST TOP MOUNTINGS

STANDARD PLAN J-75.10-02

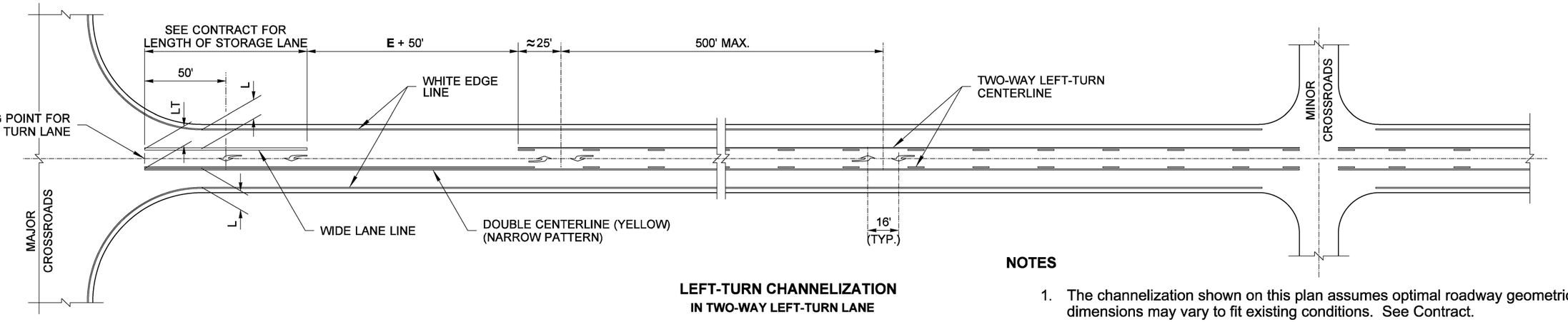
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

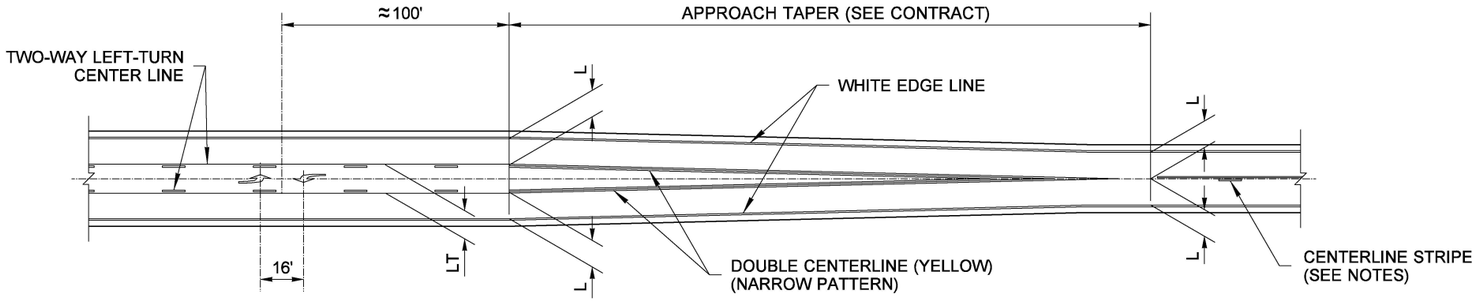
STATE DESIGN ENGINEER

Washington State Department of Transportation

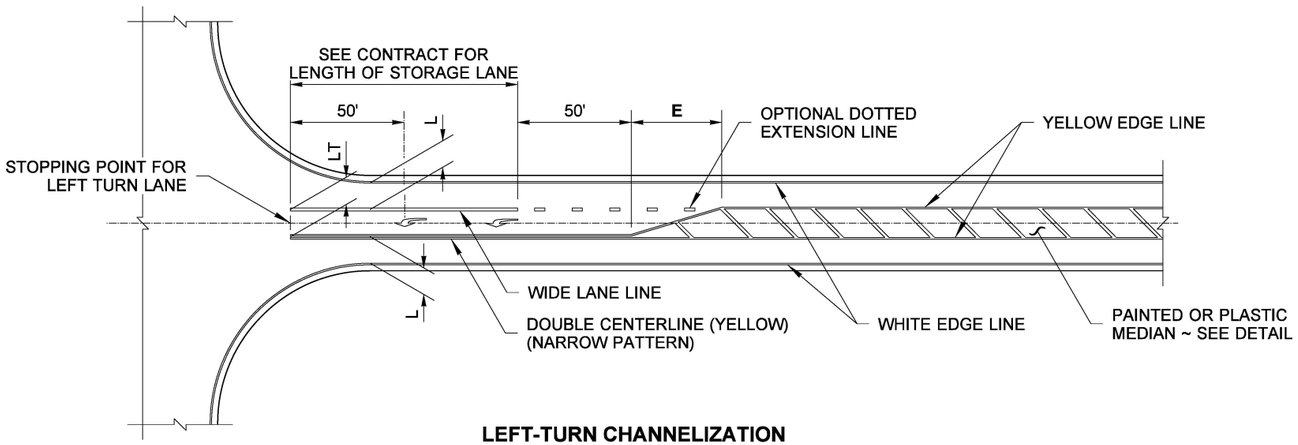
DRAWN BY: FERN LIDDELL



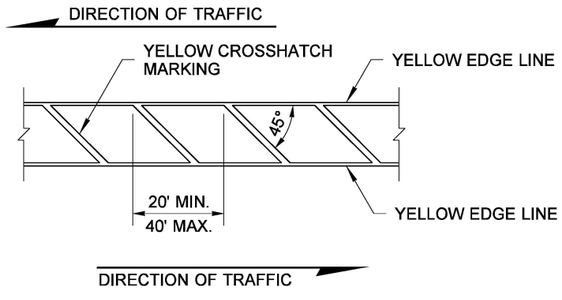
LEFT-TURN CHANNELIZATION
IN TWO-WAY LEFT-TURN LANE



TWO-WAY LEFT-TURN LANE
TRANSITION



LEFT-TURN CHANNELIZATION
IN PAINTED MEDIAN



PAINTED OR PLASTIC MEDIAN
COMPOSED OF LONGITUDINAL MARKINGS

NOTES

1. The channelization shown on this plan assumes optimal roadway geometric design. The dimensions may vary to fit existing conditions. See Contract.
2. The channelization shown on this plan is for a two-lane highway. The channelization plan may be used on four-lane undivided highways with the appropriate considerations.
3. Centerline striping on the approach to raised channelization shall be No Pass in accordance with MUTCD figure 3B-15. Centerline striping on the departure from raised channelization shall be determined by an engineering study.
4. Centerline srtiping on the approach to and departure from painted channelization shall be determined by an engineering study.
5. Centerline striping on four-lane undivided highways shall be a double centerline.
6. The two Type 2L (SL) Traffic Arrows shown in the left-turn storage lane are optional, but recommended. Arrows may be added for longer storage lanes or deleted for shorter storage lanes. See Contract Plans.

POSTED SPEED	DIMENSION E ①
60 MPH	180'
55 MPH	180'
50 MPH	180'
45 MPH	180'
40 MPH	120'
35 MPH	120'
30 MPH	120'
25 MPH	120'
20 MPH	120'

① Can be reduced to a minimum of 50' to increase storage capacity.

LEGEND

L = Lane Width. See Contract for specified lane widths.
L T = Left -Turn Lane width. See Contract
Type 2L (SL) Traffic Arrow

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PROFESSIONAL ENGINEER
Walsh, Brian
Sep 23 2020 2:03 PM
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TWO-WAY LEFT-TURN AND MEDIAN CHANNELIZATION STANDARD PLAN M-3.40-04

SHEET 1 OF 1 SHEET

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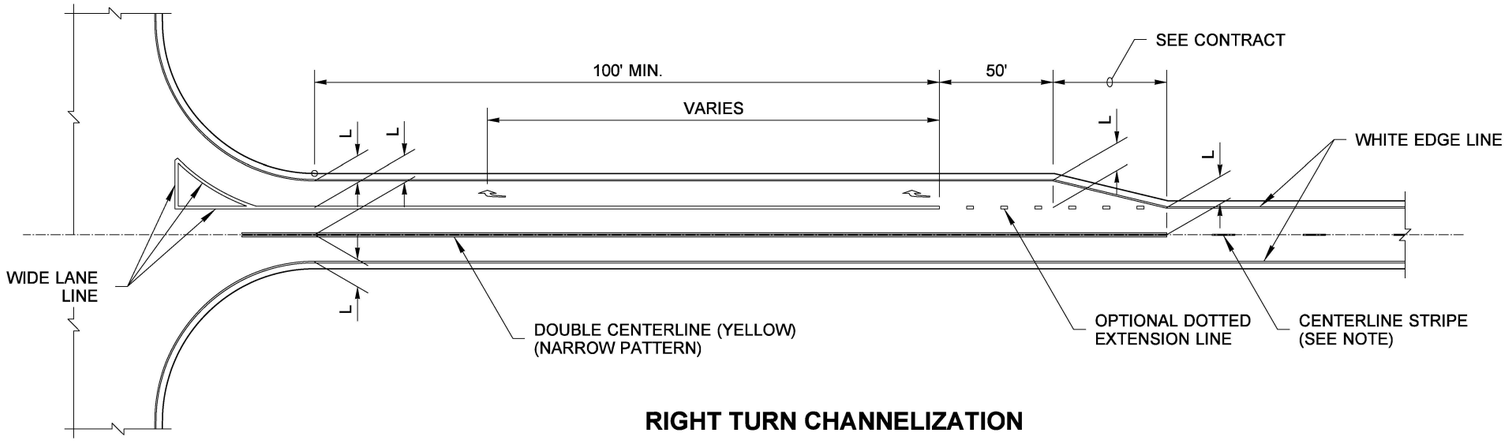
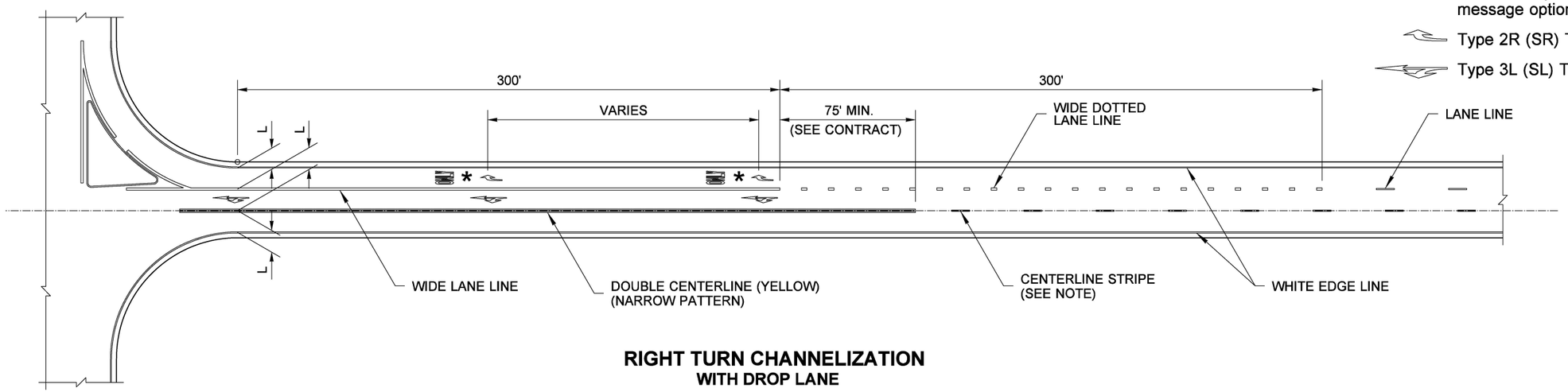
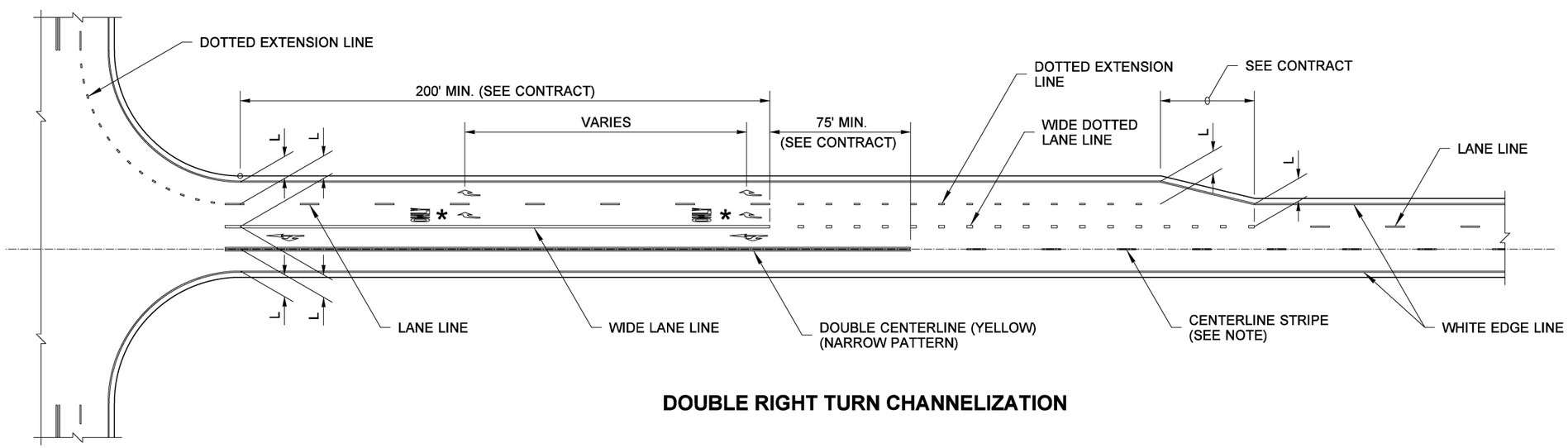
Washington State Department of Transportation



RIGHT TURN CHANNELIZATION



RIGHT TURN CHANNELIZATION
WITH DROP LANE



DOUBLE RIGHT TURN CHANNELIZATION

DRAWN BY: FERN LIDDELL

NOTES

1. The channelization shown on this plan assumes optimal roadway geometric design. The dimensions may vary to fit existing conditions. See Contract.
2. The channelization shown on this plan is for a two-lane highway. The channelization plan may be used on four-lane undivided highways with the appropriate considerations.
3. Centerline striping on the approach to raised channelization shall be No Pass in accordance with MUTCD figure 3B-15. Centerline striping on the departure from raised channelization shall be determined by an engineering study.
4. Centerline striping on the approach to and departure from painted channelization shall be determined by an engineering study.
5. Centerline striping on four-lane undivided highways shall be a double center line.
6. All Traffic Arrows not required are optional, but recommended. Arrows may be added for longer storage lanes, or deleted for shorter storage lanes. See Contract Plans.

LEGEND

L = Lane Width. See Contract for specified lane widths.

* = Denotes required traffic arrow. Accompanying ONLY word message optional. See **Standard Plan M-80.10** for spacing.

Type 2R (SR) Traffic Arrow

Type 3L (SL) Traffic Arrow

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PROFESSIONAL ENGINEER

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Sep 23 2020 3:45 PM

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RIGHT TURN CHANNELIZATION

STANDARD PLAN M-5.10-03

SHEET 1 OF 1 SHEET

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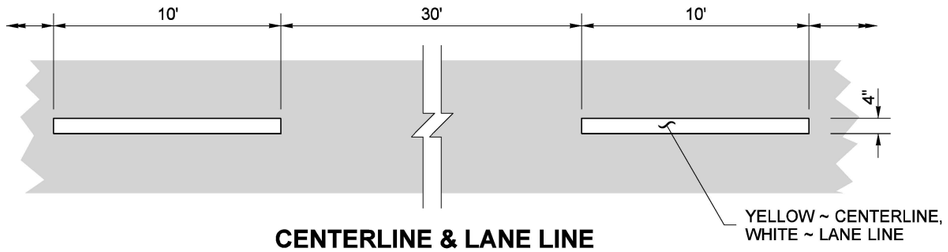
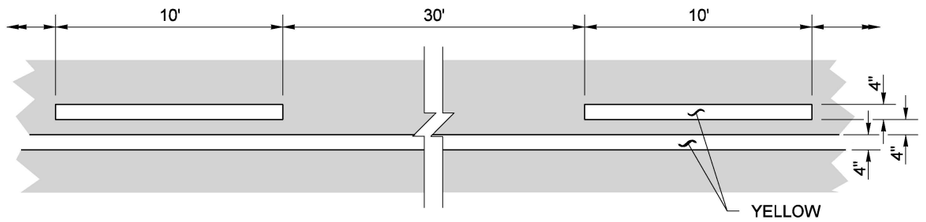
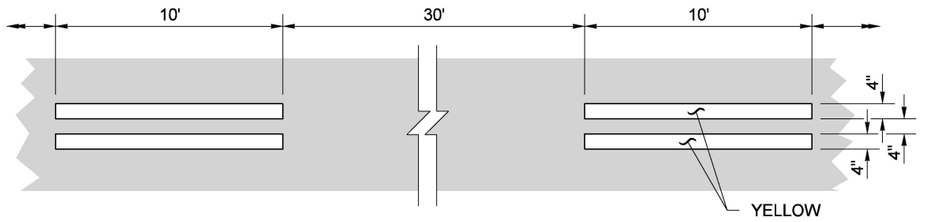
Washington State Department of Transportation



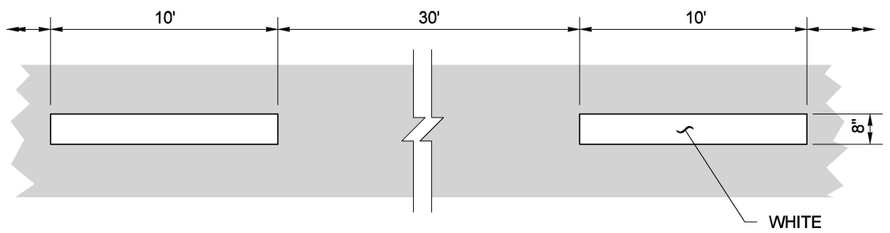
CENTERLINE & LANE LINE



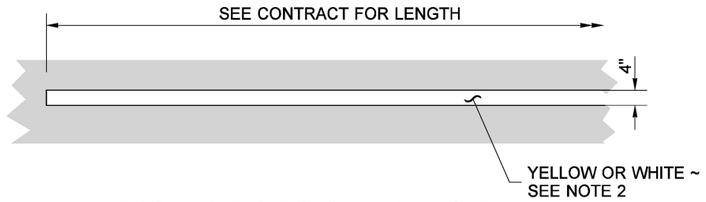
NO-PASS LINE & TWO-WAY LEFT-TURN CENTERLINE



REVERSIBLE LANE LINE



WIDE BROKEN LANE LINE

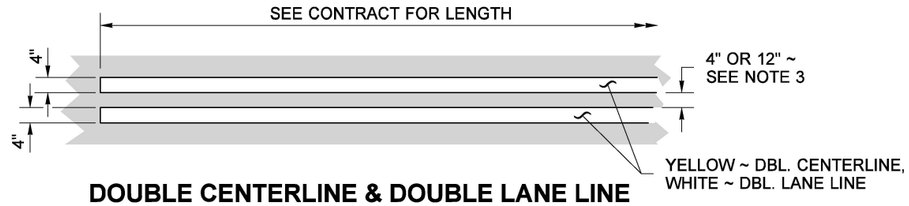


EDGE LINE & SOLID LANE LINE

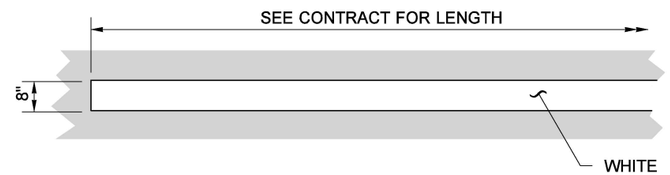
NOTES

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".

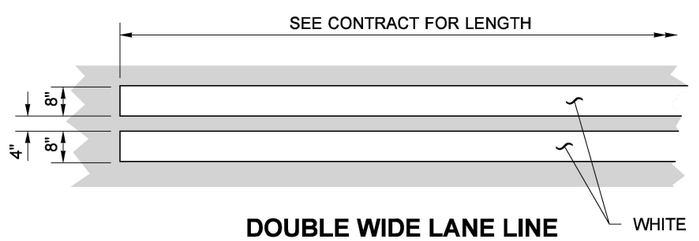


DOUBLE CENTERLINE & DOUBLE LANE LINE

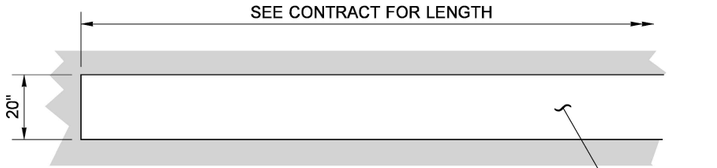


WIDE EDGE LINE & WIDE SOLID LANE LINE

OPTION TO USE AS CIRCULATORY ON ROUNDABOUT APPLICATIONS



DOUBLE WIDE LANE LINE



BARRIER CENTERLINE

DRAWN BY: FERN LIDDELL

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STATE OF WASHINGTON
36103
REGISTERED
PROFESSIONAL ENGINEER

Walsh, Brian
Sep 23 2020 3:46 PM

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LONGITUDINAL MARKING PATTERNS

STANDARD PLAN M-20.10-03

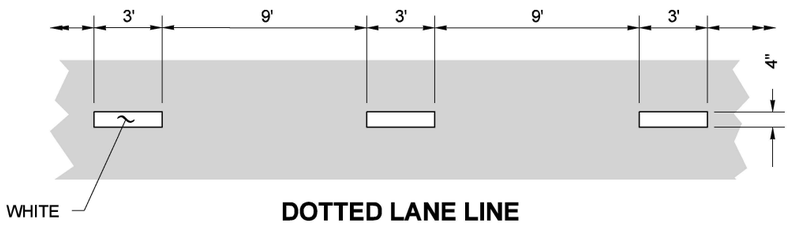
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

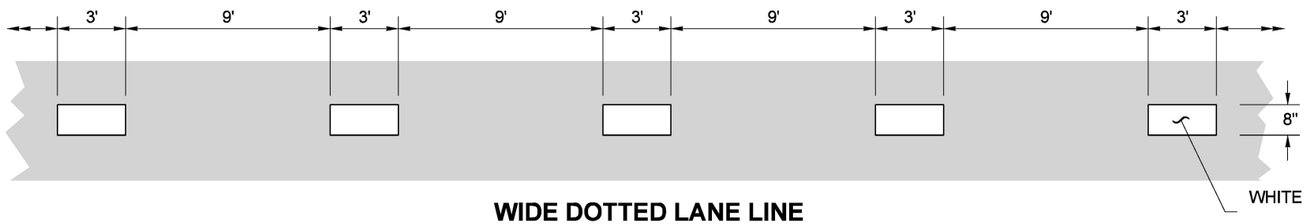
Date: 2020.09.25 14:58:51 -07'00'

STATE DESIGN ENGINEER

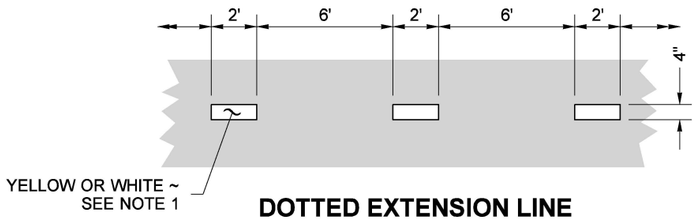
Washington State Department of Transportation



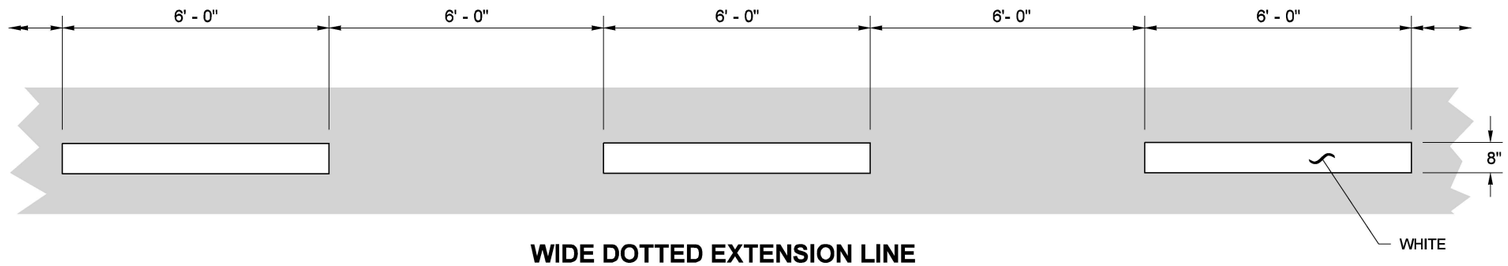
DOTTED LANE LINE



WIDE DOTTED LANE LINE



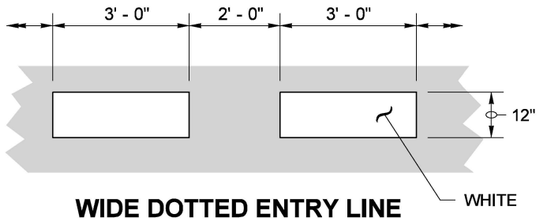
DOTTED EXTENSION LINE



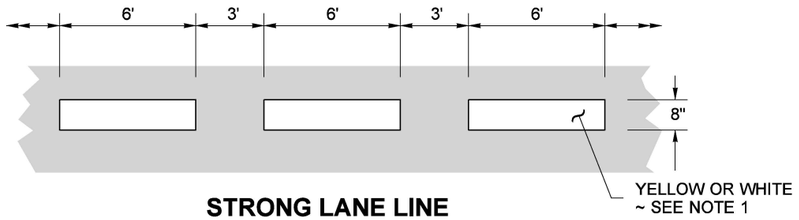
WIDE DOTTED EXTENSION LINE

DRAWN BY: FERN LIDDELL

Roundabout Specific Lines

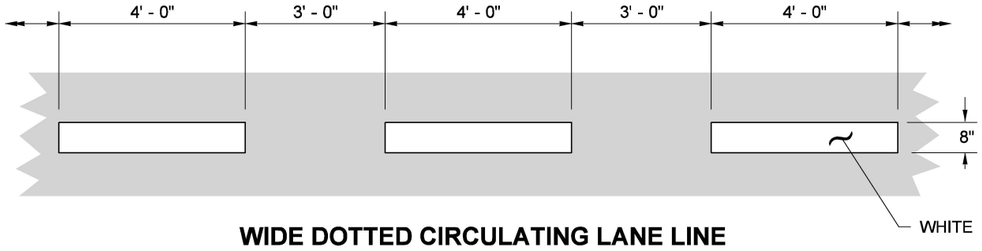


WIDE DOTTED ENTRY LINE



STRONG LANE LINE

OPTION TO USE AS CIRCULATORY ON ROUNDABOUT APPLICATIONS



WIDE DOTTED CIRCULATING LANE LINE

BRIAN J. WALSH
STATE OF WASHINGTON
36103
REGISTERED
PROFESSIONAL ENGINEER

Walsh, Brian
Sep 23 2020 3:50 PM

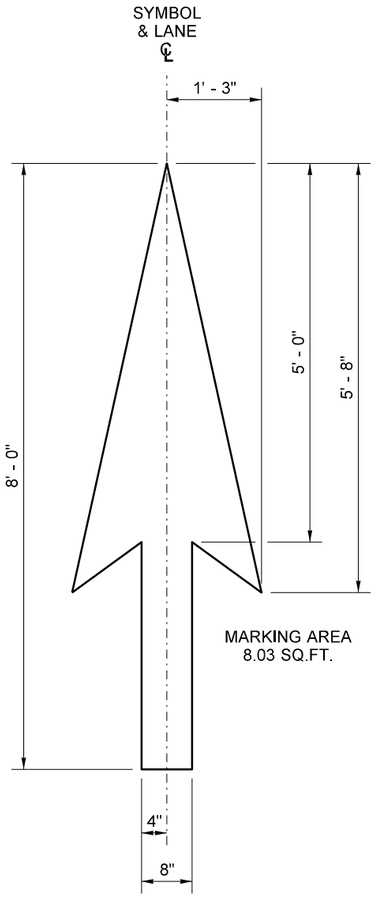
cosign

LONGITUDINAL MARKING PATTERNS

STANDARD PLAN M-20.10-03

SHEET 2 OF 2 SHEETS

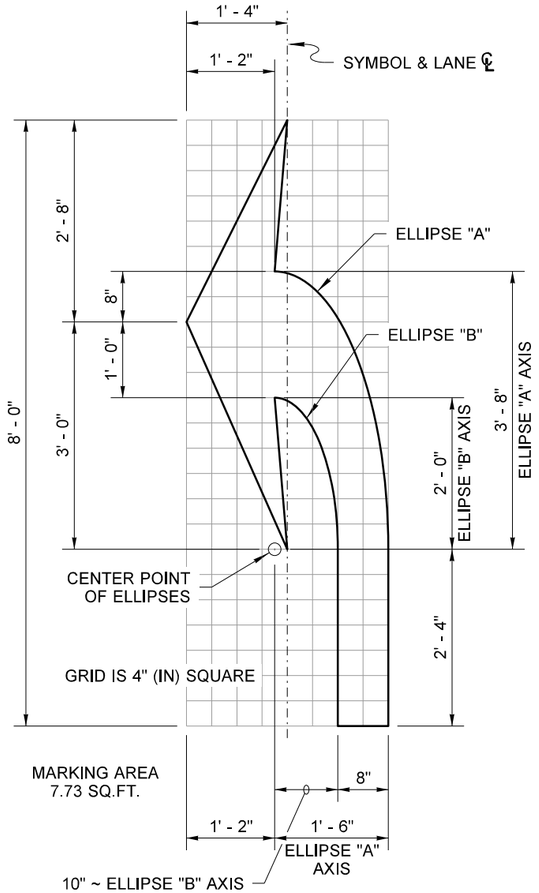
APPROVED FOR PUBLICATION
Date: 2020.09.25 14:59:30 -07'00'
STATE DESIGN ENGINEER
Washington State Department of Transportation



TYPE 1S
TRAFFIC ARROW

TYPE 2SR (RIGHT)
TRAFFIC ARROW

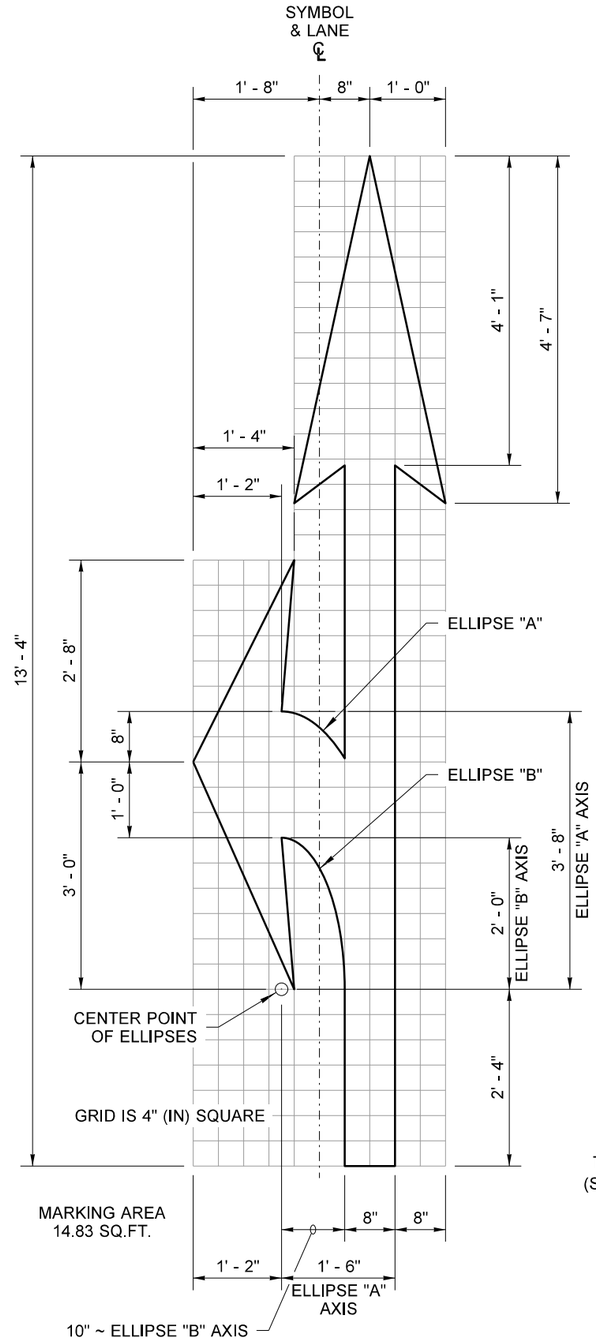
MIRROR IMAGE OF
TYPE 2SL TRAFFIC ARROW
(SHOWN AT REDUCED SCALE)



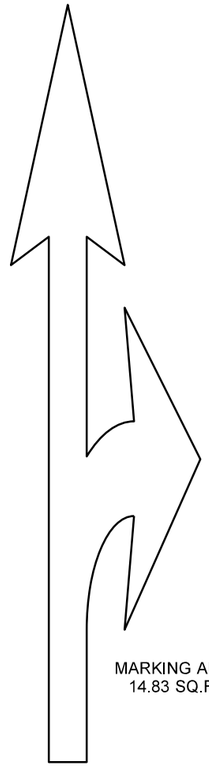
TYPE 2SL (LEFT) TRAFFIC ARROW

NOTE

Use the dimensions shown on this plan for each type of Traffic Arrow being placed on roadways with a posted speed limit of 40 mph or lower.

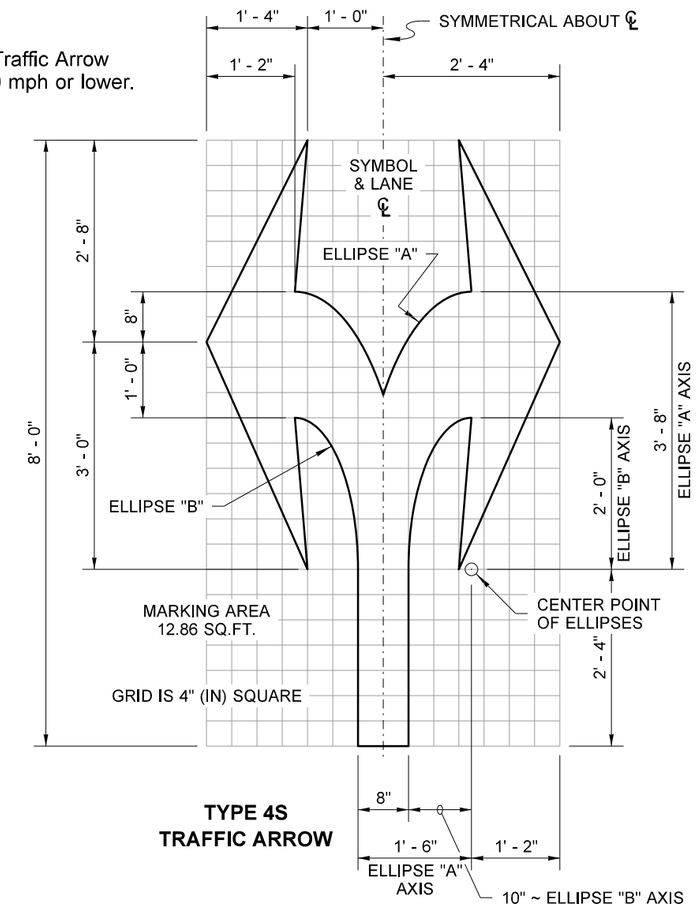


TYPE 3SL (LEFT) TRAFFIC ARROW



TYPE 3SR (RIGHT)
TRAFFIC ARROW

MIRROR IMAGE OF
TYPE 3SL TRAFFIC ARROW
(SHOWN AT REDUCED SCALE)



TYPE 4S
TRAFFIC ARROW

BRIAN J. WALSH
STATE OF WASHINGTON
36103
REGISTERED
PROFESSIONAL ENGINEER

SYMBOL MARKINGS ~ TRAFFIC ARROWS FOR LOW-SPEED ROADWAYS
STANDARD PLAN M-24.40-02

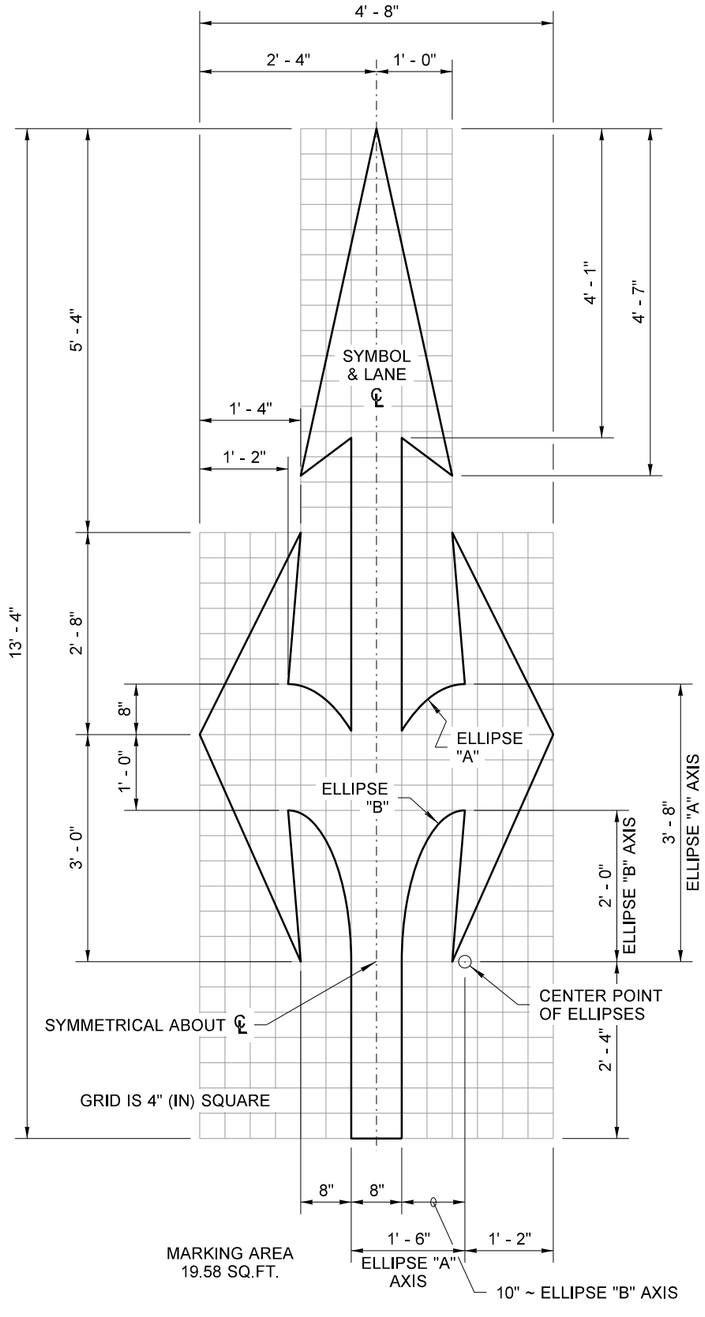
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

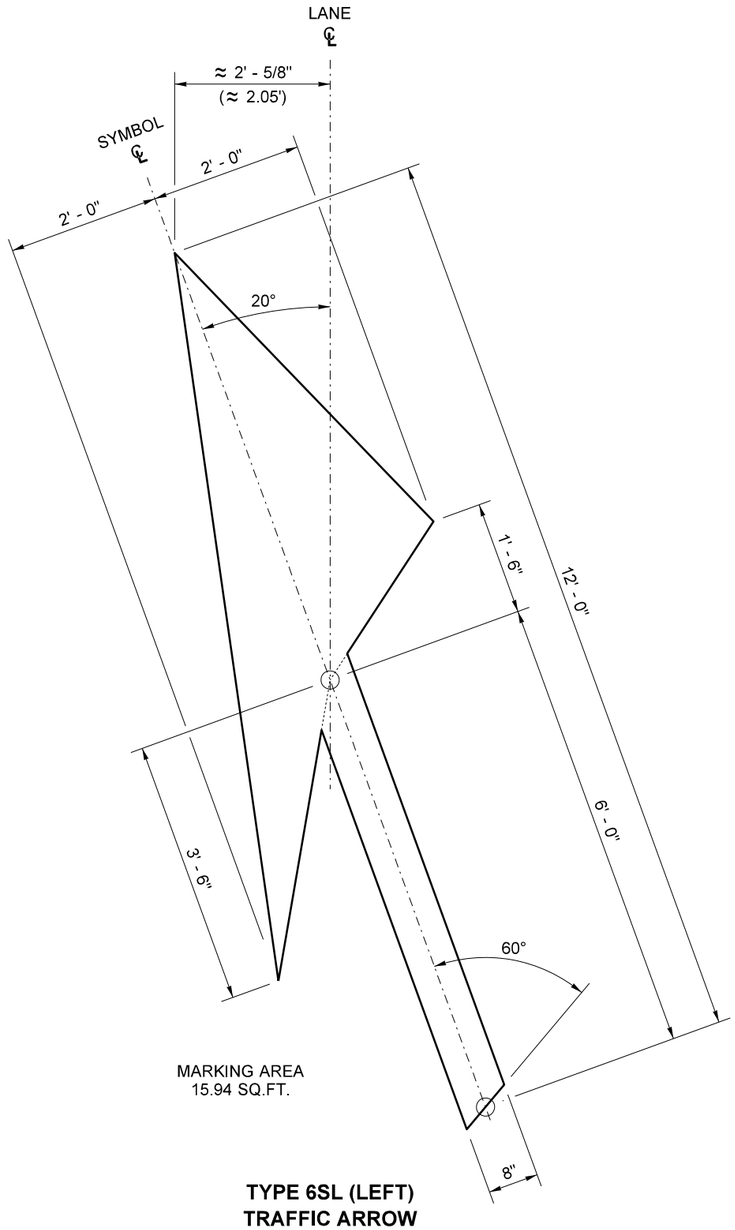
STATE DESIGN ENGINEER

Washington State Department of Transportation

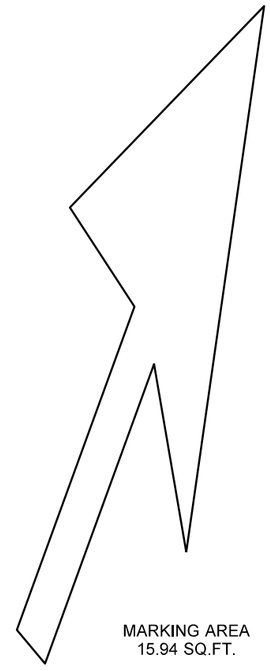
DRAWN BY: COLBY FLETCHER



TYPE 7S TRAFFIC ARROW



TYPE 6SL (LEFT)
TRAFFIC ARROW



TYPE 6SR (RIGHT)
TRAFFIC ARROW

MIRROR IMAGE OF TYPE 6SL
(MIRRORED ABOUT LANE CENTERLINE)
(SHOWN AT REDUCED SCALE)

SYMBOL MARKINGS ~ TRAFFIC ARROWS FOR LOW-SPEED ROADWAYS
STANDARD PLAN M-24.40-02

SHEET 2 OF 2 SHEETS

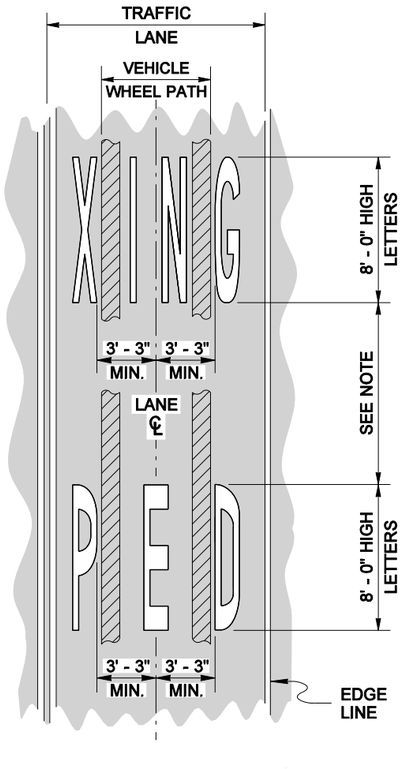
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER

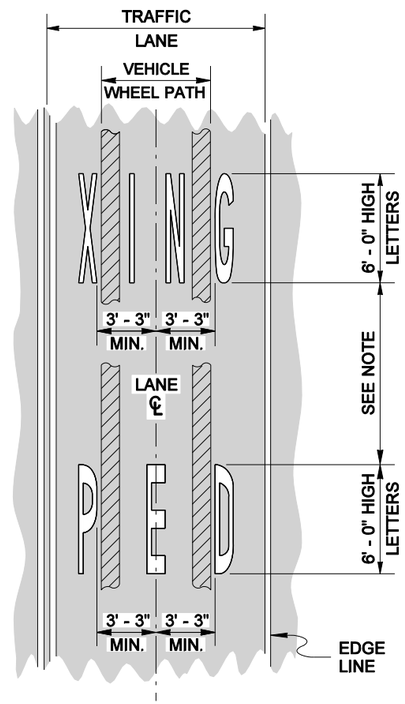
Washington State Department of Transportation

DRAWN BY: COLBY FLETCHER

DRAWN BY: LISA CYFORD



HIGH-SPEED APPLICATION



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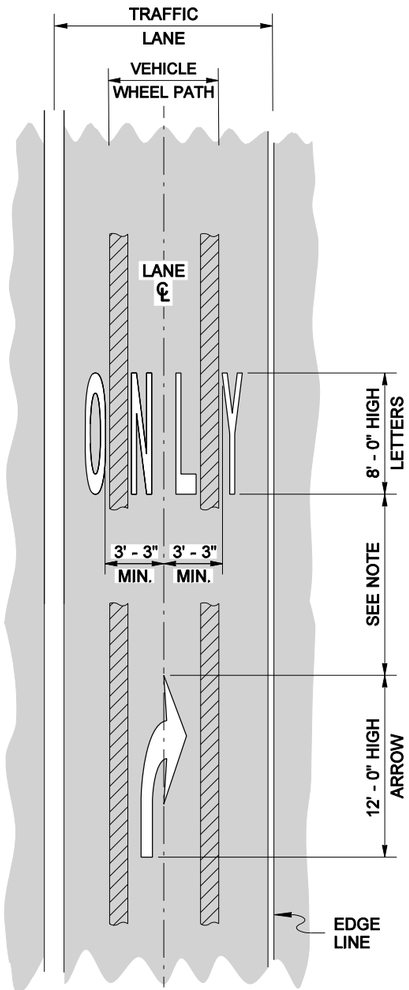

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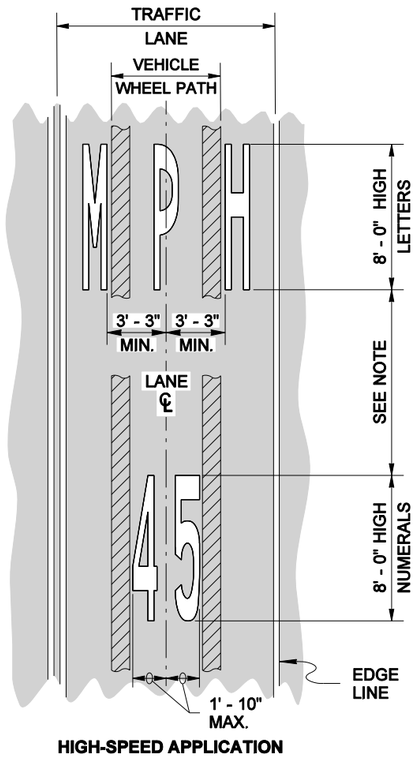
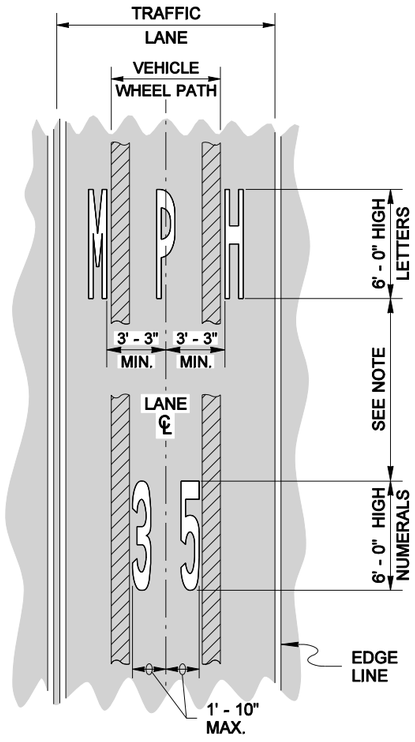


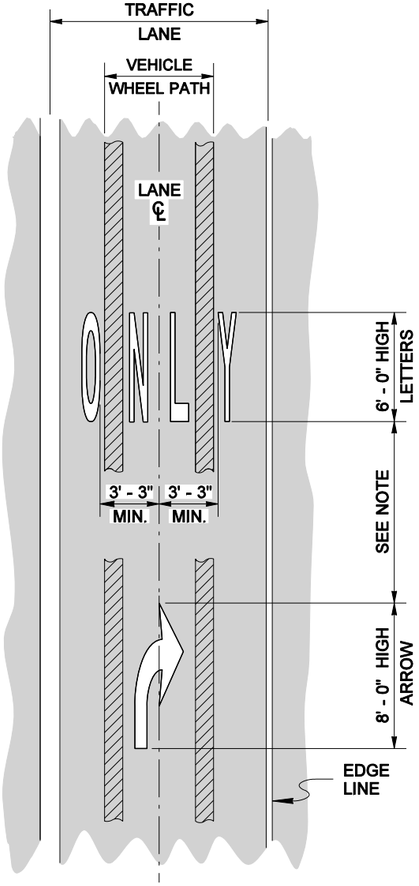
HIGH-SPEED APPLICATION



LOW-SPEED APPLICATION

NOTE

1. Typically, four times the letter or numeral height ~ minimum, up to ten times ~ maximum, or according to Plans.



LOW-SPEED APPLICATION

JOHN C. NISBET
STATE OF WASHINGTON
29115
REGISTERED
PROFESSIONAL ENGINEER

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TRAFFIC LETTER AND NUMERAL APPLICATIONS

STANDARD PLAN M-80.10-01

SHEET 1 OF 2 SHEETS

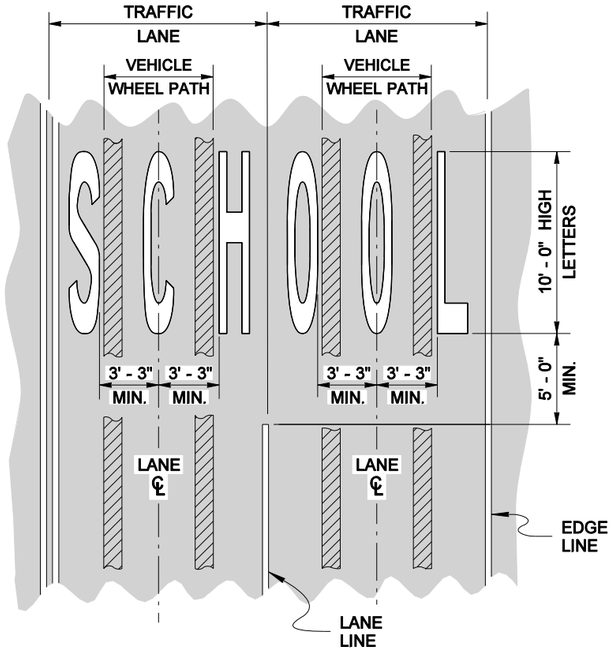
APPROVED FOR PUBLICATION

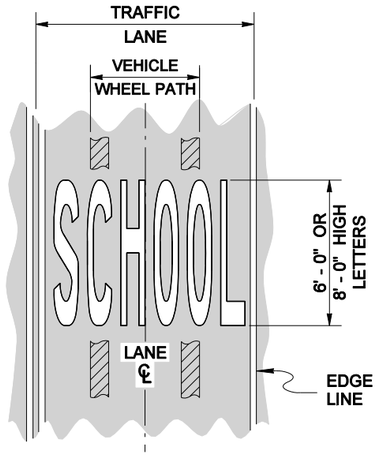
Pasco Bakotich III — STATE DESIGN ENGINEER

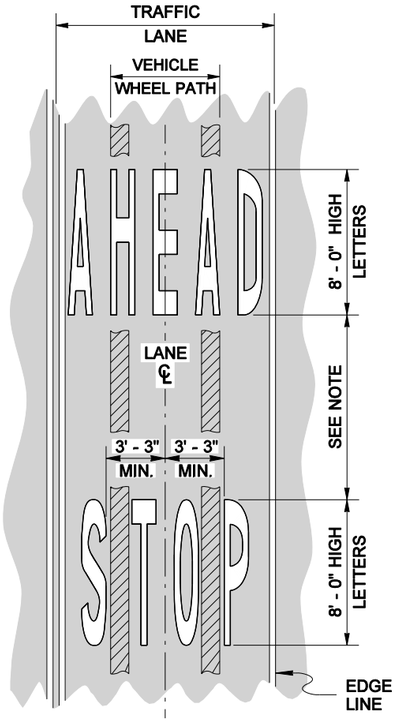
06-03-11 — DATE

Washington State Department of Transportation

DRAWN BY: LISA CYFORD







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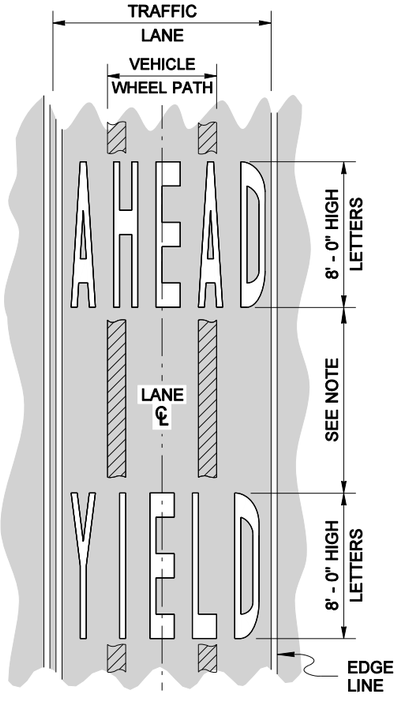

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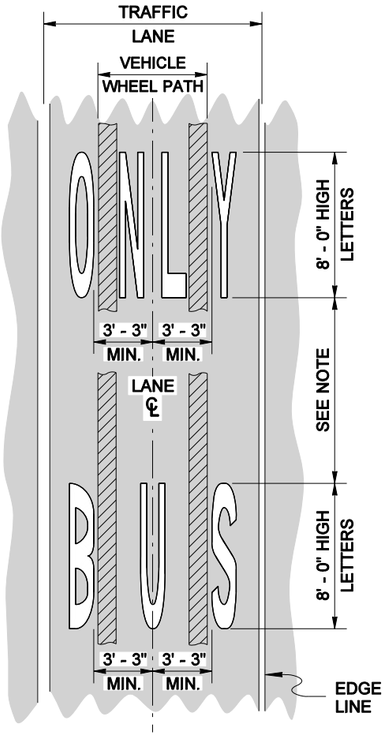

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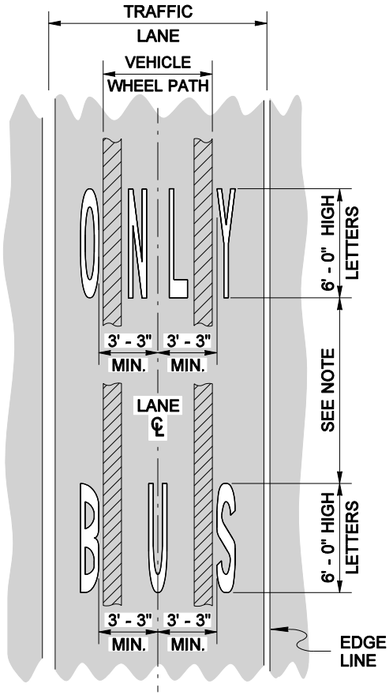
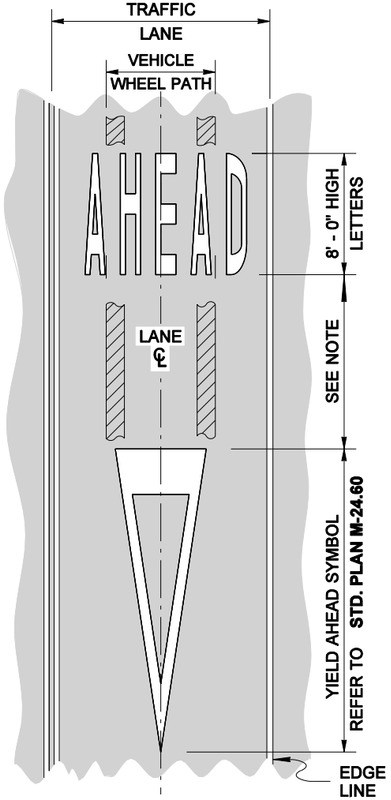
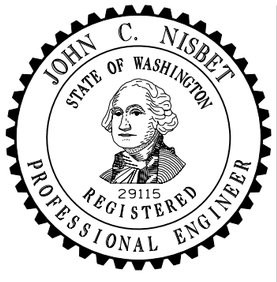


LOW-SPEED APPLICATION



HIGH-SPEED APPLICATION



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TRAFFIC LETTER AND NUMERAL APPLICATIONS

STANDARD PLAN M-80.10-01

SHEET 2 OF 2 SHEETS

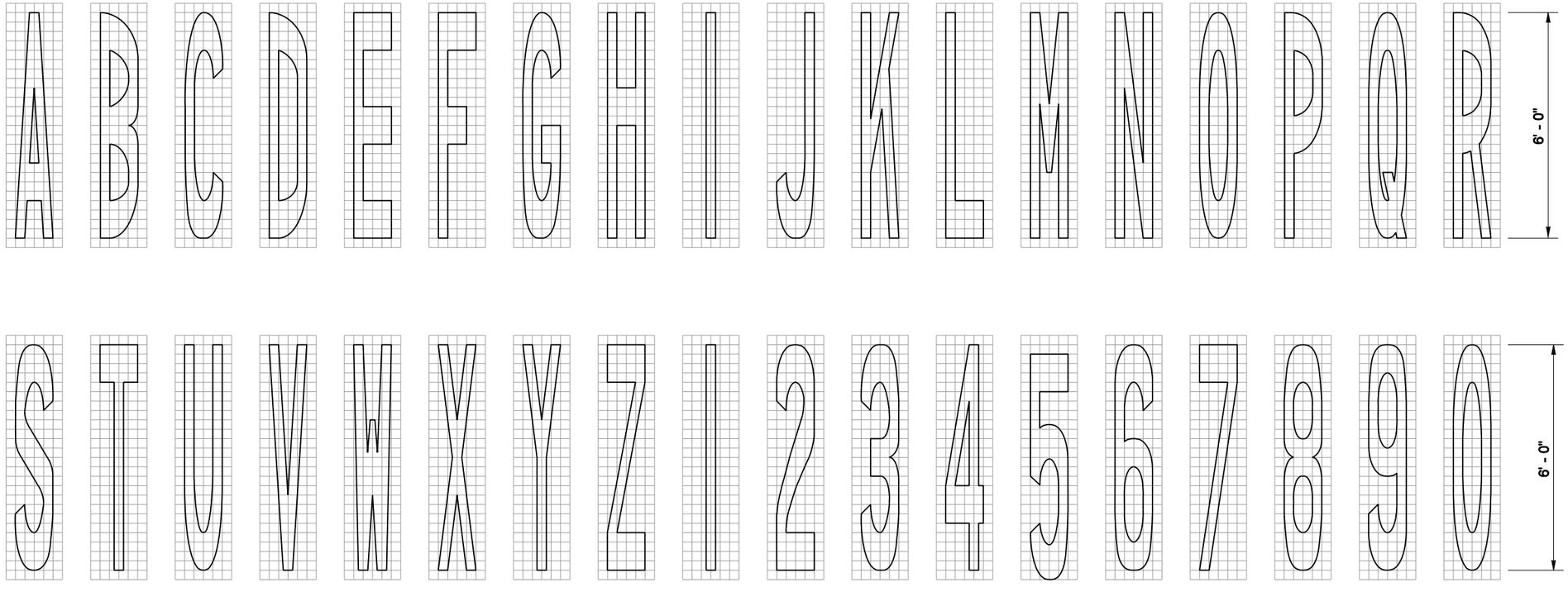
APPROVED FOR PUBLICATION

Pasco Bakotich III — STATE DESIGN ENGINEER

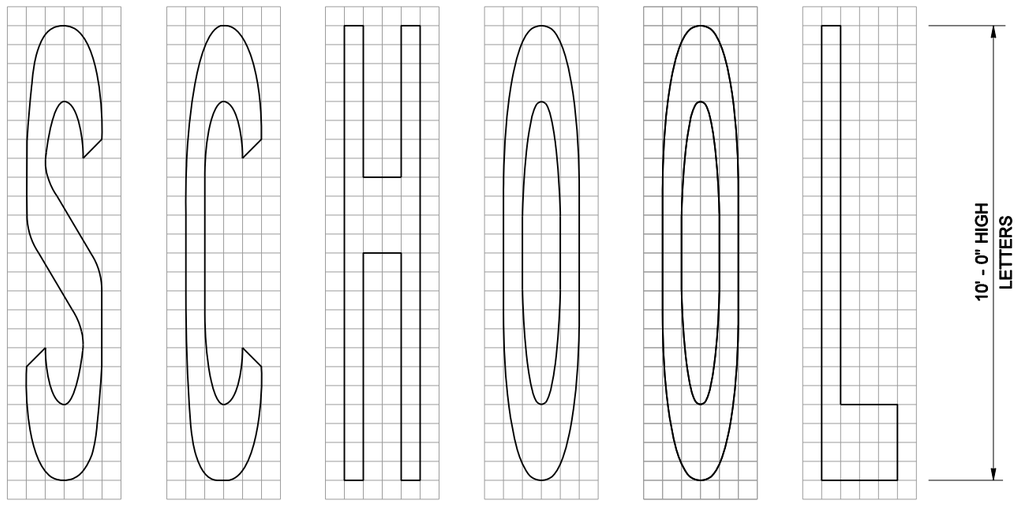
06-03-11 — DATE

Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



SIX FOOT HIGH LETTERS AND NUMERALS SHOWN ON A THREE -INCH SQUARE GRID



TEN FOOT HIGH LETTERS SHOWN ON A FIVE- INCH SQUARE GRID

FOR USE ON ROADWAYS WITH A POSTED SPEED OF 40 MPH OR LESS

THEODORE J. TREPANIER
STATE OF WASHINGTON
25335
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES AUGUST 9, 2009

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TRAFFIC LETTERS AND NUMERALS (LOW SPEED ROADWAYS) STANDARD PLAN M-80.30-00

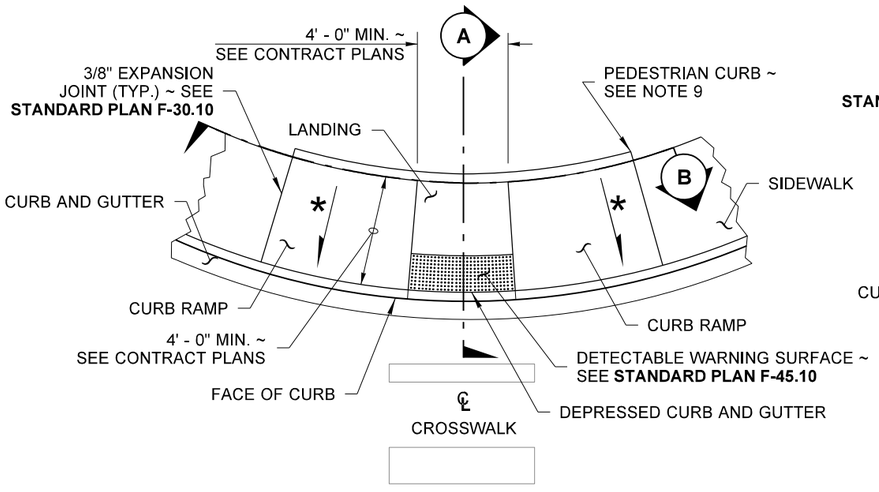
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

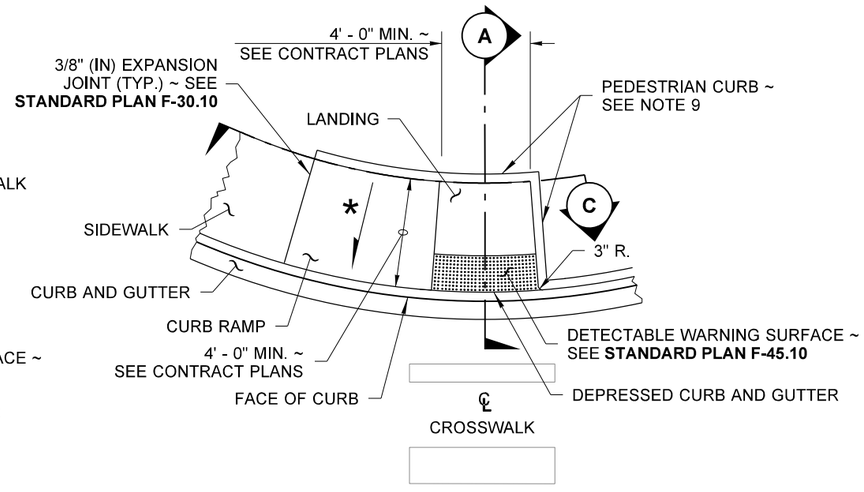
Pasco Bakotich III — STATE DESIGN ENGINEER

06-10-08 — DATE

Washington State Department of Transportation

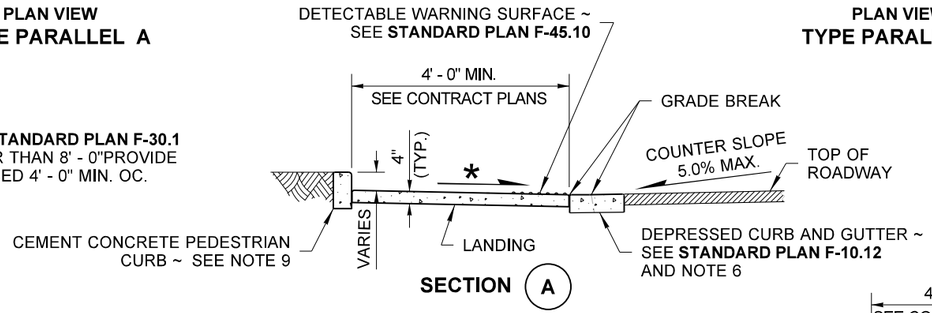


PLAN VIEW
TYPE PARALLEL A

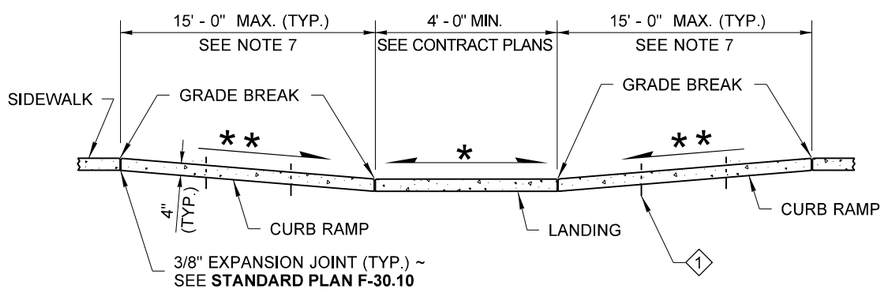


PLAN VIEW
TYPE PARALLEL B

1 CONTRACTION JOINT (TYP.) ~ SEE **STANDARD PLAN F-30.1** FOR CURB RAMP LENGTHS GREATER THAN 8' - 0"PROVIDE CONTRACTION JOINT EQUALLY SPACED 4' - 0" MIN. OC.

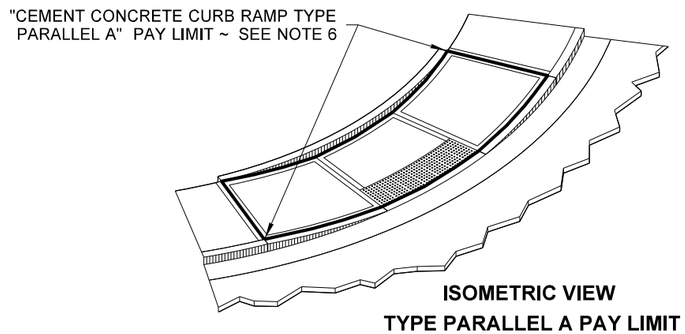


SECTION A

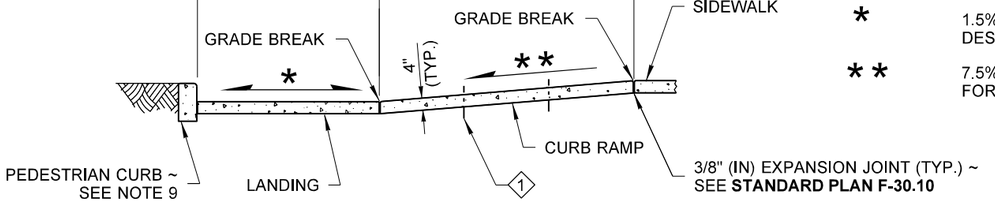


SECTION B

(ALONG INSIDE RADIUS AT BACK OF WALKWAY)

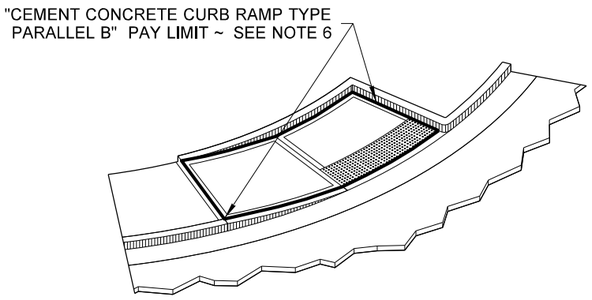


ISOMETRIC VIEW
TYPE PARALLEL A PAY LIMIT



SECTION C

(ALONG INSIDE RADIUS AT BACK OF WALKWAY)



ISOMETRIC VIEW
TYPE PARALLEL B PAY LIMIT

NOTES

1. At marked crosswalks, the connection between the landing and the roadway must be contained within the width of the crosswalk markings.
2. Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
3. Do not place Gratings, Junction Boxes, Access Covers, or other appurtenances on any part of the Curb Ramp or Landing, or in the Depressed Curb and Gutter where the Landing connects to the roadway.
4. See Contract Plans for the curb design specified. See **Standard Plan F-10.12** for Curb, Curb and Gutter, Depressed Curb and Gutter, and Pedestrian Curb details.
5. See **Standard Plan F-30.10** for Cement Concrete Sidewalk Details. See Contract Plans for width and placement of sidewalk.
6. The Bid Item "Cement Concrete Curb Ramp Type __" does not include the adjacent Curb, Curb and Gutter, Depressed Curb and Gutter, Pedestrian Curb, or Sidewalks.
7. The Curb Ramp length is not required to exceed 15 feet (unless otherwise shown in the Contract Plans). When applying the 15-foot max. length, the running slope of the curb ramp is allowed to exceed 8.3%. Use a single constant slope from bottom of ramp to top of ramp to match into the sidewalk over a horizontal distance of 15 feet. Do not include abutting landing(s) in the15-foot max. measurement. When a ramp is constructed on a radius, the 15-foot max. length is measured on the inside radius along the back of the walkway.
8. Curb Ramps and Landings shall receive a broom finish. See **Standard Specifications 8-14.**
9. Pedestrian Curb may be omitted if the ground surface at the back of the Curb Ramp and/or Landing will be at the same elevation as the Curb Ramp or Landing and there will be no material to retain.

LEGEND

SLOPE IN EITHER DIRECTION

* 1.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (2% MAX.)

** 7.5% OR FLATTER RECOMMENDED FOR DESIGN/ FORMWORK (8.3% MAX.) ~ SEE NOTE 7

DRAWN BY: FERN LIDDELL

R. SCOTT ZELLER
STATE OF WASHINGTON
28680
REGISTERED
PROFESSIONAL ENGINEER

PARALLEL CURB RAMP

STANDARD PLAN F-40.12-03

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER

Washington State Department of Transportation

APPENDIX C

NORTHSHORE UTILITY DISTRICT DETAIL SPECIFICATIONS, MEASUREMENT & PAYMENT, AND ENGINEERING SPECIFICATIONS

City of Kirkland

DETAIL SPECIFICATIONS, MEASUREMENT & PAYMENT, AND ENGINEERING SPECIFICATIONS

124/116 Water Main Replacement

Northshore Utility District
King County, Washington

September 2021

NORTHSHORE UTILITY DISTRICT

6830 NE 185TH STREET
KENMORE, WASHINGTON 98028-2684

Detail Specifications, Measurement & Payment, and Engineering Specifications
FOR
124/116 Water Main Replacement

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DETAIL SPECIFICATIONS

TABLE OF CONTENTS

SECTION 3

DETAIL SPECIFICATIONS

Section 3 – Detail Specifications

3.0 GENERAL

This specification covers the furnishing of all labor, materials, tools and equipment necessary and incidental for the installation of water and sewer mains together will all appurtenances and all restoration for elements included under Schedule B of this contract.

Facilities shall be constructed as shown on the Construction Plans and in accordance with these specifications and pertinent sections of the "Engineering Specifications" except as amended or changed in the Detail Specifications. Manufacturer's equipment shall be installed in compliance with the specifications of the manufacturer, except where a higher quality of workmanship is required by the Contract Plans and Specifications. All material and work shall be in strict accordance with any applicable regulations of State and local authorities. The Contractor shall arrange for such inspection by these agencies as may be required and shall submit evidence of their approval, if requested by the Engineer.

The Contractor shall cut existing asphalt to a neat line prior to excavation. No debris will be piled or dumped in the proximity of the project. Surface waters shall be confined to the site so that dirt and debris is not washed into existing storm drains, ditches or creeks.

All existing utilities disturbed shall be re-routed, reconnected and kept in service at all times. The Contractor shall request location marking of all utilities prior to start of excavation.

After the new utilities have been installed, the Contractor shall restore the existing surface, paved or pervious, to an existing or better condition, as shown on the Plans and per the requirements of the permitting agency right-of-way permits.

3.1 EXISTING FACILITIES

There now exist along the construction route, and within the boundaries thereof, above-ground and underground improvements. A portion of these, where known, is shown on the Plans. However, whether they are shown on the Plans or later marked in the field, responsibility for damage and repair shall be determined in accordance with RCW Chapter 19.122, Underground Utilities.

The Contractor shall inform each property owner in ample time so that the property owner and the Contractor may take any precautions necessary to facilitate construction in the vicinity and thereby protect existing property and any underground water lines, drain lines, and/or power lines or other utility lines.

Where the Contractor is allowed to use private property adjacent to the work, the property so used shall be returned to its original or superior condition. A signed release from the property owner shall be furnished to the District by the Contractor prior to project acceptance. See Special Provisions for the *Property Owner's Approval of Restoration* form.

Wherever existing drainage channels, culverts or structures are disturbed, the Contractor shall provide suitable means for diverting and maintaining all flows during construction in that area at his expense. After the construction has been completed, all channels, culverts, or structures shall be returned to a condition that is equal to or better than existed prior to construction.

The Contractor shall adequately protect and preserve from damage, destruction, and interference with the use of all property or its appurtenances on or in the vicinity of the work, which is not ordered or provided for removal or destruction under this contract. This applies to all items occupying the right-of-way, trees, monuments, pipes, conduits, water mains and blocking, underground structures, culverts, bridges, fences, rockeries, docks, bulkheads, and property of all descriptions. Wherever such property is damaged, destroyed or the use thereof is interfered with due to the operation of the Contractor, it shall be immediately restored to its former condition by the Contractor, at the Contractor's expense.

No separate payment will be made for the protection and/or repairing of existing facilities and any cost and expense incurred in protection and/or repairing these facilities shall be included in the price bid for the several items as indicated in the proposal.

3.2 TRAFFIC MAINTENANCE AND PROTECTION

Refer to Section 1-10 of these Special Provisions for maintenance of traffic.

The District will provide notification to schools, school districts, fire districts, utility districts, other service districts and all other persons and services which will be affected by this project.

3.3 TRENCH BACKFILL

Pipe zone bedding for water service piping shall be 100% clean sand in accordance with Section 9.7 (b) of the District's Materials of Construction engineering specifications.

Foundation material, if required, shall be 1"-3" rock in accordance with Section 9.7 (a) of the District's Materials of Construction engineering specifications.

All other water main, hydrant piping and water service piping trench backfill shall be 1-1/4 inch minus or ¾" minus Crushed Rock, full-depth, per Section 9.8 (a) of the District's Materials of Construction engineering specifications.

Recycled cement concrete will not be allowed for any District utility foundation material, pipe zone bedding or trench backfill.

See the District's Methods of Construction engineering specifications for additional information.

3.4 DEWATERING PLAN

Refer to the City of Kirkland standards and the Special Provisions included in these overall contract provisions.

3.5 ABANDON EXISTING WATER SERVICE

The Contractor shall abandon the existing water services that are replaced, as identified in the drawings. The Contractor shall locate and cap the existing water service line watertight near the existing meter disconnection location. Some Schedules may require additional work to close the corporation stop on the existing water main. See Plans for additional information.

3.6 DEACTIVATING THE EXISTING WATER MAIN

The existing water main shall remain the property of the District and shall be protected from damage during construction. The Contractor shall open and close valves as indicated on the Plans. In addition, the Contractor shall provide a water tight seal at locations where the existing main is to be capped as indicated on the Plans.

The existing pipe shall be capped watertight with a Romac Industries model EC501 cap, or approved equal. The pipe end shall be cut square and cleaned prior to capping.

3.7 INSTALL NEW WATER SERVICE

Prior to disrupting water service, Contractor shall pothole each service on the customer side of the meter pit to determine the exact location, size and type of fittings and materials that will be required to reconnect.

Prior to abandoning the existing water service, the Contractor shall coordinate with Northshore Utility District.

Contractor shall provide all parts and equipment necessary to tap the new main and repair the polyethylene encasement material per manufacturer's recommendations and per the District's Standard Detail.

The Contractor shall then provide a complete, new water service as identified on the Plans and in accordance with the Engineering Specifications and the Standard Water Details excluding the water main direct tap performed by NUD.

The existing water meter is to be salvaged to the District and shall be reset by the Contractor in the new meter setter installed by the Contractor. The existing meter box, U-Branch, angle stops and miscellaneous pipe and fittings, including a re-setter, if a re-setter exists, shall be removed and properly disposed of by the Contractor.

Upon completion of the new water service and reconnection to the existing private service line, the Contractor shall backfill and restore all disturbed areas to existing or better condition with crushed rock, sod, or other restoration to match existing conditions.

3.8 CEMENT CONCRETE CURB AND GUTTER

Cement Concrete curb and gutter that is to be replaced shall be removed between expansion joints without damage to adjacent structures. Curb and gutter replacement or repair shall be in accordance with the Materials of Construction and the Methods of Construction and shall be placed in accordance with the local permitting agency's specifications. Refer to the City of Kirkland standards and the Special Provisions included in these overall contract provisions.

3.9 CEMENT CONCRETE SIDEWALK

Cement Concrete sidewalk that is to be replaced shall be removed between expansion joints without damage to adjacent structures. Sidewalk replacement or repair shall be in accordance with the Materials of Construction and the Methods of Construction and shall be placed in accordance with the local permitting agency's specifications. Refer to the City of Kirkland standards and the Special Provisions included in these overall contract provisions.

3.10 GENERAL RESTORATION

Restoration of affected areas not paid for under other items shall be considered general restoration. This restoration includes rockery, fences, lawn areas, planter areas, maintenance of existing trees and shrubs and replanting or replacement of trees and shrubs as allowed under the contract. Grassy areas, including road prism areas in the right-of-way, shall be restored with sod as directed by the District. The Contractor shall specifically note that where an area has a distinctive surface treatment (grass, bark, sand or such), that

surface treatment must be replaced in kind unless other restorative treatment is allowed in writing by the property owner.

All pavement markings such as stop bars, crosswalk, lane line reflectors, lane stripes, or such, shall be restored in kind following final paving.

Areas damaged by the Contractor which are not specifically allowed for under the Contract shall be repaired or replaced by the Contractor at the Contractor's expense. Contractor shall provide the District a written release from the owner for any private property damaged by the Contractor.

Refer to the City of Kirkland standards and the Special Provisions included in these overall contract provisions.

3.11 WORKING WITH ASBESTOS CEMENT PIPE

When working with asbestos cement pipe, the Contractor is required to maintain workers' exposure to asbestos material at or below the exposure limit to asbestos material as prescribed in WAC 296-62-07705 State/Federal Guidelines and Certification. All requirements regarding asbestos cement pipe handling by OSHA, WISHA and PSAPCO must be followed. Power tools shall not be used in the cutting of any asbestos cement pipe.

MEASUREMENT AND PAYMENT

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SECTION 4

MEASUREMENT AND PAYMENT

SECTION 4 - MEASUREMENT AND PAYMENT

Bid Item Introduction

It is the intent of these Specifications that the performance of all work under the bid items shall result in the complete construction, in proper operating condition, of the facilities described. It is understood that any additional material or work required to place the facilities in operating condition shall be provided by the Contractor as work covered by the listed bid items and shall be considered incidental thereto.

Submittals, shop drawings, calculations, start-up, testing, training, warranties, and operation and maintenance manuals as required shall be considered incidental to the various items of work and no additional compensation will be allowed.

Mobilization

All costs required for Schedule B mobilization will be considered incidental to the price bid for Mobilization in Schedule A and no additional compensation will be allowed.

Traffic Control

All costs required for Schedule B temporary traffic control will be considered incidental to the price bid for the various items required for project traffic control included in the Schedule A proposal and no additional compensation will be allowed.

Temporary Erosion and Sediment Control

All costs required for Schedule B temporary erosion and sediment control will be considered incidental to the price bid for Temporary Erosion and Sediment Control in Schedule A and no additional compensation will be allowed.

Trench Safety System

The lump sum price bid for trench excavation protection shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to providing a safe trench excavation. This item shall include, but not be limited to, the following:

1. Design, installation, proper use and removal of all sheeting, shoring, cribbing, boxes or other trench protection methods.

2. Excavation, backfill, compaction and other work required if extra excavation is used in lieu of trench box, shoring, cribbing or other trench protection. If imported backfill gravel is required for backfilling within the limits of the sewer or water line excavation, it shall also be required as backfill material for the extra excavation and shall be provided at the Contractor's expense.

The Contractor shall be solely responsible for the safety of his crew and public, and the District assumes no responsibility. The District will not be responsible for determining the adequacy of any system used by the Contractor and payment for protection systems will not imply District's approval of adequacy.

8-inch Cl 52 D.I.R.J. Water Main

The unit price per lineal foot for ductile iron water pipe, Cl 52, restrained joint, shall be full compensation for all labor, material, tools and equipment necessary and incidental to furnishing, excavating and laying, disinfecting, testing and placing in proper operating condition, all water pipe. Payment shall be made according to the lineal feet of pipe installed from centerline to centerline of fittings. Items of work include, but are not limited to, the following items:

1. Clearing, grubbing and disposal of cleared materials, where required, including trees, stumps, and large rocks.

2. Excavation of all materials of whatever nature encountered, including solid rock.

3. Excavation and grading to reshape finished grade where shown on the plans and as required by field conditions.

4. Dewatering and proper disposal of water as required.

5. Hauling away and disposing of any excess material, including securing approved disposal site.

6. Handling, hauling, placing and mechanical compaction of foundation gravel, trench backfill and all other crushed rock or gravel material, native or imported.

7. Furnishing and installing all water pipe, fittings, bends, restrained joints, restraining gaskets, and concrete blocking where shown on the plans and including testing, disinfecting, and flushing.

8. Polyethylene encasing and 14 gauge solid copper locating wire.

9. Abandoning the existing water main including water tight seals and removal and disposal of valve boxes, pipe and appurtenances as required.

10. Maintenance and restoration of construction area and of other utilities affected by construction in accordance with the Plans and Specifications, including locating the existing water main, or other utilities, by potholing or by the use of other approved methods, prior to constructing the proposed water main improvements and appurtenances.

11. Maintaining, and if necessary repairing existing water services or coordinating temporary water service with the District for individual homes, during water line construction.

12. Temporary cold mix patch, asphalt treated base, or trench patch as required, placed immediately after trench backfill and subsequent removal.

13. Sawcut, removal, and proper disposal of asphalt or cement concrete pavement.

8-inch Gate Valve Assembly

The unit price bid per each valve assembly shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to furnishing, installing, testing and placing the valve in proper operating condition. This item shall include, but not be limited to, the following:

1. Clearing, grubbing and disposal of cleared materials, where required.

2. Excavation of all materials of whatever nature encountered, including solid rock.

3. Excavation and grading to reshape finished grade where shown on the plans and as required by field conditions.

4. Dewatering and proper disposal of water as required.

5. Hauling away and disposing of any excess material, including securing approved disposal site.

6. Handling, hauling, placing and mechanical compaction of foundation gravel, trench backfill and all other crushed rock or gravel material, native or imported.

7. Maintenance and restoration of construction area and of other utilities affected by construction in accordance with the Plans and Specifications, including locating the existing water main, or other utilities, by potholing or by the use of other approved methods, prior to constructing the proposed water main improvements and appurtenances.

8. Furnishing and installing all valves, bolts, gaskets, restrained joints, polyethylene encasing, and all hardware for proper jointing and operation including testing and disinfecting.

9. Concrete blocking in accordance with the Standard Water Details.

10. Cast iron valve box, cover, valve operation nut extension, and asphalt or concrete protective pad in accordance with the Standard Water Details.

11. Sawcut, removal, and proper disposal of asphalt or cement concrete pavement.

Payment shall be made based on actual number of valves installed.

Fire Hydrant Assembly

The unit price bid per each for fire hydrant assembly shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to furnishing and placing a correctly operating fire hydrant into operation in accordance with the specifications and Standard Water Details. This item shall include, but not be limited to, the following:

1. Clearing, grubbing and disposal of cleared materials, where required.

2. Excavation of all materials of whatever nature encountered, including solid rock.

3. Excavation and grading to reshape finished grade where shown on the plans and as required by field conditions.

4. Dewatering and proper disposal of water as required.

5. Hauling away and disposing of any excess material, including securing approved disposal site.

6. Handling, hauling, placing and mechanical compaction of foundation gravel, trench backfill and all other crushed rock or gravel material, native or imported.

7. Maintenance and restoration of construction area and of other utilities affected by construction in accordance with the Plans and Specifications, including locating the existing water main, or other utilities, by potholing or by the use of other approved methods, prior to constructing the proposed water main improvements and appurtenances.

8. Furnishing and installing hydrant assembly, gate valve, valve box, restrained joint ductile iron pipe from the mainline to the hydrant (or stainless steel tie rods in lieu of restrained joints), polyethylene encasing, testing and disinfecting.

9. Concrete blocking, gravel, visqueen and other miscellaneous items and hardware required for proper installation and operation.

10. Concrete slab (3’ x 3’ x 6” min depth) at base of fire hydrant.

11. Rockery, if required.

12. Concrete guard posts, if required.

13. Culvert crossing, if required.

14. Sawcut, removal, and proper disposal of asphalt or cement concrete pavement.

Payment will be made based on actual number of approved hydrant assemblies installed. Existing fire hydrants identified on the plans to be removed shall be salvaged, cleaned, and delivered to the District Maintenance yard as directed by the District. Payment for removal of existing fire hydrant assembly shall be considered incidental to other bid items and no separate payment shall be made.

Payment for the Tee at the water main will be made under the bid item for the water main and no additional compensation will be allowed.

Connect to Existing Water System

The unit price bid per each for connection to the existing water system shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to connecting to the District's existing water system as shown on the Plans. This shall include traffic control measures, sawcutting, potholing and locating the existing water main or other utilities, excavation, cutting and removing existing tees, valves, valve boxes and other fittings, cutting carrier pipe and furnishing and installing casing end seals, coupling adapters, plugs/caps, gaskets, bolts and other hardware, flanges, temporary blow-off assemblies, concrete blocking, disinfection and testing, removal of existing plugs, ductile iron reducers and ductile sleeves and plugging and abandonment of existing pipes.

The cut-in and connection to the existing water main at each Tee location shall be considered one (1) Connect to Existing Water System.

Additional D.I. Fittings (if required)

The unit price bid per pound for ductile iron fittings shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to providing and installing fittings not shown on the plans or as otherwise required by the District or field conditions. These items shall include, but not be limited to, the following:

1. Excavation of all materials of whatever nature encountered, including solid rock.

2. Dewatering and proper disposal of water as required.

3. Furnishing and installing all DI fittings, bolts, gaskets, restrained joints, polyethylene encasing, and all hardware for proper jointing and operation including testing and disinfecting.

4. Concrete blocking in accordance with the Standard Water Details.

5. Sawcut, removal, and proper disposal of asphalt or cement concrete pavement.

Payment will be made based on the weight of the fittings only, and will not include the weight of gaskets, glands or restrained joints.

1-inch Water Service and Reconnection

The unit price bid per each Water Service and Reconnection shall constitute full compensation for all labor, material, tools and equipment necessary and incidental to replacing the existing water service with a new service at the location shown on the Plans in accordance with the Standard Water Detail and typical detail shown on the Plans. This item includes, but is not limited to, the following:

1. Clearing, grubbing and disposal of cleared materials, where required, including trees, stumps, and large rocks.

2. Excavation of all materials of whatever nature encountered, including solid rock.

3. Boring of service lines in lieu of trenching, including bore pits and any ancillary work to accommodate boring installation method.

4. Excavation and grading to reshape finished grade where shown on the plans and as required by field conditions.

5. Dewatering and proper disposal of water as required.

6. Hauling away and disposing of any excess material, including securing approved disposal site.

7. Handling, hauling, placing and mechanical compaction of foundation gravel, trench backfill, pipe bedding material and all other crushed rock or gravel material, native or imported.

8. Tapping the water main:

    - On new water mains installed as part of this contract and not yet connected to the existing system, the Contractor shall provide all parts and equipment necessary to tap the new main and repair the polyethylene encasement material per manufacturer's recommendations and per the District's Standard Detail.

9. New polyethylene service pipe, length as required from the main to the new meter box, including pipe bedding material and pressure and purity testing.

10. New water meter box, cover and lid, copper setter and fittings per the Standard Water Detail and typical detail. Salvage the existing meter to be re-installed by the Contractor in coordination with the District.

11. Locate private water service at the point of connection.

12. Check existing line pressure at the building with a pressure gauge prior to and after the completion of work to ensure consistent readings. If pressure readings differ by more than 5 psi, the Contractor shall locate and correct the issue at no additional cost to the District.

13. Removal, disposal and replacement, reconnection of private PRV devices and boxes. as required. See item 12 above regarding pressure check readings

14. New private service pipe, fittings and bedding as required to connect the existing private service to the backside of the new copper setter.

15. Removal and disposal of existing meter setter, meter box and miscellaneous fittings and pipe.

16. Adjustment and reconnection of irrigation control and backflow prevention devices and boxes, including backflow assembly testing and recertification, as required.

17. Abandoning existing water service, including capping the existing service line water tight near the existing meter and locating and closing the corporation stop on the existing water main.

18. Sawcut, removal, and proper disposal of asphalt or cement concrete pavement.

19. Maintenance and restoration of construction area and of other utilities affected by construction in accordance with the Plans and Specifications, including locating the existing water main, or other utilities, by potholing or by the use of other approved methods, prior to constructing the proposed water main improvements and appurtenances.

20. Temporary cold mix patch, or asphalt treated base as required, placed immediately after trench backfill and subsequent removal.

21. Adjusting or altering the connection or meter box location as necessary in order to avoid existing utilities or structures and obstructions, such as telephone or electrical junction boxes or pedestals.

22. Furnishing and installing 14 gauge solid copper locating wire, continuous from the main line locating wire to the meter setter.

Imported Foundation Gravel (If Required)
Crushed Rock

The unit price bid per ton for imported foundation gravel (if required), imported backfill gravel, and crushed rock shall constitute full compensation for all labor, material, tools and equipment necessary and incidental to furnishing the materials in the trench, under asphalt trench, in the shoulder, asphalt road and under the sidewalk, curb and gutter or elsewhere as required or as directed by the District, and proper disposal of excavated materials. These items shall include, but not be limited to, the following:

1. Over-excavation or extra depth excavation as may be required by the District, or field conditions, which dictate such excavation, as approved by the District.

2. Grading, preparation and compaction of existing subgrade.

3. Proper disposal of excavated materials.

Payment for gravel and rock materials will be made based on the actual number of tons of material furnished and placed. Quantities shall be based on certified weight tickets signed by the driver and collected by the inspector at the time and place of delivery. Loads of material for which a certified weight ticket has not been given to the inspector shall not be paid for.

Gravel and rock materials will be paid for by the ton as substantiated by certified scale tickets, up to the maximum quantity calculated for the volume within the neat lines of the trench as specified in the specifications and standard details. A conversion factor of 1.85 Tons/CY will be used to convert cubic yards of material to tons.

It will be the Contractor's responsibility to see that a ticket is given to the Inspector for each truckload of material delivered. Duplicate tally tickets shall be prepared to accompany each truckload of material delivered on the project. The tickets shall bear at least the following information:

1. Truck number.

2. Quantity delivered in cubic yards and tons.

3. Driver's name and date.

4. Location of delivery - by job name and stationing on each job.

5. Place for receipting by the inspector.

Asphalt Trench Patch

The unit price bid per ton for Asphalt Trench Patch shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to furnishing and placing asphalt pavement in paved areas where cutting the surface pavement is necessary for open cut trenching or as shown on the construction plans. Asphalt pavement shall include, but not be limited to, the following:

1. Preparation and compaction of existing base or subgrade, and preparation of existing pavement edges.

2. Sawcut, removal, and proper disposal of asphalt or cement concrete pavement.

3. Furnishing, placing and compacting asphalt, per the asphalt specifications of the permitting agency, including sealing. Asphalt shall be compacted in 2" lifts.

4. Top seal in areas not located in Asphalt Overlay area.

5. Contractor to provide truck tickets to City/District.

Payment will be made based on the actual number of tons of asphalt pavement placed. Any other asphalt damaged by the Contractor's operations will be the Contractor's responsibility and will be considered incidental to water pipe construction and must be restored by the Contractor to the satisfaction of the governing jurisdiction.

Crushed rock base for trench patch will be measured and paid for under the bid item for crushed rock.

Cement Concrete Sidewalk Removal and Replacement

The unit price bid per square yard for Cement Concrete Sidewalk Removal and Replacement shall be full compensation for all labor, material, tools and equipment necessary and incidental for the removal and proper disposal of existing cement concrete sidewalk and the installation of replacement cement concrete sidewalk as shown on the plans.

Cement Concrete Curb and Gutter Removal and Replacement

The unit price bid per linear foot for Cement Concrete Curb and Gutter Removal and Replacement shall be full compensation for all labor, material, tools and equipment necessary and incidental for the removal and proper disposal of existing cement concrete curb and gutter and the installation of replacement cement concrete curb and gutter as shown on the plans.

General Restoration

The lump sum price bid for general restoration shall constitute full compensation for all labor, material, tools and equipment necessary and incidental to restore disturbed ground surfaces and existing improvements to their pre-construction condition or better, not including work covered by other bid items. This item shall include, but not be limited to, the following:

1. Furnishing and placing of new topsoil, sod, bark, decorative rock or other surface treatment consistent with the adjacent undisturbed ground surface.

2. Excavation, grading and preparation of the areas to be restored.

3. Removal, storage and replacement of any existing decorative shrubs, hedges or trees.

4. Restoration of fences, rockeries, utilities or other structures.

5. Protection of existing trees and improvements not to be removed.

6. Asphalt or concrete pavement required beyond the limits allowed for payment described herein.

7. Removal and replacement of existing landscaping or irrigation system as required.

Payment shall be based on completion of the restoration satisfactory to the individual property owners or agency having jurisdiction over the affected property.

Northshore Utility District
King County, Washington

2020 ENGINEERING SPECIFICATIONS

MATERIALS OF CONSTRUCTION

February, 2020

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SECTION 9

ENGINEERING SPECIFICATIONS
Materials of Construction

Section 9 – Engineering Specifications Materials of Construction

9.1 GENERAL

The type and class of materials to be used shall be as shown on the project plans. Where no specific reference is shown, the following specifications shall govern the materials used. All materials shall be new and undamaged of a known brand, with replacement parts readily available from the general Seattle area.

Prior to the installation of any of the facilities required on the project, all materials shall be approved by the District.

All reference specifications herein shall be of the latest revision.

9.2 SEWER PIPE AND FITTINGS

Sewer pipe material shall be of the following type unless otherwise specified or as indicated on the Plans:

Locations with less than four (4) feet or more than eighteen (18) feet of cover from finished grade	Class 52 Ductile Iron Pipe
Locations with between four (4) feet and eighteen (18) feet of cover from finished grade	PVC Pipe, ASTM 3034, SDR 35
As indicated on the Plans	High Density Polyethylene (HDPE) Pipe

(a) DUCTILE IRON SEWER PIPE AND FITTINGS

1. Ductile iron pipe shall be new, Class 52, cement-lined, conforming to AWWA C151.

2. Ductile iron pipe shall be push-on joint. Pipe shall be furnished with a single rubber ring gasket lubricated to effect the seal.

3. Restrained joint pipe shall be U.S. Pipe “TR Flex” or push-on joint pipe restrained with U.S. Pipe “Field Lok” gaskets, or equal. Each length of pipe shall be clearly marked with the manufacturer’s identification, year, thickness, class of pipe and weight.

4. The Contractor shall furnish certification from the manufacturer of the pipe and gasket being supplied that the inspection and all of the

specified tests have been made and the results thereof comply with the requirements of this standard.

5. Ductile iron fittings shall be short body with a 350 psi pressure rating for mechanical joint fittings and 250 psi for flanged fittings. All fittings shall be cement lined and shall be in conformance with AWWA C153.

(b) PVC SEWER PIPE AND FITTINGS (ASTM D3034)

All PVC pipe and fittings shall be integral wall bell and spigot, rubber gasket joint, unplasticized polyvinyl chloride (PVC) pipe in conformance with ASTM D3034 and shall have a maximum SDR of 35. PVC pipe shall have a minimum "pipe stiffness" of 46 psi at 5 percent deflection when tested in accordance with ASTM Designation D2412 and a minimum impact strength of 210 foot-pounds based upon ASTM D3034.

All pipes shall be clearly marked with the manufacturer's identification, year, and class of pipe.

All fittings and accessories shall be manufactured and furnished by the pipe supplier, or shall be District approved equal.

Pipe joints shall use flexible elastomeric gaskets conforming to ASTM D3212.

Connections for side sewer stubs shall be 6 inches inside diameter tee fittings. Wye branches shall be used where the sewer line size is less than 8" inside diameter.

(c) HIGH DENSITY POLYETHYLENE (HDPE) SEWER PIPE

High Density Polyethylene (HDPE) sewer pipe shall be PE 4710 high density conforming to ASTM D3350 cell classification PE445474C or higher, with a DR of 11 unless otherwise specified.

The workmanship shall be of the highest level compatible with current commercial practice. The PE pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, or other injurious defects. It shall be uniform in color, opacity, density and other physical properties.

Butt fusion of pipes and fittings shall be performed in accordance with the pipe manufacturer's recommendations as to equipment and technique. The pipe shall be fused by a certified installer who has a demonstrated ability to fuse polyethylene pipe in the manner recommended by the pipe supplier and/or the fusion manufacturer.

The pipe shall be Phillips 66 Driscopipe 8700 or District approved equal.

(d) FLEXIBLE COUPLING ADAPTERS

Flexible coupling adapters shall meet the specifications set forth in the AWWA Standard C219 coupling specification and be rated for working pressures up to 250 psi. Flexible coupling adapters shall be Romac XR501, Hymax 2000, or District approved equal.

9.3 MANHOLES

Manholes shall be of the offset type, shall be precast concrete sections with a precast base, and shall be made from 3,000 psi structural concrete. All manhole joints shall be watertight and shall be confined O-ring type. They shall be constructed in full compliance with the Standard Details and as further specified herein.

Manhole materials and manufacturing shall be in accordance with ASTM C478.

Minimum standard manhole depth is eight (8) feet and maximum depth is eighteen (18) feet. Depths other than within this range shall require special design and approval by the District.

The base sections and risers of the manholes shall be arranged so no pipes pass through the manhole joints.

(a) Manhole Sections

Manhole sections shall be placed and aligned so as to provide plumb vertical sides and vertical alignment of the ladder steps. The completed manhole shall be rigid, true to dimension and be watertight. The ladder shall be rigidly attached to the side of the manhole.

Manhole grade rings shall be reinforced 3,000 psi structural concrete, 24 inches in diameter and 4 inches high. Grade rings shall be set in a full-width bed of cement grout. Provide grout between rings and between upper ring and casting. Inside rings shall be troweled smooth with 1/2" (minimum) of grout in order to provide a watertight surface.

In addition to the O-ring rubber gaskets, all new manhole joints shall be sealed with a flexible butyl joint sealant conforming to ASTM C990-96 and Federal Specification SS-S-210. The flexible butyl joint sealant shall be “Kent Seal #2” as manufactured by Hamilton-Kent Company or “Ram-Nek” as manufactured by K.T. Snyder Company.

Steel lifting loops or hooks for precast manhole components shall be removed to a minimum depth of one (1) inch below the surface and the remaining hole packed with grout. Precast sections with damaged joint surfaces or with cracks or other damage that may permit infiltration will not be allowed.

Reinforcement for precast manholes shall be in accordance with ASTM C 478-97.

(b) BASE LINERS

All new manholes shall be installed with a prefabricated manhole base liner made of polypropylene (PP) and/or fiberglass reinforced plastic (FRP). The base liner shall be integrally cast and adequately anchored inside new precast concrete manhole base sections during the concrete casting process at the manhole suppliers manufacturing facility. The base liner shall be cast integral with the precast concrete manhole base section in accordance with the liner manufacturer's specifications. The liner must be fully supported during the casting process and lifting devices shall not penetrate the base liner.

The manhole base liner shall be prefabricated from a one piece homogeneous composite and/or thermoplastic with a minimum thickness of 0.12" (3 mm) and shall be in lengths and nominal inside diameters corresponding to the precast concrete base section and be a non load-bearing component, which is resistant to the chemical environment normally found in wastewater collection systems. The outer surface of the liner shall be coated with aggregate and/or PP pellets bonded to the outer surface and have perforated PP I-beam "bonding bridge" anchors bonded to the outer surface in order to insure adequate anchoring to concrete base sections to pass vacuum testing with 10" of negative pressure.

The inside liner surfaces shall be free of bulges, dents and other defects that result in a variation of inside diameter of more than 1/4" (7 mm) for base liner flow channel and pipe connections. The precast concrete pipe penetration joint surfaces shall be free of excess concrete at external and internal surfaces to insure a proper seal between the pipe connection and the liner.

The manhole base liner shall include full flow channels with side-walls to the crown of the pipe. The inner surface of the bench shall be provided with an anti-skid pattern. Watertight gasketed pipe bell connections to suit specific pipe types, grade and alignment, shall be monolithically attached to the base liners and shall extend to the outside profile of the precast concrete structure.

If PP base liner is utilized, a minimum slope of 0.06' is acceptable across the invert channel. The FRP base liner shall require the District standard minimum slope of 0.1' across the invert channel.

Base liner properties shall be in accordance with the following:

MATERIALS

Polypropylene (PP):	100% Copolymer
Minimum thickness:	3mm
Hardness:	75 Shore D
Density:	56.8 lb/ft^3 (0.91 g/cm^3)
Color:	Dull mustard/goldenrod
Fiberglass Reinforced Plastic (FRP):	Polyurethane Hybrid Composite
Glass fiber:	Type E, min fiber length of 0.625" (16mm), 10 - 12% content by weight
Inert filler:	10 - 13% content by weight
Minimum thickness:	3mm
Hardness:	85 Shore D
Density:	73.0 lb/ft^3 (1.17 g/cm^3)
Color:	Dull mustard/goldenrod
Aggregate bonding medium:	Processed sand containing crushed & uncrushed dry and cleaned semi-round particles in the 0.08 - 0.12" (2 - 3mm) size range
Gaskets:	Polyisoprene, unless otherwise specified
Hardness:	50 - 55 Shore A

PHYSICAL PROPERTIES

Percolation Test:	Water absorption of top surface - 0.032%
Thermal shock (CSA-B45-M93):	100 thermal cycles - no sign of surface defects

Chemical Resistance (ASTM D1308):

Selected Reagents

Reagent	Result
Nitric Acid 69%	No surface Degradation - Surface Staining
Hydrochloric Acid 60%	No surface Degradation
Ammonia 28%	No surface Degradation
Sodium Hydroxide 5.25%	No surface Degradation
Sulfuric Acid 50%	No surface Degradation
Sulfuric Acid 70%	No surface Degradation
Sulfuric Acid 80%	No surface Degradation
Acetone	No surface Degradation
Unleaded Gasoline	No surface Degradation
Turpentine	No surface Degradation
Acetone Immersion (ASTM D2152)	No Attack

Base liners shall be manufactured and supplied by Predl Systems North America of Burnaby, B.C.

(c) MANHOLE STEPS

Manhole steps shall be made of ½" Grade 60 Steel reinforcing bars coated with copolymer polypropylene, equal to Lane International Manhole Step #P-14850.

The steps shall be installed at the manhole manufacturer's yard in conformance with the step manufacturer requirements. At a minimum, the step ends shall be coated with non-shrink epoxy grout and driven into pre-drilled holes with dimensions of 1" inch diameter and 3-1/2" depth. The pre-drilled holes shall not penetrate the exterior manhole wall.

(d) GRADE ADJUSTMENT

The depth of the 24" diameter manhole neck from the top of the frame to the top of the cone shall be from between 14" and 26".

(e) CHANNELS

All new manholes shall be provided with fiberglass reinforced plastic base liners per Subsection 9.3.b of these specifications, unless otherwise indicated on the plans or approved by the District. Manholes approved for cement concrete channels shall conform to this subsection of the specifications.

Channels shall be made to conform accurately to the sewer grade and shall be brought together smoothly with well-rounded junctions, subject to approval by the District.

Channels shall consist of commercial grade concrete, minimum Class 3000 in accordance with Section 6-02 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

The channels shall be field poured after the inlet and outlet pipes have been laid and firmly grouted into place at the proper elevation. Allowances shall be made for a minimum of one-tenth foot (0.1') drop in elevation across the manhole in the direction of flow. The maximum allowable drop in inlet elevation across the manhole in the direction of flow shall be 0.5 ft. Channel sides shall be carried up vertically from the invert to three-quarters of the diameter of the various pipes. The concrete bench shall be warped evenly and sloped two percent (2%) to drain. Rough, uneven surfaces will not be permitted. Channels shall be constructed to allow the installation and use of a mechanical plug of the appropriate size.

(f) PIPE CONNECTIONS

All pipe entering or leaving the manhole shall be placed on firmly compacted bedding. Special care shall be taken to see that the openings through which pipes enter the structure are completely and firmly filled with mortar from the outside to insure water tightness. All PVC pipe connections to manholes shall be made with GPK PVC Manhole Adapters (also known as “sand collars”) with an external abrasive silica layer or Kor-N-Seal Connector manufactured by NPC. Inc.

All stubbed out sewer pipes placed through manhole walls for future connections shall be suitably plugged and blocked in a manner acceptable to the District.

(g) SHELF REPAIRS

Shelf repairs at connections to the existing manholes shall be class 3000 commercial grade cement in accordance with the Engineering Specifications.

(h) GROUT

Grout for all uses including, but not limited to, shelves, pick-holes, and adjusting rings, shall be cement based, nonshrink, noncorrrosive, and nonmetallic grout conforming to ASTM C 1107. Grout shall be Dayton Superior 1107 Advantage Grout, Basalite Nonshrink Grout - Fast Set, SpecChem SC Multipurpose Grout, or Quikrete Commercial Grade FastSet Nonshrink Grout. The District may sample and test grout to determine conformance with the specifications.

(i) DROP MANHOLES

Drop manholes shall, in all respects, be constructed as a standard manhole with the exception of the drop connection as shown on the Standard Detail.

(j) LIFT HOLES

All lift holes shall be completely filled smooth with grout both inside and out in order to insure water-tightness.

(k) MANHOLE CERTIFICATION

The Contractor shall provide written certification from the manhole manufacturer that the manholes provided meet or exceed the specifications and that the materials used in the construction of the manhole are in accordance with the specifications. A Manufacturer's Certificate of Compliance shall be provided for each manhole delivered to the project and shall include the manufacturer's name and address, the District's manhole number, reference to the applicable project specifications being used, the design mix and 28-day strength of the cement concrete used, drawings indicating reinforcing steel details, such as size and location, results of materials testing conducted by the manufacturer and the signature of a responsible corporate official of the manufacturer.

The District may test manholes and materials used at any time, including after installation, and any manhole not conforming to the specifications shall be rejected by the District and replaced with a conforming manhole provided and installed by the Contractor.

9.4 MANHOLE AND CLEANOUT FRAME AND COVERS

Frames and covers shall be cast iron and conform to the Standard Details and these specifications. Castings shall conform to the requirements of ASTM A-48, Class 30 and shall be free of porosity, shrink cavities, cold shuts or cracks, or any surface defects that would impair serviceability. Repair of defects by welding, or by the use of smooth-on or similar material, will not be permitted. Frames and covers shall be machine-finished or ground on seating surfaces so as to assure non-rocking fit in any position and interchangeability of covers.

All manhole frames and covers will be locking type. Manhole frame and cover shall be East Jordan Ergo Assembly, Part No. 001040105L01.

Cleanout frame and cover shall be locking type equal to Armorcast Polymer Concrete Box Assembly with Pentahead locking bolt style and "CO" imprinted on cover, part number A6001423TA (see NUD Standard Sewer Detail #9).

9.5 WATER MAIN PIPE AND APPURTENANCES

(a) DUCTILE IRON WATER PIPE

Ductile iron pipe shall be new, restrained joint, Class 52, cement-lined, conforming to AWWA C151.

Ductile iron pipe shall be U.S. Pipe “TR Flex” or push-on joint pipe restrained with U.S. Pipe “Field Lok” gaskets, or equal. Each length of pipe shall be clearly marked with the manufacturer’s identification, year, thickness, class of pipe and weight.

The Contractor shall furnish certification from the manufacturer of the pipe and gasket being supplied that the inspection and all of the specified tests have been made and the results thereof comply with the requirements of this standard.

(b) GALVANIZED IRON WATER PIPE AND FITTINGS

Galvanized iron pipe where specified for use shall be Schedule 40 hot dipped, zinc-coated (galvanized) welded and seamless steel pipe for ordinary uses (ASTM A-120). Fittings shall be screwed malleable iron galvanized per USA Standard B16.3.

(c) POLYETHYLENE PLASTIC SERVICE PIPE

Service pipe shall be high performance PE4710 high density polyethylene, SIDR 7 iron pipe size with a 250 psi pressure rating. The pipe shall conform to ASTM D2239 and AWWA C901. At a minimum the pipe pressure rating, SIDR and ASTM classification shall be clearly printed on the pipe.

(d) POLYETHYLENE PIPE ENCASEMENT

Ductile iron pipe shall be encased with polyethylene encasement (8 mil thickness). Material and installation shall be in accordance with AWWA C105. Installation shall be in accordance with AWWA C105, Method A or Method C.

In Method A, polyethylene encasement tubes are used and in Method C, polyethylene sheets are used. In Method A, one length of polyethylene encasement tube is used for each length of pipe. In Method C, every section of pipe is completely wrapped with a flat sheet of polyethylene encasement. In both Methods, the polyethylene is overlapped at the joints and taped.

During the water main installation and/or water service installation, repair all rips, tears, or other damage to the polyethylene encasement with adhesive tape (i.e. Christy’s Pipe Wrap Tape), per the manufacturer’s recommendation.

(e) DUCTILE IRON FITTINGS

Ductile iron fittings shall be short body with a 350 psi pressure rating for mechanical joint fittings and 250 psi for flanged fittings. All fittings shall be cement lined and shall be in conformance with AWWA C153 for mechanical joint fittings and AWWA C110 for flanged fittings.

All mechanical joint fittings shall be restrained with EBAA Iron, Inc. “Mega-Lug” mechanical joint restraints, or equal.

Megalug fittings are prohibited for use on cast iron pipe. Restrained joint connections to existing cast iron water main shall be made with Romac Alpha Couplings and fittings only.

All deactivated water mains shall be capped with Romac EC501 End Cap Coupling or equal.

(f) FIRE HYDRANTS

Fire hydrants shall conform to AWWA Standard Specification C502 and be one of the following types:

- Mueller Super Centurion
- American Darling B-62-B
- Clow Medallion
- M & H 129
- East Jordan Iron Works WaterMaster 5CD250

They shall be a rising stem compression-type which opens counterclockwise, and closes with the pressure. The minimum main valve opening diameter shall be 5-1/4" unless otherwise specified. The hydrant seat and hydrant seat retaining ring shall be bronze. All external bolts, nuts and studs shall be cadmium plated in accordance with ASTM A165 Type HS or rust proofed by some other process approved by the District. Gaskets shall be of rubber composition.

Fire hydrants shall be equipped with one 5" pumper connection (Seattle Standard Thread) with Storz Adapter (integral or non-integral) as required by those jurisdictions shown on the Standard Details. The hydrant shall include two 2-1/2" NST hose ports. Pentagon nuts or caps and operating stem shall measure 1-1/4" point to flat and shall open by turning to the left. Nozzle shall be fitted with renewable bronze nipples locked in place.

Fire hydrants shall be set plumb and ports shall to be oriented as directed by the Fire Protection District having jurisdiction over said area.

Fire hydrant piping from the main line valve to the hydrant base shall be restrained joint pipe or shall be restrained with stainless steel shackle rods and nuts.

The hydrants shall be coated with enamel paint in accordance with the Standard Details.

See the Standard Detail for additional requirements.

(g) GATE VALVES

Gate valves shall be ductile iron body valves with resilient wedge conforming to the latest revision of AWWA Standard C515 and shall be NSF 61 approved. Valves shall have epoxy coating fusion bonded to all internal and external surfaces of the valve body and bonnet in compliance with AWWA C550. The wedge shall be fully encapsulated in rubber. The valves shall be non-rising stem, open to the left, equipped with standard 2" square operating nuts and O-ring seals at all joints. Resilient wedge gate valves shall be American Flow Control Series 2500, Clow model 2638, Mueller 2360 series, Kennedy 7000 series, East Jordan FlowMaster or M&H Style 7000.

(h) BUTTERFLY VALVES

Butterfly valves shall be ductile iron body of the tight closing rubber seat type with rubber seat either bonded to the body or mechanically retained in the body with no fasteners or retaining hardware in the flow stream. The valves shall be epoxy coated inside and outside. The valves shall meet the full requirements of AWWA C504, class 150 B, except the valves shall be able to withstand 200 psi differential pressure without leakage. The valves shall be equal to Pratt "Groundhog" or Mueller Lineseal III.

Butterfly valves to be installed underground shall have sealed mechanical operators and 2" standard square operating nuts. Complete manufacturer's Specifications for the valves proposed for use shall be submitted to the District for approval.

(i) VALVE BOXES

Valve boxes shall be two-piece, cast iron, East Jordan Iron Works:

- Valve box cover, 06800209
- Valve box top, 85557016U
- Valve box bottom, 85556024U

(j) FIRE HYDRANT GUARD POSTS

Concrete fire hydrant guard posts, if required as directed by the District, shall be made of precast reinforced concrete, nine (9) inches in diameter, six (6) feet long, or 8"x6"x6 feet long. The guard posts shall be coated white with enamel paint in accordance with the Fire Hydrant Assembly Standard Detail.

(k) METER BOXES

The meter boxes shall be according to the Standard Details.

(l) SERVICE SADDLES

For ductile iron and cast iron water mains larger than 4" diameter, direct tapping of 1" standard corporation stop threaded tap will be required. Saddles will not be allowed on ductile iron and cast iron pipe larger than 4" diameter for 1" water services.

Service taps for all other water main sizes and materials shall be as follows:

1. Service saddles for 1", 1-1/2", and 2" standard corporation stop threaded tap, shall be single strap and shall be equal to Mueller Company DR1S, Ford Meter Box Company FC101, or Romac Industries, Inc. 101NS.

2. Saddles for PVC pipe shall be stainless steel, double strap type and shall be equal to Mueller Company DR2S, Ford Meter Box Company FCD202, or Romac Industries, Inc. 202NS.

(m) SERVICE MATERIALS

Service materials including valves, pipe and fittings be as specified on the Standard Details. All brass appurtenances shall be "lead free" and conform to NSF/ANSI 372 and NSF/ANSI 61 standards. 2" ball valves shall be furnished with a slotted operator, and with an adapting 2"-square operating nut (Ford Cat. QT-67) secured with a stainless steel cotter pin.

(n) RESIDENTIAL DOMESTIC AND FIRE SPRINKLER SERVICES

Combination service for residential domestic and fire sprinkler systems shall be according to the Standard Detail.

(o) BLOW-OFFS AND AIR & VACUUM RELIEF VALVES

2" Blow-offs and 1" Air & Vacuum Relief Valves shall be installed for 12" diameter pipe and smaller in accordance with the standard detail. Blow-offs for pipe larger than 12" in diameter shall be as directed by the District.

(p) STAINLESS STEEL TAPPING SLEEVE

Tapping sleeve shall be constructed of all stainless steel with removable, replaceable bolts and coated nuts to prevent galling. Gaskets shall provide a full circumferential seal. Tapping sleeve shall be Romac STS 420, JCM 432, or Ford FTSS stainless steel tapping sleeve.

9.6 STEEL CASING

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

The carrier pipe shall be installed with casing spacers. Spacers shall be placed in accordance with the Methods of Construction and shall be at least 12-inches wide. Spacers shall be designed to provide a maximum space of 1-inch between the upper runners and the inside of the steel casing. The spacers shall prevent the pipe bells from touching the inside of the casing. Metal components of casing spacers shall be Type 304 (18-8) 14-gauge (minimum) stainless steel. The liner shall be neoprene rubber or PVC, and the runners shall be polyethylene with a low friction factor. Casing spacers shall be designed for center restraint. Casing spacers shall be Model CCS by Cascade Waterworks manufacturing, or District approved equal.

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

Casing end seals shall be 1/8-inch thick synthetic rubber with two stainless steel bands and clamps. The end seal shall be Model S by Pipeline Seal and Insulator, or APS Model AC, or approved equal.

Steel Casing Pipe Wall Thickness Table	
Diameter of Casing Pipe	Minimum Thickness
22" or Less	0.3750"
Over 22" – 28"	0.4375"
Over 28" – 34"	0.5000"
Over 34" – 42"	0.5625"
Over 42" – 48"	0.6250"
Over 48"	Review Required

9.7 FOUNDATION, BEDDING AND BACKFILL MATERIALS FOR TRENCHES

(a) FOUNDATION MATERIALS

Foundation gravel shall consist of clean, granular material free from objectionable materials such as organic matter or other deleterious substances with at least 90 percent coarse material ranging from 1" in diameter to 3" in diameter and 100 percent 3" in diameter or less, unless otherwise specified or approved by the District.

(b) BEDDING MATERIALS

Water Main Pipe:

Bedding material shall consist of imported gravel backfill, crushed rock, or controlled density fill as indicated on the plans or as directed by the District.

Water Service Pipe:

Bedding material shall consist of 100% clean sand. Native material will not be allowed by the District.

Sewer Main and Lateral Pipe:

Bedding material shall consist of clean, granular, manufactured pea gravel conforming to the following gradation:

U. S. Standard Sieve Size	% Passing by Weight
1/2"	100
3/8"	85 – 95
No. 4	5 – 15
No. 8	0 – 2

(c) TRENCH BACKFILL

Native material may be used for trench backfill if the material meets the requirements of Section 9-03.14(2) of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation for Select Borrow. Native material shall be free from wood waste, organic waste, coal, charcoal, and other extraneous or objectionable materials and shall have no material larger than 2” in diameter. The material shall be non-plastic and shall not contain more than 3 percent organic material by weight.

Imported gravel backfill shall be a granular material conforming to Section 9-03.14(1) of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

Where designated on the Contract Drawings, as required by the roadway permitting agency or as directed by the District, the trench backfill shall be controlled density fill (CDF), as manufactured by Cadman, inc., product #110021, “Pro-Flow Trench Five Hour”, or District approved equal.

9.8 REPLACING ROAD SURFACE

(a) CRUSHED SURFACING

Crushed surfacing material shall be 1-1/4" base course and 3/4" minus top course crushed gravel and shall be manufactured from ledge rock, talus or gravel in accordance with the provisions of Section 9-03.9(3) of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

(b) GRAVEL BASE

All gravel base shall conform to the requirements of Section 9-03.10 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

(c) ASPHALT CONCRETE SURFACING

Asphalt concrete surfacing or repair shall be as required by the roadway permitting agency, and shall conform to Section 5-04 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation and the Standard Specification Drawing for Permanent Asphalt Concrete Patch.

(d) CEMENT CONCRETE PAVEMENT

Cement concrete pavement shall be Class "B" in accordance with Section 5-05 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation and shall be furnished only by manufacturers who are members of the Portland Cement Association. All reinforcing steel shall conform with and be placed in accordance with Section 5-05 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation and shall conform to the requirements of ASTM Designation A-15 and A-305, latest revisions.

(e) RIGID-TYPE PAVEMENTS RESURFACED WITH ASPHALT CONCRETE

Asphalt concrete surface mat to be placed over Portland cement concrete base shall be as required by the roadway permitting agency; both the base and the surface mat shall be carefully prepared, placed and cured in full compliance with Section 5-04.3 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

9.9 GRASS SEEDING AND SOD

(a) TOPSOIL

Topsoil shall be Type B or C in accordance with Section 9-14.1 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. The Contractor shall provide a topsoil material submittal to the District for review and approval prior to construction.

(b) SEED

Seed material, storage and certification shall conform to Section 9-14.2 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. Seed shall be “Certified” grade seed or better. The Contractor shall provide a seed mix material submittal to the District for review and approval prior to construction.

(c) FERTILIZER

Fertilizer shall be commercial grade in conformance with Section 9-14.3 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. The Contractor shall provide a fertilizer material submittal to the District for review and approval prior to construction.

(d) MULCH

Mulch shall be approved by the District and shall be certified grass hay or straw or wood cellulose fiber for hydroseeding. Wood cellulose fiber shall be in accordance with Section 9-14.4(2) of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

(e) SOD

The Contractor shall provide grass mixtures to the District for review and approval prior to construction.

Sod shall be field grown one year or older, have a well-developed root structure and be free of all weeds, disease and insect damage.

Prior to cutting, the sod shall be green, in an active and vigorous state of growth and mowed to a height not exceeding 1-inch.

The sod shall be cut with a minimum of 1-inch of soil adhering.

Northshore Utility District
King County, Washington

2020 ENGINEERING SPECIFICATIONS

METHODS OF CONSTRUCTION

February, 2020

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Section 10 – Engineering Specifications Methods of Construction

10.1 GENERAL

A pre-construction conference will be held at the District office prior to the start of construction.

The Contractor shall notify the District a minimum of 5 days in advance of contemplated construction to allow for construction staking and review of materials to be used on the job.

Except as otherwise noted herein, all work shall be accomplished with adopted standards and specifications of Northshore Utility District and according to the recommendations of the manufacturer of the material or equipment used. The Contractor shall have a copy of the plans and specifications on the jobsite at all times.

10.2 CLEARING AND GRUBBING

Clearing and grubbing shall consist of the removal of all trees, stumps, brush and debris and shall be confined within the limits of the easements obtained for the construction of this project and/or existing public rights-of-way. Removal of clearing and grubbing debris shall be subject to the approval of the District and shall, in no way, constitute a hazard to the continuous operation of any existing utilities. Any damage to the existing utilities shall be repaired by the respective utility company, at the expense of the Contractor.

Within the limits described, all growth and organic matter such as trees, shrubs, brush, logs, fences, upturned stumps and roots of down trees and other similar items, shall be removed and disposed. All trees shall be felled within the area to be cleared. Where the tree limb structure interferes with utility wires or where the trees to be felled are in close proximity to utility wires, the tree shall be taken down in sections to eliminate the possibility of damage to the utility. Any damage that does occur shall be the responsibility of the Contractor.

All fences adjoining any excavation or embankment that may be damaged or buried shall be carefully removed and temporarily erected on the adjoining property or stored for reinstallation as directed by the District.

No debris of any kind shall be deposited in any stream or body of water or in any street or alley.

Trees, shrubbery, and flower beds designated by the District shall be left in place and care shall be taken by the Contractor not to damage or injure such trees, shrubbery or flower beds by any of its operations.

The refuse resulting from the clearing operation shall be hauled to an approved 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 burning is allowed.

In no case, shall any material be left on the project, shoved onto abutting private properties, or be buried in embankments or sewer trenches on the project.

Where trees exist in planting areas and are not to be removed, it shall be the Contractor's responsibility to trim low limbs which will interfere with the normal operation of its equipment and paint or seal pruned areas with an approved pruning tar or paint. The trimming shall be performed in a professional manner by competent personnel prior to its machine operations and in such a manner as the District and/or the property owner may direct.

The Contractor shall be responsible for all damages to existing improvements resulting from its operations.

10.3 DEWATERING AND CONTROL OF WATER

The Contractor shall dewater and dispose of the water so as not to cause injury to public or private property or to cause a nuisance or a menace to the public and shall meet all regulatory agency requirements.

The control of groundwater shall be such that softening of the bottom of excavations or formation of "quick" conditions or "boils" shall be prevented. Dewatering systems shall be designed and operated so as to prevent the removal of the natural soils.

During excavating, installing, placing of trench backfill and the placing and setting of concrete, excavations shall be kept free of water. The static water level shall be drawn down below the bottom of the excavation so as to maintain the undisturbed state of the natural soils and allow the placement of backfill to the required density. The dewatering system shall be installed and operated so that the ground water level outside the excavation is not reduced to the extent that would damage or endanger adjacent structures or property.

The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures and pipelines.

In carrying out the work within the limits of streams or an area that will drain into a stream, the Contractor is required to comply with the regulations of the appropriate local, State and Federal agencies.

The Contractor shall contact the above referenced departments and secure such permits as may be necessary to cover its proposed method of operation within the areas described above. If no permit is necessary and, if requested by the District, the Contractor shall provide written approval from the appropriate agency.

10.4 TEMPORARY EROSION & SEDIMENTATION CONTROL (TESC)

The Contractor shall comply with all applicable permit conditions and recommendations of the geotechnical report, if available.

The detrimental effects of erosion and sedimentation are to be minimized in conformance with the following general principles:

- Leaving soil exposed for the shortest possible time.
- Reducing the velocity and controlling the flow of runoff.
- Detaining runoff in an approved on-site temporary sedimentation control facility to trap sediment.
- Releasing runoff safely to downstream areas.
- Installing temporary filter fabric fence.
- Protecting existing catch basins.

In applying these principles, the Contractor shall provide for erosion control by conducting work in workable units; minimizing the disturbance to cover crop material, providing mulch and/or temporary cover crops, sedimentation basins, and/or diversions in critical areas during construction; properly controlling and conveying runoff; and establishing permanent vegetation and installing erosion control structures as soon as possible.

(a) TEMPORARY EROSION & SEDIMENTATION CONTROL (TESC)

The Contractor shall provide, install and maintain TESC facilities to protect the existing surface waters, drainage systems and adjacent properties.

The TESC facilities must be constructed prior to the start of construction to ensure that the transport of sediment to surface waters, drainage systems and adjacent properties is minimized.

The TESC facilities shown on the plan are the minimum requirements for anticipated site conditions. During the construction periods, these TESC facilities shall be upgraded as needed for unexpected storm events and modified to account for changing site conditions (e.g., additional sump pumps, relocation of ditches and silt fences, etc.).

The TESC facilities shall be inspected daily by the contractor/TESC supervisor and maintained to ensure proper functioning. Written records shall be kept of weekly reviews of the TESC facilities during the wet season (Oct. 1

to March 31) and of monthly reviews during the dry season (April 1 to Sept. 30).

Any areas of exposed soils, including roadway embankments, that will not be disturbed for two days during the wet season or seven days during the dry season shall be immediately stabilized with the approved TESC methods (e.g., seeding, mulching, plastic covering, etc.).

The TESC facilities shall be inspected and maintained within 24 hours following a storm event.

At no time shall more than one (1) foot of sediment be allowed to accumulate within a catch basin. All catch basins and conveyance lines shall be cleaned prior to paving. The cleaning operation shall not flush sediment-laden water into the downstream system.

(b) TRENCH MULCHING

Where, in the opinion of the District, there is danger of backfill material being washed away due to steepness of the slope along the direction of the trench, material shall be held in place by covering the disturbed area with straw and holding it in place with a covering of jute matting or wire mesh anchored down with wooden stakes, or as directed by the District.

(c) COVER CROP SEEDING

A cover crop shall be in place in all areas excavated or disturbed during construction that were not paved, landscaped, and/or covered prior to construction. Areas landscaped prior to construction shall be restored to their prior condition. The Contractor shall be responsible for protecting all areas from erosion until the cover in place affords such protection.

Cover-crop seeding shall follow backfilling operations.

The Contractor shall be responsible for protecting all areas from erosion until the cover crop affords such protection. The cover crop shall be reseeded, if required, and additional measures taken to provide protection from erosion until the cover crop is capable of providing protection.

During winter months, the Contractor may postpone seeding at the direction of the District, if conditions are such that the seed will not germinate and grow. The Contractor will not, however, be relieved of the responsibility of protecting all areas until the cover crop has been sown and affords protection from erosion.

Submittals shall be provided for cover crop seed, mulch and fertilizer as specified herein.

10.5 SEWER PIPE INSTALLATION

Unless specified otherwise, a 10-foot horizontal separation and an 18-inch vertical separation must be maintained between all sanitary sewer mains and water mains in accordance with the Department of Ecology criteria.

Where it is necessary to cross an existing asbestos-cement water line, the District may require that the asbestos-cement pipe be removed and replaced with ductile iron pipe in accordance with the Standard Detail on a case-by-case basis. All other non-metallic water main crossings shall be backfilled with CDF per NUD Standard Sewer Details.

(a) CONNECT TO EXISTING SYSTEM

Connections to existing manholes shall be made by core-drilling. Invert of manhole shall be rechannelized as necessary to accommodate flow directions and provide a minimum of 0.10' drop from the inlet to the outlet. Connections shall be watertight. If connection is made to an existing manhole with a fiberglass reinforced plastic baseliner, the disturbed channel must be re-glassed by a District approved contractor.

(b) PLUG(S) FOR EXISTING SYSTEM

The District will furnish and install a plug at the time the project is connected to the District's sewer system. The plug(s) must remain in position to prevent debris and water from entering the existing sewer system until such time as the sewer system within the project has been accepted by the District for maintenance and operation. A $2,000.00 fine will be levied against the Contractor when a District installed sewer mainline plug is removed at any time during the work. The Contractor will also be accountable for all expenses incurred to clean and flush sanitary sewer mainlines as a result of said plug removal.

(c) PIPE LAYING

The sewer pipe, unless otherwise approved by the District, shall be installed upgrade from point of connection on the existing sewer or from a designated starting point to line and grade per approved plans. The sewer pipe shall be installed with the bell end forward or upgrade. When pipe laying is not in progress, the forward end of the pipe shall be kept tightly closed with an approved temporary plug.

3" wide, green metallic sewer detector tape shall be laid 24" above the pipe bedding, for the entire length of the sewer main between manholes. Identification on the tape shall include the words "Sanitary Sewer".

(d) PIPE JOINTING

All extensions, additions and revisions to the sewer system, unless otherwise indicated, shall be made with sewer pipe joined by means of a flexible gasket which shall be fabricated and installed in accordance with these specifications.

All joints shall be made up in strict compliance with the manufacturer's directions and all sewer pipe manufacturing and handling shall meet or exceed the current revisions of the ASTM recommended specifications.

Pipe handling after the gasket has been affixed shall be carefully controlled to avoid disturbing the gasket and knocking it out of position or loading it with dirt or other foreign material. Any gaskets so disturbed shall be removed, cleaned, re-lubricated, if required, and replaced before the re-joining is attempted.

Care shall be taken to properly align the pipe before joints are entirely forced home. During insertion of the tongue or spigot, the pipe shall be partially supported by hand, sling or crane to minimize unequal lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned.

Sufficient pressure shall be applied in making the joint to assure that it is home, as described in the installation instructions provided by the pipe manufacturer.

10.6 SIDE SEWER STUBS

A side sewer stub is considered to be that portion of a sewer line that will be constructed between a main sewer line and a property line or easement limit.

All applicable specifications given herein for sewer construction shall be held to apply to side sewer stubs.

3" wide, green metallic side sewer detector tape shall be laid 24" above the pipe bedding, for the entire length of the side sewer which is 8’ deep or less continuing up the side sewer 2”x4” marker post. Identification on the tape shall include the words "Sanitary Sewer".

Side sewers shall be single and installed according to the Standard Details. In no case may the specified side sewers be changed without the approval of the District.

Side sewers shall be connected to the tee provided in the sewer main where such is available utilizing approved fittings or adapters. The side sewer slope shall be a maximum of 100 percent (45^{o}) and a minimum of 2 percent.

The maximum bend permissible at any one fitting shall not exceed 45°. Bends exceeding 45° with any combination of two fittings shall have a straight pipe of not less than two (2) feet in length installed between such adjacent fittings, unless one of such fittings be a wye branch with a cleanout provided on the straight leg. The maximum length of 6-inch sewer stub shall be 100 feet; minimum length shall be 5 feet unless otherwise approved by the District.

Where there are no basements, the minimum side sewer depth shall be six (6) feet below final grade at the property line. The Contractor shall provide for each 6-inch stub a 2" x 4" wooden post that extends from the invert of the 6-inch stub to a point 18 inches (minimum) and 2 feet (maximum) above the existing ground. The exposed area of this post shall be painted white and shall have marked thereon the letters S/S. The elevations of the side sewer connections shall be of sufficient depth to serve all existing and possible future structures.

Where no tee is provided or available at the sewer main, connection shall be made by machine-made tap and suitable saddle, or otherwise as approved by the District Engineer.

10.7 TESTING GRAVITY SEWERS

Before sewer lines are accepted, all lines shall be inspected for line and grade, air tightness, deflection and television inspection. Any corrections required shall be made at the expense of the Contractor.

The first section of pipe not less than 300' in length installed by each crew shall be tested, in order to qualify the crew and/or the material. A successful installation of this first section shall be a prerequisite to further pipe installation by the crew. At the Contractor's option, crew and/or material qualification testing may be performed at any time during the construction process after at least three feet of backfill has been placed over the pipe.

(a) PREPARATION FOR TESTING

Prior to testing the Contractor shall clean and flush all sewer lines.

The Contractor shall conduct preliminary tests to confirm that the section to be tested is in an acceptable condition before requesting the District to witness the test. The manner and time of testing shall be subject to approval of the District.

(b) LINE AND GRADE

Variance from established line and grade shall not be greater than one thirty-second (1/32) of an inch per inch of pipe diameter and not to exceed one-half (1/2) inch, provided that such variation does not result in a level or reverse sloping invert; provided, also, that variation in the invert elevation between adjoining ends of pipe, due to non-concentricity of joining surface and pipe

interior surfaces, does not exceed one sixty-fourth (1/64) of an inch per inch of pipe diameter, or one-half (1/2) inch maximum.

(c) LOW PRESSURE AIR TEST

Gravity sewers shall be tested with low pressure air, by the pressure drop method in accordance with Section 7-17.3(2)F, *Low Pressure Air Test for Sanitary Sewers Constructed of Non Air-Permeable Materials*, of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. The Contractor shall furnish all facilities and personnel for conducting the air test under the supervision of the District. The Contractor may desire to make an air test prior to backfilling for its own purposes. However, the acceptance air test shall be made after backfilling has been completed and compacted.

All wyes, tees or the end of the side sewer stubs shall be plugged with flexible joint caps, or acceptable alternative, securely fastened to withstand the internal test pressures. Such plugs or caps shall be readily removable and their removal shall provide a socket suitable for making a flexible, jointed lateral connection or extension. No double plugs shall be allowed.

Immediately following the pipe cleaning, the pipe installation shall be tested with low pressure air. A maximum reach to be tested shall be the reach between two consecutive manholes. Air shall be slowly supplied to the plugged pipe installation until the internal air pressure reaches 4.0 pounds per square inch greater than the average back pressure of any groundwater above the center of the pipe being tested. At least two minutes shall be allowed for temperature stabilization before proceeding further.

The requirements of this specification shall be considered satisfied if the time required in seconds for the pressure to decrease from 3.5 to 2.5 lbs. per square inch greater than the average back pressure of any groundwater that may submerge the pipe is not less than the listed values shown in the following table:

Allowable Time for Pressure Drop Method

Diameter (inches)	Minimum Test Times for Length of Main (seconds)							
	50'	100'	150'	200'	250'	300'	350'	400'
8	144	286	428	570	712	854	908	908
10	222	444	666	888	1110	1134	1134	1134
12	320	640	960	1280	1360	1360	1360	1462
15	500	1000	1500	1700	1700	1714	1998	2284
18	720	1440	2040	2040	2056	2468	2878	3290
24	1280	2558	2720	2924	3654	4386	5116	5846

According to the following:

$T = 4*K$, for $C < 1$

$T = 4*(K/C)$, for $1 \leq C < 1.75$

$T = 4*(K/1.75)$, for $C \geq 1.75$

Where: $C = 0.0003918*d*L$

$K = 0.0111*d^2*L$

d = Pipe diameter (inches)

L = Pipe length (feet)

T = Minimum test time (seconds)

Note: All test times in the above table are rounded up to the nearest even number.

The use of air pressure for testing sewer lines creates hazards that must be recognized. The Contractor shall be certain that all plugs are securely blocked to prevent blowouts. The air testing apparatus shall be equipped with a pressure release device such as a rupture disc or a pressure relief valve designed to relieve pressure in the pipe under test at greater than 6 lbs. per square inch.

Precautions shall be taken to prevent any damage caused by testing. Any damage resulting shall be repaired by the Contractor at its own expense.

All visible leaks showing flowing water in pipelines or manholes shall be stopped even if the test results fall within the allowable leakage.

(d) DEFLECTION TESTING

If required by the District, all PVC sewer pipes shall be tested for deflection not less than 30 days after the trench has been backfilled and compaction has been completed. The testing shall be conducted by pulling a properly sized mandrel through the pipe in accordance with Section 7-17.3(2)G of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

(e) TELEVISION INSPECTION

All sanitary sewers shall be inspected by the use of a Closed Circuit Television (CCTV) camera. The CCTV footage and corresponding inspection file database (media, mdf, ldf files) shall be exported and provided to the District on a USB flash storage device (thumb drive) before final acceptance of the project. No VHS tapes or DVD-R Discs will be accepted. All inspections shall be conducted in accordance with NASSCO PACP methods, done in Granite Net Version 2.7.2.24 or older, and coded in CUES Basic format with uploadable capability to the District's Granite Net database.

At the beginning of each sewer main inspection, the following information shall be electronically generated and displayed on the CCTV footage:

1. Date of inspection
2. Contractor Company Name
3. Operator Name
4. Upstream Manhole number to downstream manhole number
5. Direction of inspection (upstream or downstream)
6. Pipe material and size

During inspections, the following information shall be electronically generated, automatically updated, and displayed on the CCTV footage:

1. Inspection location in the sewer line in feet from adjusted zero
2. Manhole number to manhole number (with direction of travel US/DS)
3. Date of inspection
4. Elapsed time of inspection

Each individual sewer main inspection, from manhole-to-manhole, shall be recorded on one digital file. If a pipe reach cannot be recorded to a single digital file due to extreme pipe length or obstructions in the pipe, multiple digital files for a single pipe are acceptable. On the other hand, multiple sewer main inspections recorded on a single digital file shall not be accepted.

For all projects (District or private development), CCTV inspections shall be furnished by the Contractor. Contractor shall utilize 1" target or ball and

sewer inspection dye during CCTV recording. Contractor shall use the pipe ID number as shown on the Plans when conducting post-construction CCTV as referenced in the requirements above.

This CCTV inspection will be performed prior to final restoration of the street or easement. The Contractor shall inform the District ahead of time when and which lines are ready to be inspected.

The Contractor shall bear all costs incurred in correcting any deficiencies found during the CCTV inspection including the cost of any additional CCTV inspection that may be required by the District to verify the correction of said deficiency.

The project will not be accepted by the District until the CCTV inspection has been performed.

10.8 TESTING SANITARY SEWER FORCE MAINS

(a) TEST SPECIFICATIONS

The pressure tests shall be performed in the following manner:

Water shall be pumped into the main, bringing the pressure in the main equal to, or greater than, 1.5 times the design operating pressure. After a period of thirty minutes, water shall again be pumped into the main to bring the pressure up to the required test pressure and the quantity of water used during the test shall be accurately measured through a standard water service meter with a sweep unit hand that registers one gallon per revolution. The meter shall be approved by the District prior to testing. The allowable water consumption shall not exceed the quantities given by the following formula:

$$L = \frac{N \times D \times P}{1{,}850}$$

Where:

- **L** = allowable leakage in gallons per hour
- **N** = number of pipe joints
- **D** = pipe diameter in inches
- **P** = test pressure in pounds per square inch

A positive displacement type pump shall be furnished by the Contractor for the testing. Feed for the pump shall be from a container wherein the actual amount of "make-up" water can be measured.

Any leakage caused by defective workmanship or materials shall be repaired and the line shall again be tested to full compliance at the Contractor's expense. Concrete thrust blocking for fittings shall be in place and the concrete strength is sufficiently to withstand the test pressure before starting

the test. Where permanent blocking is not required, the Contractor shall furnish and install temporary blocking and remove it after testing. The test pressure shall be applied at the low end of the section of pipe being tested. Air in the pipe shall be vented at all high points.

All field equipment for testing as above described shall be furnished and operated by the Contractor, subject to approval by the District.

The Contractor shall conduct preliminary tests and assure itself that the section to be tested is in an acceptable condition before requesting the District Engineer to witness the test.

(b) FORCE MAIN THRUST BLOCKS

All fittings, such as bends, shall be blocked with concrete in order to prevent movement and separation of pipe joints in accordance with the Water Standard Details for concrete thrust blocking. Sufficient time shall be allowed for the concrete to attain sufficient strength before commencement of pressure tests.

10.9 MANHOLE VACUUM TESTING

All manholes shall be vacuum tested in accordance with ASTM C1244-05 to verify water tightness. All manhole penetrations shall be blocked or sealed and braced prior to the testing in order to prevent pipes, boots, gaskets or any other materials from being drawn into the manhole. A vacuum of ten (10) inches of Hg shall be drawn on the manhole and the vacuum pump shut off. The time for the vacuum on the manhole to drop from ten (10) inches of Hg to nine (9) shall be measured and the manhole shall have passed the vacuum test if the time measured is greater than shown in the following table:

Minimum Test Times for MH Vacuum Testing

MH Diameter (inches)	Depth (feet)									
	8 or less	10	12	14	16	18	20	22	24	26
	Time (seconds)									
48	20	25	30	35	40	45	50	55	59	64
54	23	29	35	41	46	52	53	64	64	75

If the time required for the pressure to drop from 10 inches of Hg to 9 inches of Hg is less than the value indicated in the table, the manhole shall be rejected by the District and shall be repaired or replaced and re-tested by the Contractor.

10.10 LAYING DUCTILE IRON WATER MAIN

All pipes shall be installed in accordance with these specifications and the instructions of the manufacturer subject to the approval of the District.

Unless otherwise indicated on the plans, minimum cover shall be 3' for 8" diameter pipe and smaller, and 4' for pipe that is larger than 8" in diameter.

All pipe ends shall be square with the longitudinal axis of the pipe and any damage to the ends shall be cut off before installation, if approved by the District. Where necessary to cut the pipe, the pipe shall be cut with approved cutting tools.

The pipe shall be laid in a straight grade through localized breaks in grade, the excavation shall be deepened gradually at changes in the street grades so that there are no abrupt changes in pipeline grade. To maintain the required alignment, use short lengths and deflect the joints or use necessary bends.

Each pipe section shall be carefully lowered into place in the ditch after inspecting it for defects and removing any gravel or dirt, etc., from the interior of the pipe.

Where it is necessary to cross sanitary sewer or storm sewer trenches, all trench backfill shall be removed and replaced with mechanically compacted pit run material or CDF in order to provide a uniform support for the full length of the pipe.

A 10-foot horizontal separation must be maintained between all sanitary sewer lines and water lines, unless otherwise approved. A 3-foot minimum horizontal separation shall be maintained between other underground utilities, unless otherwise approved.

All pipe shall be kept free of gravel, dirt and other contaminants. Temporary pipe plugs must be installed at all exposed pipe ends at the end of each working day. The pipe plug must be a water tight, mechanical device, and shall be cleaned thoroughly prior to installation.

10.11 GALVANIZED IRON PIPE

Galvanized iron pipe and fittings shall be threaded. Joints shall be made up in accordance with good plumbing practice. All threads shall be coated with pipe thread sealer before connecting.

10.12 CONCRETE BLOCKING

Concrete blocking shall be 2500psi minimum strength, cast in place and have a minimum of 1/2 square foot bearing against the fitting. Blocking shall bear against fittings only and shall be clear of joints so as to permit taking up or dismantling joint. The Contractor shall install blocking which is adequate to withstand full test pressure as well as to continuously stand operating pressures under all conditions of service. For concrete blocking based upon a 250 psi test pressure, see the Standard Details.

10.13 FIRE HYDRANT INSTALLATION

Fire hydrant shall be set as shown in the Standard Detail. Mega-lugs or stainless steel tie rods shall be used to restrain the ductile iron pipe between the hydrant foot and the 6" hydrant valve.

The location of the fire hydrant shall be shown on the plans to determine length of hydrant run required. The hydrant shall be set on a solid concrete block 4"x8"x16" and a minimum of 6 cubic feet of clean gravel shall be placed around the base of the hydrant for a drain pocket.

Fire hydrants shall be set plumb and with the ports oriented as directed by the Fire Protection District having jurisdiction over said area.

In some instances, it may be necessary to make a cut or provide a fill to set a hydrant. Where this occurs, the area for at least a three (3) foot radius around the hydrant shall be graded and leveled, and the cut slopes or fill slopes shall be neatly graded by hand, unless otherwise approved by the District and the Fire Chief.

No tool other than an approved hydrant-operating wrench shall be used when operating hydrants.

Fire hydrants shall be prime-coated and finish coated in accordance with the Standard Detail.

10.14 GUARD POST INSTALLATION

Fire hydrant guard posts shall be installed if indicated on the plans or specified by the District. Guard posts shall be set with the top of the guard posts level with the bonnet flange of the fire hydrant. They shall be plumb, and where two posts are used at a hydrant, they shall be set with their tops at the same elevation. The posts shall be coated in the same manner and with the same color as the fire hydrants.

10.15 GATE VALVE AND BUTTERFLY VALVE INSTALLATION

Gate and butterfly valves shall be set in the ground vertically and shall be opened and shut under pressure to check operation and, at the same time, show no leakage. Valves 8-inches and larger that are not flanged to other fittings shall be blocked in accordance with the Standard Blocking Details.

10.16 VALVE BOX INSTALLATION

Valve boxes shall be set flush to the adjacent finished grade.

For valves located outside of paved areas, a cement or asphalt pad for the valve box shall be constructed according to the Standard Detail. The cement or asphalt pad shall be provided for all valves, unless otherwise directed.

10.17 AIR AND VACUUM RELIEF VALVE INSTALLATION

Air and vacuum relief valve assembly shall be installed as shown on the Standard Detail.

Location of the air release valves shall be at the high points of the line. Water line must be constructed so that the air release valve may be installed in a convenient location.

10.18 2-INCH BLOW-OFF INSTALLATION

2” Blow-offs shall be installed for 12” diameter pipe and smaller in accordance with the Standard Detail.

10.19 TRACER WIRE

All water mains and water services installed shall have blue 14-gauge solid copper wire with polyethylene insulation. Wire shall be placed in the trench on top of the water main and the ends brought into the valve boxes, per the Standard Detail. Tracer wire shall also be wrapped around the water service line and brought up into the meter box. All connections or splicing shall be made with District approved split-bolt wire connectors.

10.20 WATER SERVICE INSTALLATION

All service installations shall be according to the Standard Details.

For ductile iron and cast iron water mains larger than 4” diameter, direct tapping of 1" standard corporation stop threaded tap will be required, saddles will not be allowed on ductile iron and cast iron pipe larger than 4” diameter for 1” water services. Tapping of live water mains for water service installations shall be accomplished with approved tapping tools designed for the express purpose of tapping live water mains.

Hand drills with hole saws, or other tools or methods, for the installation of service saddles will be allowed for all other water main sizes and materials. Additionally, for larger diameter water services (1-1/2” and 2”), saddles will be required regardless of water main size or type. See the Standard Details and Material Specifications for additional information.

10.21 HYDROSTATIC TESTS

After backfilling the water main with sufficient material to prevent movement of the pipeline and allowing sufficient time for the concrete blocking to set, the water

main shall be pressure tested in convenient lengths as directed by the District. In general, new mains shall be tested between valves and large sections of untested main will not be permitted to accumulate.

The pipeline shall be filled by the District with water slowly and air expelled from the pipeline prior to starting the test. All pipelines shall be tested at a hydrostatic pressure of 250 psi at high point. All necessary pump, valves, meter gauges, piping, 2" blow-offs, hose and labor required shall be furnished by the Contractor.

The pressure tests shall be performed in the following manner:

Water shall be pumped into the main, bringing the pressure in the main up to the required test pressure. After a period of one hour, water shall again be pumped into the main to bring the pressure up to the required test pressure and the quantity of water used during the test shall be accurately measured through a standard water service meter with a sweep unit hand that registers one gallon per revolution. The meter shall be approved by the District prior to any testing. The allowable water consumption shall not exceed the quantities as shown in the following table.

Allowable Water Consumption

Pipe Diameter (inches)	Allowable Water Leakage (gallons per hour/1000 feet of pipe)
2	0.21
4	0.42
6	0.63
8	0.84
12	1.26
16	1.68
18	1.89
Larger Sizes	As determined by District

All visible leakage shall be corrected and all new valves installed under these specifications shall be tight.

Any pressure drop during the test period shall not be abrupt under any circumstances and the District shall be the sole judge as to whether the pressure drop is acceptable for the conditions existing in the pipeline being tested.

Whenever repairs or corrections are necessary, the pressure test shall be repeated to provide acceptability.

10.22 STERILIZATION AND FLUSHING OF WATER MAIN

Upon successful completion of the hydrostatic test, all new water mains and repaired portions of, or extension to, mains shall be flushed and sampled for purity per AWWA C651-14. The District will collect two consecutive samples for testing taken 24 hrs apart and will forward the bacteriological test results to the Contractor. Only upon receipt of two satisfactory bacteriological reports will the Contractor be allowed to make connections to the existing main.

Water supply for filling, testing and flushing of the new mains will be available from the existing distribution system. The Contractor shall make arrangements with the District for the necessary flushing of the pipeline. Opening of valves and use of water from the District's system will be done by the District and water for flushing will be provided by the District.

Taps required by the Contractor for temporary or permanent release of air, chlorination or flushing purposes shall be provided by the Contractor as a part of the construction of water mains. See NUD Standard Water Detail #17 for more information.

(a) DECHLORINATION AND DISPOSAL OF TREATED WATER

Unless otherwise specified, the District shall be responsible for disposal of treated water flushed from mains and shall neutralize the wastewater for protection of aquatic life in the receiving water before disposal into any natural drainage channel.

(b) REQUIREMENT OF CHLORINE

Before being placed into service, all new mains and repaired portions of, or extensions to, existing mains shall be chlorinated by the Contractor so that a chlorine residual of not less than 10 ppm remains in the water after standing 24 hours in the pipe.

The initial chlorine content of the water shall be not less than 50 ppm (note that ppm = mg/L).

(c) FORM AND METHOD OF APPLIED CHLORINE

Chlorine shall be applied by one of the following methods, to give a dosage of not less than 50 ppm of available chlorine.

1. DRY CALCIUM HYPOCHLORITE

   As each length of pipe is laid, sufficient high test calcium hypochlorite (65-70% chlorine) shall be placed in the pipe to yield a dosage of not less than 50 ppm available chlorine, calculated on the volume of the water which the pipe and appurtenances will contain.

The number of ounces of 65% test calcium hypochlorite required for a 20-foot length of pipe equals $0.008431D^2$, in which "D" is the diameter in inches.

2. LIQUID CHLORINE

   A chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device, or the dry gas may be fed directly through proper devices for regulating the rate of flow and providing effective diffusion of the gas into the water within the pipe being treated. Chlorinating devices for feeding solution of the chlorine gas, or the gas itself, must provide means for preventing the backflow of water into the chlorine.

3. CHLORINE-BEARING COMPOUNDS IN WATER

   A mixture of water and high-test calcium hypochlorite (65-70% Cl) may be substituted for the chlorine gas-water mixture. The dry powder shall first be mixed as a paste and then thinned to a 1 per cent chlorine solution by adding water to give a total quantity of 7.5 gallons of water per pound of dry powder. This solution shall be injected in one end of the section of main to be disinfected while filling the main with water (continuous-feed method, see below).

4. SODIUM HYPOCHLORITE

   Sodium hypochlorite, commercial grade (15% Cl) or in the form of liquid household bleach (5% Cl) may be substituted for the chlorine gas-water mixture.

   This liquid chlorine compound may be used full strength or diluted with water and injected into the main in correct proportion to the fill water so that dosage applied to the water will be at least 50 ppm.

The following methods and tables as outlined in AWWA C651-14 are included for reference. Note that ppm = mg/L.

- The continuous-feed method consists of completely filling the main with potable water, removing air pockets, then flushing the main at a minimum of 3.0 ft/sec to remove particulates, and refilling the main with potable water that has been chlorinated to 25 ppm. After a 24-hr holding period in the main there shall be a free chlorine residual of not less than 10 ppm. Please see the table below and AWWA C651-14 for more information.

Table 4 Chlorine required to produce an initial 25-mg/L concentration in 100 ft (30.5 m) of pipe by diameter

Pipe Diameter		100% Chlorine		1% Chlorine Solution	
in.	*(mm)*	*lb*	*(g)*	*gal*	*(L)*
4	(100)	0.013	(5.9)	0.16	(0.6)
6	(150)	0.030	(13.6)	0.36	(1.4)
8	(200)	0.054	(24.5)	0.65	(2.5)
10	(250)	0.085	(38.6)	1.02	(3.9)
12	(300)	0.120	(54.4)	1.44	(5.4)
16	(400)	0.217	(98.4)	2.60	(9.8)

- The slug method consists of completely filling the main to eliminate air pockets, flushing the main at a minimum of 3.0 ft/sec to remove particulates, then slowly flowing a slug of water dosed with chlorine to a concentration of 100 ppm through the main. The slow rate of flow ensures that all parts of the main and its appurtenances will be exposed to the highly chlorinated water for a period of not less than 3 hours. Please see AWWA C651-14 for more information.

  The table below from Appendix B of AWWA C651-14 provides the amount of chemical required to produce a chlorine concentration of 200 ppm. In order to obtain the 100 ppm as outlined in the slug method, divide the amount of chemical required in the table (gallons or pounds) in half.

Table B.2 Amounts of chemicals required to produce chlorine concentration of 200 mg/L in various volumes of water*

Volume of Water		Liquid Chlorine Required		Sodium Hypochlorite Required						Calcium Hypochlorite Required	
				5% Available Chlorine		10% Available Chlorine		15% Available Chlorine		65% Available Chlorine	
gal	*L*	*lb*	*(g)*	*gal*	*(L)*	*gal*	*(L)*	*gal*	*(L)*	*lb*	*(g)*
10	(37.9)	0.02	(9.1)	0.04	(0.15)	0.02	(0.08)	0.02	(0.08)	0.03	(13.6)
50	(189.3)	0.10	(45.4)	0.20	(0.76)	0.10	(0.38)	0.07	(0.26)	0.15	(68.0)
100	(378.5)	0.20	(90.7)	0.40	(1.51)	0.20	(0.76)	0.15	(0.57)	0.30	(136.1)
200	(757.1)	0.40	(181.4)	0.80	(3.03)	0.40	(1.51)	0.30	(1.14)	0.60	(272.2)

*Amounts of sodium hypochlorite are based on concentrations of available chlorine by volume. For either sodium hypochlorite or calcium hypochlorite, extended or improper storage of chemicals may have caused a loss of available chlorine.

(d) PREVENTING REVERSE FLOW

During flushing, filling and testing, the District shall make the connections to the existing distribution system and the new water pipelines and shall utilize a backflow prevention device approved by the State Department of Health.

(e) RETENTION PERIOD

Treated water shall be retained in the pipe for a minimum of 24 hours and a maximum of 48 hours. After this period, the chlorine residual at pipe extremities and at other representative points shall be at least 10 parts per million.

(f) CHLORINATING VALVES AND HYDRANTS

In the process of chlorinating newly-laid pipe, all hydrant valves and other appurtenances shall be opened while the pipeline is filled with the chlorinating agent and under normal operating pressure.

(g) CHLORINATING FINAL CONNECTIONS TO EXISTING WATER MAINS AND SERVICE CONNECTIONS

The chlorinating procedure to be followed shall be as specified by AWWA. All closure fittings shall be swabbed with a 50 ppm minimum chlorine solution.

(h) FINAL FLUSHING AND TESTING

Before placing the lines into service, two (2) consecutive satisfactory bacteriological test reports shall be received.

(i) REPETITION OF FLUSHING AND TESTING

If the initial round of bacteriological testing, two consecutive tests as outlined in 10.22 (h) above, result in an unsatisfactory outcome, any repeat flushing and testing that is completed by the District shall be paid for by the contractor.

If the second round of bacteriological tests result in an unsatisfactory outcome, rechlorination of the installed water main will be required either by the continuous-feed method or slug method as outlined in AWWA C651-14 and Section 10.22 (c). The costs for subsequent redisinfection and testing shall also be the responsibility of the Contractor.

10.23 CONNECTION TO EXISTING WATER MAIN

The Contractor shall not operate any gate valves on the water system. Connections to the existing main shall not occur until satisfactory purity tests have been obtained and without approval of the District.

The Contractor shall make the necessary arrangements with the District for the connection to the existing water main.

Water service outages shall be limited to the hours of 8:00 AM to 3:30 PM in order to minimize inconvenience to water users and maintain fire protection for the area. Once work is started on a connection, it shall proceed continuously

without interruption and as rapidly as possible until completed. The Contractor shall provide a minimum of 72 hours notice to the District prior to the required shutdown. The District will alert affected property owners of the proposed service interruptions.

Existing mains shall be kept in operation until the new main has been constructed, satisfactorily tested and disinfected and is ready for operation. Connections to the existing system shall then be made.

All material used for the connection shall be thoroughly sterilized by swabbing the interior with a chlorine solution of 50 ppm.

10.24 STEEL CASING

Steel casing shall be in accordance with the Materials of Construction and the Standard Details.

Sizing and wall thickness of casing shall be approved by the District.

Jacking and boring of casing pipe shall be accomplished in such a manner that there will be no damage to the existing improvements. Boring shall be accomplished by mechanical augering or drilling of the soil. The casing shall be jacked close enough behind the boring operation so there is no caving of soil from above. Removal of the material from the bored hole by washing or sluicing will not be permitted.

If excess voids are created around the casing, holes shall be drilled through the casing and the voids shall be pumped full of cement grout. All excess excavated material shall be disposed of in a manner acceptable to the District and permitting agencies.

The carrier pipe shall be supported on casing spacers at 10 ft. maximum spacing and shall be installed with restrained joints. See the Engineering Specifications, Materials of Construction and the Standard Detail for additional information.

10.25 EXCAVATION AND BACKFILL FOR UTILITY CONSTRUCTION

(a) TEMPORARY TRAFFIC CONTROL

The Contractor shall make suitable, safe, and adequate provision for necessary traffic around, over, or across the work in progress and shall schedule pavement patching to follow after backfill is completed as directed by regulatory agency.

The contractor shall submit a traffic control plan for review and approval by the District and the permitting agency prior to beginning work. Traffic control shall conform to Section 1-10 of the 2016 Standard Specifications for Road,

Bridge and Municipal Construction of the Washington State Department of Transportation.

(b) EXCAVATING IN PAVED AREAS

Prior to excavating in paved areas, the existing road surface shall be cut a minimum of 1' back from the outer edge of the excavation with approved cutting equipment. The cuts are to be made in clean, straight lines to insure a minimum of damage to the existing pavements. All cuts in existing concrete pavement are to be made with a concrete saw, except that where the concrete has been overlaid with asphalt, the pavement may be drilled on three (3) inch centers 1' (minimum) from the outer edge of the excavation on each side of the trench section. If the Contractor fails to adequately protect the cut edges during construction, it will be required, at its own expense, to re-cut the edges a minimum of 1’ back from the edge of excavation prior to repairing the pavement.

(c) TRENCH SAFETY AND EXCAVATION

Contractor shall provide and install trench safety systems such as shoring or trench boxes or shall employ construction techniques such back sloping that meet the applicable State and Federal safety regulations.

Use and removal of trench safety systems shall be accomplished in such a manner that there will be no damage to the work or to the other properties.

Maximum and minimum trench widths shall be in accordance with the dimensions shown on the Standard Details.

In all cases, trenches must be of sufficient width to permit proper joining of the pipe and backfilling of material along the sides of the pipe. Trench width at the surface of the ground shall be kept to the minimum amount necessary for proper installation of the work in a safe manner.

Trenches wider than the maximum specified may result in a greater load on the pipe and, consequently, if the maximum trench width is exceeded by the Contractor, the Contractor shall, at its own expense, provide pipe of higher strength classification or provide a higher class of bedding where necessary to assure that the pipe will not be overloaded.

The maximum length of open trench permissible on any line, in advance of pipe laying, will be 100 feet for sewer pipe and 250 feet for water mains, except at the end of each day's operations, there shall be no trench in which pipe laying, embedment and backfill have not been completed.

Upon completion of work each day, all open trenches shall be completely backfilled, leveled and temporarily patched, graveled, fenced, or sheeted as required by the regulatory agency and the District.

Excavation for manholes, valves, structures and other appurtenances shall be sufficient to provide enough room for compaction equipment between the outside surfaces and the sides of the excavation.

All material excavated from trenches and stored adjacent to trench or in a roadway or public thoroughfare shall be maintained in such manner that will cause a minimum of inconvenience to public travel. Provision shall be made for traffic where such is necessary. Free access shall be provided to all fire hydrants, water valves, and meters and clearance shall be left to enable the free flow of storm water in all gutters, conduits, and natural water courses. Where the trench bottom is a material which is unsuitable for providing an adequate foundation or material which will make it difficult to obtain uniform bearing for the pipe such material shall be removed and replaced with “foundation gravel", as previously defined.

(d) PIPE BEDDING AND TRENCH BACKFILL

The placement and compaction of the pipe bedding and trench backfill shall be in accordance with the requirements of the various applicable sections of these specifications and as shown on Standard Details.

Where excavated material is not approved for backfill or bedding, imported backfill gravel conforming to the Materials of Construction shall be provided

Where governmental agencies other than the District have jurisdiction over roadways, the backfill shall be in accordance with the agencies requirements.

Bedding material shall be carefully placed and firmly compacted to provide a firm, uniform cradle for the pipe. The minimum thickness of the layer of bedding material required shall be 4 inches under the bell for all pipe sizes of 27 inches diameter and smaller, 6 inches for all pipe sizes 30 inches diameter and larger and 6 inches under the bell of the pipe for all diameter pipes where rock is excavated. The Contractor shall provide firm, continuous support for the pipe.

After the pipe laying operation, additional bedding material shall be placed and compacted by hand tools for the full width of the trench to a height of 6" above the top of the pipe.

In backfilling the trench, the Contractor shall take all necessary precautions to protect the pipe and protective coating from any damage or shifting of the pipe.

No timber bracing, lagging, sheathing or other lumber shall be left in any excavation.

At all roadway and driveway crossings and within existing paved rights-of-way and in such additional locations as may be directed by the District, the trench

shall be immediately backfilled after the pipe is installed and inspected and shall be immediately provided with a temporarily graveled surface and continually maintained on a daily basis until replaced with permanent repair as required.

The Contractor shall be responsible for restoring to a condition equal to the prior condition of any and all existing utilities, culverts, ditches, drains, landscaping or other facilities which are damaged as a result of the Contractor's operation.

10.26 COMPACTION OF TRENCH BACKFILL

(a) TRENCHING PARALLEL TO ROAD ALIGNMENT

All trench backfill under roadway shall be mechanically compacted to 95% of maximum dry density.

In any trench in which 95% density cannot be achieved with existing backfill, the existing backfill shall be replaced with imported gravel backfill as specified in the Engineering Specifications. The imported gravel backfill shall be mechanically compacted to 95% of maximum dry density for the full depth of the trench.

All backfill material shall be compacted in 24” maximum lifts using heavy machinery or 12” maximum lifts using hand equipment.

(b) TRENCHING TRANSVERSE TO ROAD ALIGNMENT

For transverse trenching locations, such as side sewers and intersections, the entire trench shall be backfilled with 1-1/4“ minus crushed rock per the Engineering Specifications and placed in the maximum lifts listed above in Section 10.26 (a) and compacted to 95% of maximum dry density.

The moisture content of all soils used shall be within 2% of optimum. All densities shall be determined by the ASTM D-1557 (Modified Proctor) test procedure. The District will conduct on-site materials sampling and in-place density testing for all District projects. For private development projects, all testing is to be provided and paid for by the developer. The Contractor shall coordinate the testing with the District and shall provide convenient and safe access to the site and the trench for sampling and testing.

10.27 REPLACING ROAD SURFACE

The Contractor shall restore all roadway and driveway surfaces and features excavated or disturbed to a condition acceptable to the District and the governmental agency having control of the road.

All work in County right-of-way shall be subject to the approval of the King County. All work in the City street right-of-way shall be subject to approval of the City.

Paving restoration consists of two steps. The first step is installation of a temporary cold mix patch to be maintained until all work and other restoration is complete or up to 30 days. The second step is installation and sealing of the permanent pavement trench patch.

This work shall consist of the preparation, placing and compaction of subgrade and the patching of various types of pavement cuts to the complete resurfacing of roadways, the performance of which shall be in accordance with the requirements outlined herein. Roadway surface restoration and patching shall be in accordance with the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation, unless specifically directed otherwise by the District.

Before patching material is placed, all pavement cuts shall be trued so that marginal lines of the patch will form a rectangle with straight edges and vertical faces a minimum of one (1) foot back from the maximum trench width.

The Contractor shall maintain proper signs, barricades, lights and other warning devices in accordance with the traffic control plan.

(a) GRAVEL BASE

Gravel base for road restoration shall conform to the Materials of Construction specifications and shall be placed and compacted in conformance with Sections 2 and 9 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. Gravel base shall be placed and compacted before succeeding course material is placed.

Gravel base shall be used as shown on the plans or as directed by the District.

(b) ASPHALT CONCRETE SURFACING

Asphalt concrete surfacing or repair shall conform to the Materials of Construction and shall be placed in accordance with Section 5-04 the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation and the Standard Specification Drawing for Permanent Asphalt Concrete Patch. All edges and joints of asphalt concrete pavement repair shall be sealed with asphalt cement. After pavement is in place, all joints shall be sealed with SS-1, or equal.

(c) CEMENT CONCRETE PAVEMENT

Concrete shall be as specified in the Materials of Construction and shall be placed in accordance with Section 5-05 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. Concrete cylinder samples will be taken by the District for the purpose of testing the compressive strength of the concrete to meet the standards as defined by the regulatory agency. Subgrades shall be prepared as shown on the plans and in compliance with the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

All reinforcing steel shall conform with and be placed in accordance with Section 5-05 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation and shall conform to the requirements of ASTM Designation A-15 and A-305, latest revisions.

(d) RIGID-TYPE PAVEMENTS RESURFACED WITH ASPHALT

Those areas that now have a Portland cement concrete base and are surfaced with the asphalt concrete mat shall be replaced in kind. The surface of the cement concrete portion of the patch shall be left low enough to accommodate the asphalt portion of the patch. Brush finishing will not be required. Joints shall be placed as directed by the District. The asphalt concrete surface mat and the Portland cement concrete base shall be as specified in the Materials of Construction. Both the base and the surface mat shall be carefully prepared, placed and cured in full compliance with Section 5-04.3 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

Asphalt concrete or bituminous plant mix shall not be placed until the day after the cement concrete has been placed unless otherwise permitted by the District. The edges of the existing asphalt pavements and castings shall be painted with hot asphalt cement or asphalt emulsion immediately before placing the asphalt patching material. The asphalt concrete pavement shall then be placed, leveled and compacted to conform to the adjacent paved surface. Immediately thereafter, all joints between the new and original asphalt pavement shall be painted with hot asphalt or asphalt emulsion and be covered with dry paving sand before the asphalt solidifies.

(e) SHOULDER, GRAVEL SURFACES

Shoulders, gravel driveways, and all other gravel surfaced areas disturbed by construction shall be repaired with a minimum 2 inch lift of 3/4 inch minus crushed rock (top course crushed surfacing). Immediately prior to placement of the gravel, the drainage ditch, shoulders and/or driveways shall be graded

to the original smooth contours existing prior to the construction of sewer lines in the area. The gravel shall then be placed and compacted in accordance with the applicable State Highway Standard Specifications.

Crushed surfacing shall be in accordance with Materials of Construction.

Final crushed surfacing shall be placed within 30 days after construction disturbance unless otherwise specified or directed by the District.

10.28 ADJUSTMENT OF NEW AND EXISTING UTILITY STRUCTURES TO GRADE

This work consists of constructing and/or adjusting all new and existing utility structures encountered on the project to finished grade.

For asphalt overlay areas called for to be planed, all existing utility covers shall be lowered below the proposed planing depth prior to planing.

The castings shall not be adjusted to final grade until the pavement is completed, at which time the center of each casting shall be relocated from references previously established by the Contractor. The pavement shall be cut as further described and base material removed to permit removal of the casting. The casting shall then be brought to proper grade.

Prior to commencing manhole adjustments, a plywood and visqueen cover, as approved by the District, shall be placed over the manhole base and channel to protect them from debris.

The asphalt concrete pavement shall be cut and removed to a neat circle, the diameter of which shall not exceed 6" from the outside diameter of the casting frame. The casting frame shall be brought up to desired grade, which shall conform to surrounding road surface. For manholes, adjustment to desired grade shall be made with the use of concrete adjustment rings or bricks. No iron adjustment rings will be allowed. An approved class of mortar (one part cement to two parts of plaster sand) shall be placed between adjustment rings or bricks and casting frame to completely fill all voids and to provide a watertight seal. No rough or uneven surfaces will be permitted inside or out. Adjustment rings or brick shall be placed and aligned so as to provide vertical sides and vertical alignment of ladder steps (if steps are necessary).

Check manhole specifications and the Standard Details for minimum and maximum manhole adjustment and step requirements. Special care shall be exercised in all operations in order not to damage the manhole, frames and lids or other existing facilities.

The annular space between the casting and the pavement shall be filled with crushed rock and compacted with hand tamper to within 6" of the top of the frame. Asphalt concrete patching shall not be carried out during wet ground

conditions or when air temperature is below 50°. Asphalt concrete mix must be at the temperature as specified by the regulatory agency when placed. Before making the asphalt concrete repair, the edges of the existing asphalt concrete pavement and the outer edge of the casting shall be tack coated with hot asphalt cement. The remaining 6" shall then be filled with Class B asphalt concrete and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density and uniformity of grade. The joint between the patch and the existing pavement shall then be carefully painted with hot asphalt cement or asphalt emulsion and shall be immediately covered with dry paving sand before asphalt cement solidifies. Before acceptance of a job, castings shall be cleaned of all debris and foreign material. All ladders must be cleaned free of grout. Any damage occurring to the existing facilities due to the Contractor's operations shall be repaired at its own expense.

10.29 HAZARD OF ASBESTOS CEMENT PIPE REMOVAL

To remove existing asbestos cement pipe from the trench, permitting as determined by regulatory agencies is required.

10.30 RIGHT-OF-WAY MONUMENTS AND LOT MARKERS

Capital Improvement Program (CIP) Projects

For monuments identified to be removed or destroyed as shown on the CIP Plans, the District will schedule a Professional Land Surveyor (PLS) to file the required permit forms with the Department of Natural Resources (DNR), as required by RCW 58.09.130 and WAC 332-120. The District's PLS will set tie-out reference points for the monument(s) identified on the CIP Plans to be removed or destroyed. The contractor shall protect these reference points until the monument(s) have been reset. No construction work affecting monumentation shall commence until DNR has approved the permit. Upon completion of work affecting monumentation, the form "Completion Report for Monument Removal or Destruction" shall be signed by the District's PLS and submitted to DNR.

During construction, the Contractor shall take all necessary precautions to locate and protect existing markers, property corners, monuments and other reference points not identified on the CIP Plans to be removed or destroyed. Under no circumstances shall work be performed which would remove, adjust, or destroy any such markers without the DNR permit, as required by RCW 58.09.130 and WAC 332-120. In the event that the Contractor disturbs or destroys any existing marker, property corner, monument or other reference point not identified to be removed or destroyed on the CIP Plans, the Contractor shall bear any and all costs for permitting, survey, resetting, legal claims and filing of State forms as required by RCW 58.09.130 and WAC 332-120.

Developer Extension Projects

Under no circumstances shall work be performed which would remove, adjust, destroy or otherwise make a survey point or monument no longer visible or readily accessible without the DNR survey monument permit. The Developer's Contractor shall not remove or destruct any monument until the monument has been tied out and the Developer has provided the District with a copy the Department of Natural Resources (DNR) permit authorizing the removal or destruction of the monument in accordance with WAC 332-120.

The Developer's Contractor shall protect all monument tie-out reference points and witness monuments until the monument has been reset and the Developer has completed the DNRs report form, provided the District a copy, and forwarded it to the DNR in accordance with WAC 332-120.

10.31 RE-DESIGN OF LINES

Should interferences or obstructions create construction difficulties that the District determines shall require redesign or relocation of the lines, the District will require the necessary revised drawings.

10.32 GRASS SEEDING AND SOD

Areas of existing grass and all areas disturbed by construction which do not receive a specific type of restoration, such as paving, rock, or bark, shall be reseeded, or restored with sod as specified.

The Contractor shall be responsible for providing a finished grass area, which meets the approval of the property owner and the District.

The Contractor shall maintain the grass, including furnishing water and mowing, until project approval, unless otherwise specified.

(a) TOPSOIL

All areas to be seeded, reseeded or sodded shall be provided with 4" minimum depth of topsoil. Topsoil used shall be imported and shall be subject to approval by the District. Prior to providing topsoil, all areas shall be raked smooth and all debris removed and disposed. The topsoil shall be tilled to a depth sufficient to key into the subsoil, raked to a smooth and even grade without low areas to trap water and compacted.

The Contractor shall notify the engineer not less than 24 hours in advance of any seeding or sodding operation and shall not begin seeding or sodding until areas prepared or designated have been approved by the District.

(b) SEEDING AND FERTILIZING

Prior to beginning seeding operations, the contractor shall submit seed mix and rate of application to the District for approval.

Seeding shall not be done during windy weather or when the ground is frozen, excessively wet or otherwise untillable.

Seed and fertilizer may be sown by one of the following methods:

1. An approved hydroseeder in accordance with the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

2. Hand methods where allowed by the District in areas that are impossible to hydroseed. Seed shall be applied after the fertilizer and shall be raked into the top one (1) inch of the fertilized topsoil. Immediately following the raking of the seed into the soil, the total area shall be covered with District approved mulch and shall be rolled with a water-filled roller.

The seed shall have a tracer added to visibly aid uniform application. The tracer shall not be harmful to plant and animal life. If wood cellulose fiber is used as a tracer the application rate shall not exceed 250 lbs. per acre.

Fertilizer shall be provided and applied in accordance with the manufacturer's recommendations. The Contractor shall submit for approval a guaranteed fertilizer analysis label for the specified product.

Unless otherwise specified, seeding, fertilizing and mulching shall be completed between April 15 to June 1 and August 15 to October 15.

(c) GRASS SOD

Sod shall be provided at all locations of established lawn disturbed by construction activities and at other locations as indicated on the plans.

Sod strips shall be placed within 48 hours of being cut. Placement shall be without voids and the end joints shall be staggered. The sod shall be rolled with a smooth roller following placement.

10.33 FINISHING AND CLEANUP

Before acceptance of the project, all pipes, manholes, catch basins, and other appurtenances shall be cleaned of all debris and foreign material. After all other work on the project is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas

shall be neatly finished to the lines, grades and cross-sections shown on the plans and as hereinafter specified.

In undeveloped areas, the entire area which has been disturbed by the construction shall be shaped so that, upon completion, the area will present a uniform appearance, blending into the contour of the adjacent properties. All other requirements outlined previously shall be met. Slopes, sidewalk areas, planting areas and roadway shall be smoothed and finished to the required cross-section and grade.

Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. All graded areas shall be true to line and grade as shown on the typical sections and as required by the District.

All rocks in excess of one (1) inch diameter shall be removed from the entire construction area and shall be disposed of the same as required for other waste material. In no instance, shall the rock be thrown onto private property. Overhang on slopes shall be removed and slopes dressed neatly so as to present a uniform, well sloped surface.

All excavated material at the outer lateral limits of the project shall be removed entirely. All debris resulting from clearing and grubbing or grading operations shall be removed and disposed.

Drainage facilities, such as inlets, catch basins, culverts, and open ditches, shall be cleaned of all debris resulting from the Contractor's operations.

All pavements and oil mat surfaces, whether new or old, shall be thoroughly cleaned. Existing improvements, such as Portland cement concrete curbs, curb and gutters, walls, sidewalks, and other facilities which have been sprayed by the asphalt cement shall be cleaned to the satisfaction of the District.

Castings for manholes, monuments, water valves, lamp poles, vaults, and other similar installations which have been covered with the asphalt material shall be cleaned to the satisfaction of the District.

APPENDIX D

GEOTECHNICAL REPORTS

City of Kirkland

associated
earth sciences
incorporated

Limited Environmental Subsurface Assessment

116TH AVENUE NE & NE 124TH STREET INTERSECTION

Kirkland, Washington

Prepared For:

PARAMETRIX

Project No. 20190348V001
April 24, 2020

Associated Earth Sciences, Inc.
911 5th Avenue
Kirkland, WA 98033
P (425) 827 7701

associated earth sciences incorporated

April 24, 2020
Project No. 20190348V001

Parametrix
719 2nd Avenue, Suite 200
Seattle, Washington 98104

Attention: Cindy Clark

Subject: Limited Environmental Subsurface Assessment
116th Avenue NE & NE 124th Street Intersection
Kirkland, Washington

Dear Ms. Clark:

Associated Earth Sciences, Inc. (AESI) is pleased to present the enclosed copy of the above-referenced report. This report summarizes the results of our Limited Environmental Subsurface Assessment for the 116th Avenue NE & NE 124th Street Intersection project in Kirkland, Washington. The environmental assessment was focused along the eastern portion of the former ARCO gas station located at 11450 NE 124th Street, parallel to 116th Avenue NE. The scope of services was completed in general accordance with the proposal provided by AESI, dated September 13, 2019, and authorized by you by means of a subcontractor agreement for professional services, executed by you on October 22, 2019.

We have enjoyed working with you on this study and are confident that our findings will aid in the future development along the 116th Avenue NE & NE 124th Street Intersection. If you should have any questions regarding this report, or if we can be of additional help to you, please do not hesitate to call.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Timothy S. Brown, L.Hg.
Associate Hydrogeologist

TSB/ms - 20190348V001-1

LIMITED ENVIRONMENTAL SUBSURFACE ASSESSMENT

116TH AVENUE NE & NE 124TH STREET INTERSECTION

Kirkland, Washington

Prepared for:
Parametrix
719 2nd Avenue, Suite 200
Seattle, Washington 98104

Prepared by:
Associated Earth Sciences, Inc.
911 5th Avenue
Kirkland, Washington 98033
425-827-7701

April 24, 2020
Project No. 20190348V001

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1.0 INTRODUCTION

Associated Earth Sciences, Inc. (AESI) has prepared this report on behalf of Parametrix to summarize the results of the Limited Environmental Subsurface Assessment (Limited ESA) performed at the ARCO 6031 gas station located at 11450 NE 124th Street in Kirkland, Washington (ARCO 6031 Property). The ARCO 6031 Property is located directly west of the 116th Avenue NE & NE 124th Street Intersection project site (Project Site; Figure 1). The Project Site consists of the intersection of 116th Avenue NE and NE 124th Street and includes the western strip of right-of-way (ROW) along 116th Avenue NE that stretches from the intersection to approximately 270 feet north (Figure 2). The surrounding land use is primarily commercial, and the west-adjacent parcels consist of a non-operating ARCO 6031 Property and fast food restaurants. Topography is relatively flat, with a slight slope to the east.

1.1 Background

The ARCO 6031 Property has been assigned a Washington State Department of Ecology (Ecology) Facility Site ID #79226415. Records made available on Ecology's website included the "2014/2015 Site Status and Closure Request Report" by Arcadis, dated July 27, 2015 (ARCO Site Status Report) (Arcadis, 2015).

The ARCO Site Status Report indicated the ARCO 6031 Property operated as a gas station until March 2011. The gas station contains four fuel dispensers and three 12,000-gallon underground storage tanks (USTs). The USTs have stored both leaded and unleaded gasoline. The ARCO 6031 Property was reported as a new release to Ecology on March 7, 2001, after soil impacts were first discovered during dispenser island and turbine upgrades in 2001. Soil impacts, including gasoline-range petroleum hydrocarbons (GRPH), benzene, and methyl-tert-butyl-ether (MTBE), were confirmed above Washington State Model Toxics Control Act (MTCA) Method A cleanup levels (CULs). Interim cleanup actions occurred at the ARCO 6031 Property in 2001 and 2002; approximately 911 tons of soil containing hydrocarbon constituents was removed and disposed of from the ARCO 6031 Property. On May 1, 2003, Ecology listed the ARCO 6031 Property with a "cleanup started" status under the Leaking Underground Storage Tank (LUST) Program (Release ID: 591774).

Groundwater monitoring was initiated at the ARCO 6031 Property in April of 2003, and occurred quarterly, semiannually, or annually through 2014. Shallow groundwater flow direction is inferred to flow toward the north–northeast. Concentrations of GRPH, benzene, ethylbenzene, total xylenes, MTBE, and total lead have been detected in groundwater samples exceeding MTCA Method A CULs at the ARCO 6031 Property. In addition, concentrations of oil-range petroleum hydrocarbons (ORPH), toluene, and dissolved lead have been detected in groundwater samples below MTCA Method A CULs.

Arcadis submitted an application for the ARCO 6031 Property to enter the Voluntary Cleanup Program (VCP) in 2011 (NW2403), which later was combined to a multi-site VCP (NW2462).

An Ecology opinion letter, dated October 26, 2015, did not grant a no further action determination to the ARCO 6031 Property. An Ecology letter, dated October 19, 2018, terminated the multi-site VCP (NW2462). Select portions of the documents obtained from Ecology's website are included in Appendix A.

Based on review of the environmental records provided by Ecology and the historical use of the ARCO 6031 Property, the potential chemicals of concern (COCs) for identified environmental media of concern (soil and groundwater) include GRPH, diesel-range petroleum hydrocarbons (DRPH), ORPH, benzene, toluene, ethylbenzene, and total xylenes (BTEX), MTBE, and total and dissolved lead.

1.2 Purpose

The purpose of the Limited ESA was to assess the potential presence of COCs in the soil and groundwater along the eastern boundary of the ARCO 6031 Property located on King County Parcel No. 2926059171, directly west of the western strip ROW included in the Project Site. Based on conversations with Parametrix and the City of Kirkland, project improvements do not anticipate extending beyond 5 feet west of the proposed sidewalk (Figure 2).

2.0 LIMITED ENVIRONMENTAL SUBSURFACE ASSESSMENT

Field preparation and activities, and documentation for this Limited ESA were performed as outlined in our proposal, dated September 13, 2019, and included the following:

- Preparation of a site-specific Health and Safety Plan.
- Coordination of public and private utility locates.
- Advancing four Geoprobe® (GP) direct-push exploration borings.
- Collecting soil and reconnaissance groundwater samples.
- Submitting soil and reconnaissance groundwater samples to a subcontracted laboratory for potential chemical analysis.
- Evaluating analytical results from selected samples and comparing the results to MTCA CULs for soil and groundwater.
- Preparing this report summarizing the results of this Limited ESA.

2.1 Utility Locates

Prior to subsurface field activities, AESI notified the Washington One-Call Public Utility service on January 10, 2020, for locating underground utilities in the public ROW within the Project Site. A private utility locate was completed on January 15, 2020, to locate any conductible utilities in the area of exploration on the ARCO 6031 Property.

2.2 Soil Sample Collection

Direct-push exploration borings GP1 through GP4 were completed on January 15, 2020. Geoprobe® direct-push drilling services were provided by Cascade Drilling, LP, of Woodinville, Washington. An AESI field representative observed drilling activities and collected soil and reconnaissance groundwater samples for potential laboratory analysis. Based on conversations with Parametrix and the City of Kirkland, Project Site development is not proposed to extend 5 feet past the proposed sidewalk; therefore, boring locations were placed approximately 5 feet west of the proposed sidewalk to capture any potential contamination from the historical service station to the west. The approximate locations of the exploration borings advanced for this Limited ESA are shown on Figure 2.

Direct-push borings were advanced using a track-mounted 7822DT Direct Push and Rotary Rig. During the drilling activities, the sampler was lined with disposable plastic sleeves that were removed and opened to reveal the sample for each 5-foot driven interval. Drilling equipment was cleaned using an Alconox® wash and potable water rinse prior to beginning drilling at each boring location. Sampling equipment was cleaned using an Alconox® wash and potable water rinse prior to collecting each soil sample from the plastic sleeve.

The soil samples were observed and logged by an AESI representative in general accordance with the Unified Soil Classification System (USCS). Soil samples were screened in the field for potential evidence of contamination. Field-screening methods included visual observations, notations of odor, and obtaining headspace vapor measurements using a photoionization detector (PID) to detect the presence of volatile organic compounds. The USCS symbol, visual, and olfactory notations for the samples, and PID readings were recorded on boring log forms, which are provided in Appendix B.

Soil samples were collected directly from the plastic sleeve using stainless steel spoons and/or Environmental Protection Agency (EPA) Method 5035A sampling kits. Soil samples were placed directly into laboratory-prepared sample containers and labeled with unique sample identification. Sample containers were placed in a chilled cooler immediately following sampling, and subsequently transported to the analytical laboratory under standard chain-of-custody protocols. Based on field screening indications and/or horizons of contamination, one soil sample was analyzed from each boring for the full suite of COCs, including GRPH by Northwest Total Petroleum Hydrocarbon (NWTPH) Method NWTPH-Gx, DRPH and ORPH by NWTPH Method NWTPH-Dx, BTEX by EPA Method 8021B, MTBE by EPA

Method 8260D, and lead by EPA Method 6020B. After receipt of the initial results, an additional soil sample from boring GP1 and two additional soil samples from boring GP2 were analyzed for GRPH by NWTPH-Gx, DRPH and ORPH by NWTPH Method NWTPH-Dx, and BTEX by EPA Method 8021B.

2.3 Reconnaissance Groundwater Sample Collection

Reconnaissance groundwater samples were collected from borings GP1 through GP4 at the time of drilling using a peristaltic pump and low-density polyethylene tubing. The reconnaissance groundwater samples were collected by placing a clean disposable 10-foot section of 1-inch-diameter polyvinyl chloride well screen below the depth of the first encountered groundwater at the time of drilling (approximately 0 to 10 feet below ground surface [bgs]). Prior to sample collection in GP1 and GP4, groundwater was purged through 0.25-inch-diameter tubing inserted down the temporary well using a peristatic pump and pumped until the groundwater no longer appeared turbid or a minimum of 0.5 gallons were removed. Temporary wells GP2 and GP3 were not purged prior to sample collection due to the slow recharge, and minimal water that was accumulated in the temporary wells.

Reconnaissance groundwater samples were collected from the pump outlet tubing and placed directly into laboratory-prepared glass sample containers and labeled with a unique sample identification. Sample containers were placed in a chilled cooler immediately following sampling, and subsequently transported to the analytical laboratory under standard chain-of-custody protocols. Reconnaissance groundwater samples collected from GP1 and GP4 were analyzed for the full suite of COCs including GRPH by NWTPH Method NWTPH-Gx, DRPH and ORPH by NWTPH Method NWTPH-Dx, BTEX by EPA Method 8021B, MTBE by EPA Method 8260D, and total and dissolved lead by EPA Method 6020B. Due to the low volume of water collected from GP2 and GP3 during sampling, the full suite of COCs could not be analyzed. Reconnaissance groundwater samples collected from GP2 and GP3 were analyzed for GRPH by NWTPH Method NWTPH-Gx, DRPH and ORPH by NWTPH Method NWTPH-Dx, and BTEX by EPA Method 8021B.

2.4 Waste Management

Soil cuttings, limited equipment decontamination and purge water, and bentonite generated during the January 15, 2020 field activities were placed in a Department of Transportation (DOT)-approved, 16-gallon steel drum, closed, and appropriately labeled with project-specific information and initial accumulation date. An additional soil sample was collected from the investigation-derived waste and submitted to the subcontracted laboratory under standard chain-of-custody protocols. The drum soil sample was analyzed for Resource Conservation and Recovery Act (RCRA) 8 Metals by EPA Method 6020B to support waste profiling and disposal. One drum was accumulated during field activities and was placed on the City of Kirkland's maintenance yard located at 1000 8th Street in Kirkland, Washington. AESI subcontracted DH Environmental to waste profile, transport, and dispose of the drum. DH Environmental

picked up the drum for disposal on March 5, 2020. The laboratory report and chain-of-custody is attached as Appendix C.

3.0 RESULTS

This section summarizes observations of the subsurface conditions at the ARCO 6031 Property and the results for soil and reconnaissance groundwater samples analyzed for the Limited ESA. Soil and reconnaissance groundwater analytical results are presented in Table 1 and Table 2, respectively. Analytical laboratory reports and sample chain-of-custody forms are provided in Appendix C.

The assessment and cleanup of contaminated sites in Washington State is regulated by the MTCA cleanup regulation, *Washington Administrative Code* (WAC) 173-340. Concentrations of COCs from the selected soil samples and the reconnaissance groundwater samples analyzed were evaluated with respect to MTCA Method A CULs for unrestricted land use. A summary of field observations and analytical results for soil and reconnaissance groundwater samples analyzed is provided below.

3.1 Soil

Subsurface conditions at the ARCO 6031 Property were based upon conditions observed in the field and explorations completed for this study. Because of the nature and limitations of subsurface exploratory work, extrapolation of subsurface conditions between field explorations is necessary. Differing subsurface conditions may be present between exploration locations due to the random nature of deposition and the alteration of topography by past grading and/or filling. As indicated on the exploration logs, soils interpreted to be older Vashon recessional outwash and pre-Fraser fine-grained deposits were encountered at the ARCO 6031 Property, capped by existing asphalt.

The Vashon recessional outwash deposits were encountered below the asphalt materials to depths of approximately 3 to 5.5 feet bgs. These deposits consisted of faintly stratified fine to medium sand with little silt and gravel. The older pre-Fraser fine-grained deposits were encountered below the Vashon recessional outwash deposits to the total depth explored. These deposits consisted of massive silt with variable clay content.

One soil sample from each boring was collected between 5 and 7 feet bgs and selected for laboratory analysis for GRPH, DRPH, ORPH, BTEX, MTBE, and lead. A total of two and three soil samples collected between 3 and 10 feet bgs were selected for analysis from borings GP1 and GP2, respectively, to vertically delineate soils that exhibited concentrations of COCs and/or field screening indications of potential contaminants. These samples were submitted for laboratory analysis for GRPH, DRPH, ORPH, and BTEX.

One soil sample (GP2-7) collected from boring GP2 at a depth of approximately 7 feet bgs detected volatile petroleum hydrocarbons above MTCA Method A CULs—benzene was detected at a concentration of 0.051 milligrams per kilogram (mg/kg), which exceeds the MTCA Method A CUL of 0.03 mg/kg. Volatile petroleum hydrocarbons, including benzene, were not detected in the other soil samples submitted for analysis. Total lead was detected in each soil sample at concentrations ranging from 3.44 mg/kg to 5.06 mg/kg, which do not exceed the MTCA Method A CUL of 250 mg/kg. The remaining soil samples did not detect COCs at concentrations exceeding the MTCA Method A CULs and/or laboratory reporting limits.

If excavation of soil in the location of exploration boring GP2 occurs within the scope of work for the proposed plans at the Project Site or ARCO 6031 Property and is deeper than 3 feet bgs, the soil should be handled, transported and/or disposed of in accordance with Ecology's *Guidance for Remediation of Petroleum Contaminated Sites* (2016 Petroleum Guidance) (Ecology, 2016). There are four soil categories in the 2016 Petroleum Guidance based on concentrations of total petroleum hydrocarbons. Category 1 soils are soils with no detectable/quantifiable levels of total petroleum hydrocarbons (benzene less than 0.005 mg/kg). Category 2 soils are soils with residual levels of total petroleum hydrocarbons (benzene range between 0.005 and 0.03 mg/kg) that could have adverse impacts on the environment in some circumstances. Category 3 soils are soils with moderate levels of residual petroleum contamination (benzene less than 0.03 mg/kg) that could have adverse impacts on the environment unless reused in carefully controlled situations. Category 4 soils are defined as having high concentrations of petroleum hydrocarbons that should not be reused except in very limited circumstances. Soils with benzene concentrations greater than 0.03 mg/kg should be treated as Category 4 soils.

3.2 Reconnaissance Groundwater

Shallow groundwater was observed to be perched within the Vashon recessional outwash and was encountered at the time of drilling at 2.5 feet and 1 foot bgs in GP1 and GP4, respectively. GP2 and GP3 were observed to have moist conditions between 2 and 5 feet, but no saturated soils were observed.

Four reconnaissance groundwater samples were collected for laboratory analysis. Samples collected from GP1 and GP4 were submitted for analysis for GRPH, DRPH, ORPH, BTEX, MTBE, and total and dissolved lead. Due to the low volume of reconnaissance groundwater collected from GP2 and GP3, these samples were only submitted for analysis for GRPH, DRPH, ORPH, and BTEX.

The reconnaissance groundwater samples collected from borings GP1 and GP2 detected GRPH at concentrations of 1,900 micrograms per liter (µg/L) and 2,700 µg/L, respectively, exceeding the MTCA Method A CUL of 800 µg/L. Borings GP3 and GP4 did not detect GRPH above the laboratory reporting limit.

The reconnaissance groundwater samples collected from borings GP1, GP2, and GP3 detected DRPH at concentrations of 940 µg/L, 990 µg/L, and 1,500 µg/L, exceeding the MTCA Method A CUL of 500 µg/L. Boring GP4 detected DRPH at a concentration of 58 µg/L, below the CUL. DRPH detections for these reconnaissance groundwater samples were flagged by the analytical laboratory for their chromatographic pattern not resembling the fuel standard used for quantitation.

The reconnaissance groundwater samples collected from GP2 and GP3 detected ORPH at concentrations of 720 µg/L and 4,400 µg/L, exceeding the MTCA Method A CUL of 500 µg/L. Boring locations GP1 and GP4 did not detect ORPH above the laboratory reporting limit. Boring location GP1 detected benzene and ethylbenzene at concentrations below MTCA Method A CULs.

The reconnaissance groundwater sample collected from boring GP2 detected benzene at a concentration of 140 µg/L, exceeding the MTCA Method A CUL of 5 µg/L. In addition, the reconnaissance groundwater sample from boring GP2 detected concentrations of toluene, ethylbenzene, and total xylenes below the MTCA Method A CULs. No other BTEX constituents were detected in the reconnaissance groundwater samples.

The reconnaissance groundwater samples from borings GP1 and GP4 did not detect MTBE above the laboratory reporting limit. The reconnaissance groundwater sample collected from boring GP1 detected total lead at a concentration of 7.78 µg/L, below the MTCA Method A CUL, and did not detect dissolved lead above the laboratory reporting limit. The reconnaissance groundwater sample collected from boring GP4 detected total lead at a concentration of 53.6 µg/L, exceeding the MTCA Method A CUL of 15 µg/L; however, the reconnaissance groundwater sample collected from GP4 did not detect dissolved lead above the laboratory reporting limit.

4.0 CONCLUSIONS

The results from the Limited Environmental Subsurface Assessment indicate the following:

- Volatile petroleum hydrocarbons exceeding the MTCA Method A CUL are located in the soil at boring location GP2 at approximately 7 feet bgs, and is categorized as Category 4 soils, based on the analytical results from the soil sample collected from GP2 at 7 feet bgs. The remaining soil samples analyzed did not detect concentrations of COCs above the laboratory reporting limits. However, field screening methods indicated volatile petroleum hydrocarbons are likely present in the vicinity of GP1 and GP2 at approximately 5 to 8 feet bgs and 3 to 10 feet bgs, respectively.

- The vertical extent of concentrations of volatile petroleum hydrocarbons in soil exceeding the MTCA Method A CULs appears to be defined from this assessment. Based

on the soil sample analytical results from existing environmental borings, the extent of volatile petroleum hydrocarbon impacted soil is estimated to be less than 10 feet bgs.

- The lateral extent of concentrations of volatile petroleum hydrocarbons in soil exceeding the MTCA Method A CULs appears to be defined to the south of borings GP1 and GP2; however, the lateral extent to the east, north, and west of borings GP1 and GP2 is unknown.

- Perched shallow groundwater was observed at depths above the fine-grained deposits, which were observed at approximately 3 to 5.5 feet bgs. Groundwater was measured from approximately 2.00 to 13.78 feet bgs in temporary wells prior to collecting reconnaissance groundwater samples using a water level meter. It is likely shallow groundwater will be observed if Project Site work requires grading below approximately 2 feet bgs in the vicinity of the GP1 through GP4.

- Reconnaissance groundwater samples with concentrations of GRPH, DRPH, ORPH, and benzene above MTCA Method A CULs collected from borings GP1, GP2, and GP3 indicate perched shallow groundwater is impacted.

- Concentrations of dissolved lead were not detected above the laboratory reporting limit in the reconnaissance groundwater sample collected from boring GP4; however, concentrations of total lead were above MTCA Method A CULs. Based on the groundwater sample analytical results for lead for boring GP4, it appears that the evaluated concentrations for total lead are due to soil background concentrations.

- The total petroleum hydrocarbon contamination identified during this Limited ESA is similar to observed contamination identified previously at the ARCO 6031 Property by others. Shallow groundwater flow direction at the ARCO 6031 Property is inferred to flow towards the north-northeast. The contamination from the ARCO 6031 Property is likely the source of the petroleum impacted groundwater identified at borings GP1, GP2, and GP3 advanced for this Limited ESA. The extent of petroleum impacted groundwater is currently unknown at the Project Site and ARCO 6031 Property. The lateral extent of petroleum impacted groundwater is unknown to the north, east, and west of borings GP1 through GP3.

- Based on these soil and reconnaissance groundwater sample results, special handling of soil and groundwater during development of the Project Site will be necessary in areas of identified petroleum contaminated soils and impacted groundwater.

5.0 LIMITATIONS

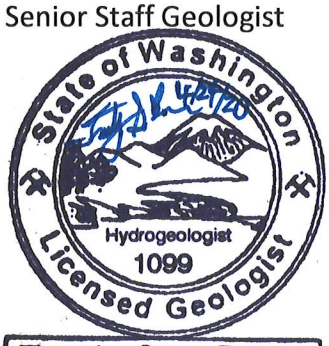
This report has been prepared for the exclusive use of Parametrix and their agents, for specific application to this project. The results contained in this report are based upon the information acquired during this assessment. Within the limitations of scope, schedule, and budget, our services have been performed in accordance with generally accepted environmental industry practices in effect in this area at the time our report was prepared. No other warranty, express or implied, is made.

6.0 CLOSURE

We are pleased to have had this opportunity to work with you and are confident that this report will aid in the evaluation and development of the Project Site. Should you have any questions, please do not hesitate to call.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Kellie M. Andrews, G.I.T.
Senior Staff Geologist



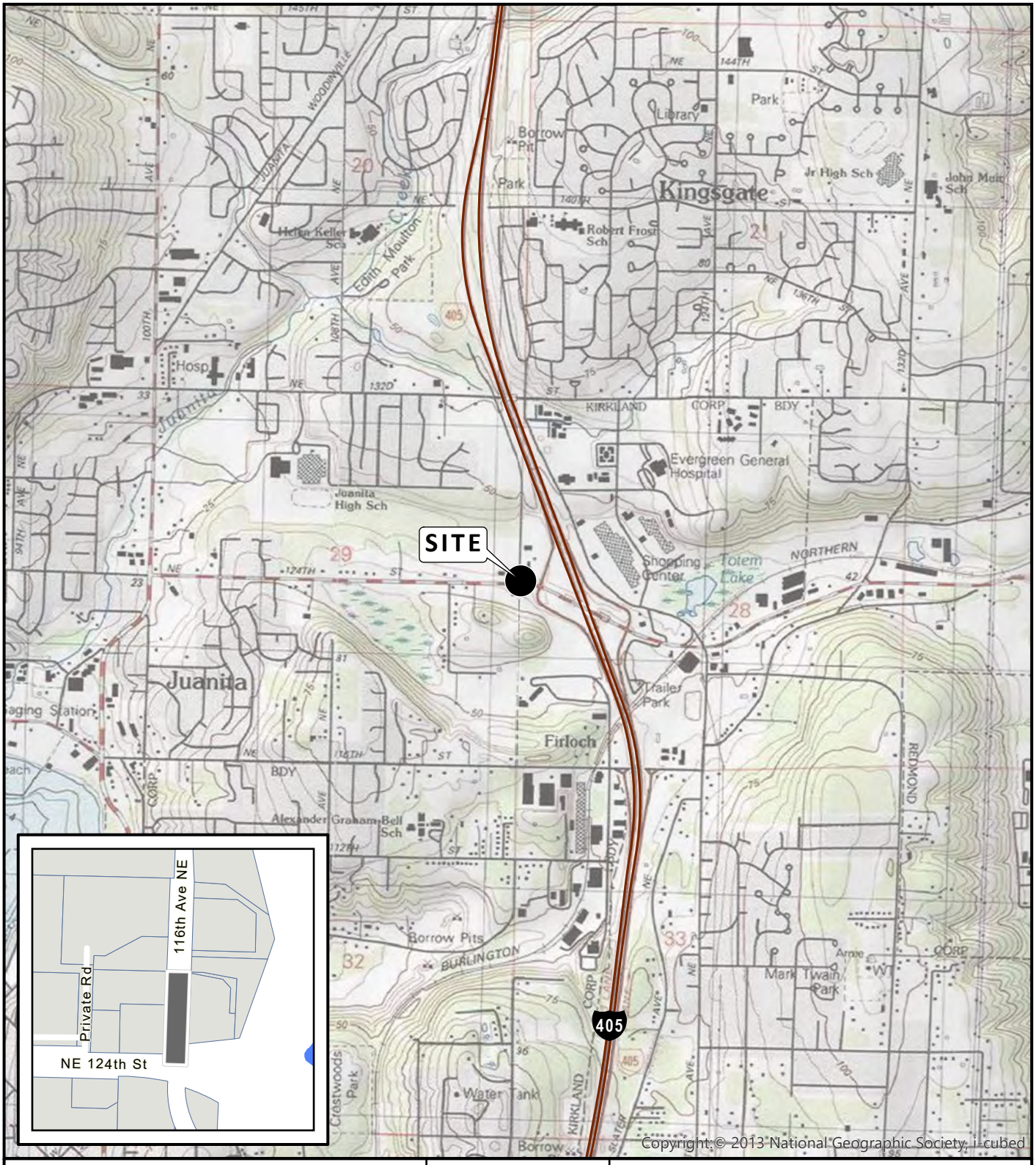
Timothy S. Brown, L.Hg.
Associate Hydrogeologist

7.0 REFERENCES

Arcadis, 2015, Site Status and Closure Request Report: July 27, 2015. (Arcadis, 2015).

Department of Ecology, State of Washington, 2016, Guidance for remediation of petroleum contaminated sites: June 2016. (Ecology, 2016).

FIGURES



DATA SOURCES / REFERENCES:
USGS: 7.5' SERIES TOPOGRAPHIC MAPS, ESRI/I-CUBED/NGS 2013
KING CO: STREETS, CITY LIMITS 1/19, PARCELS 4/19
LOCATIONS AND DISTANCES SHOWN ARE APPROXIMATE

N

0 1000 2000

FEET

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION

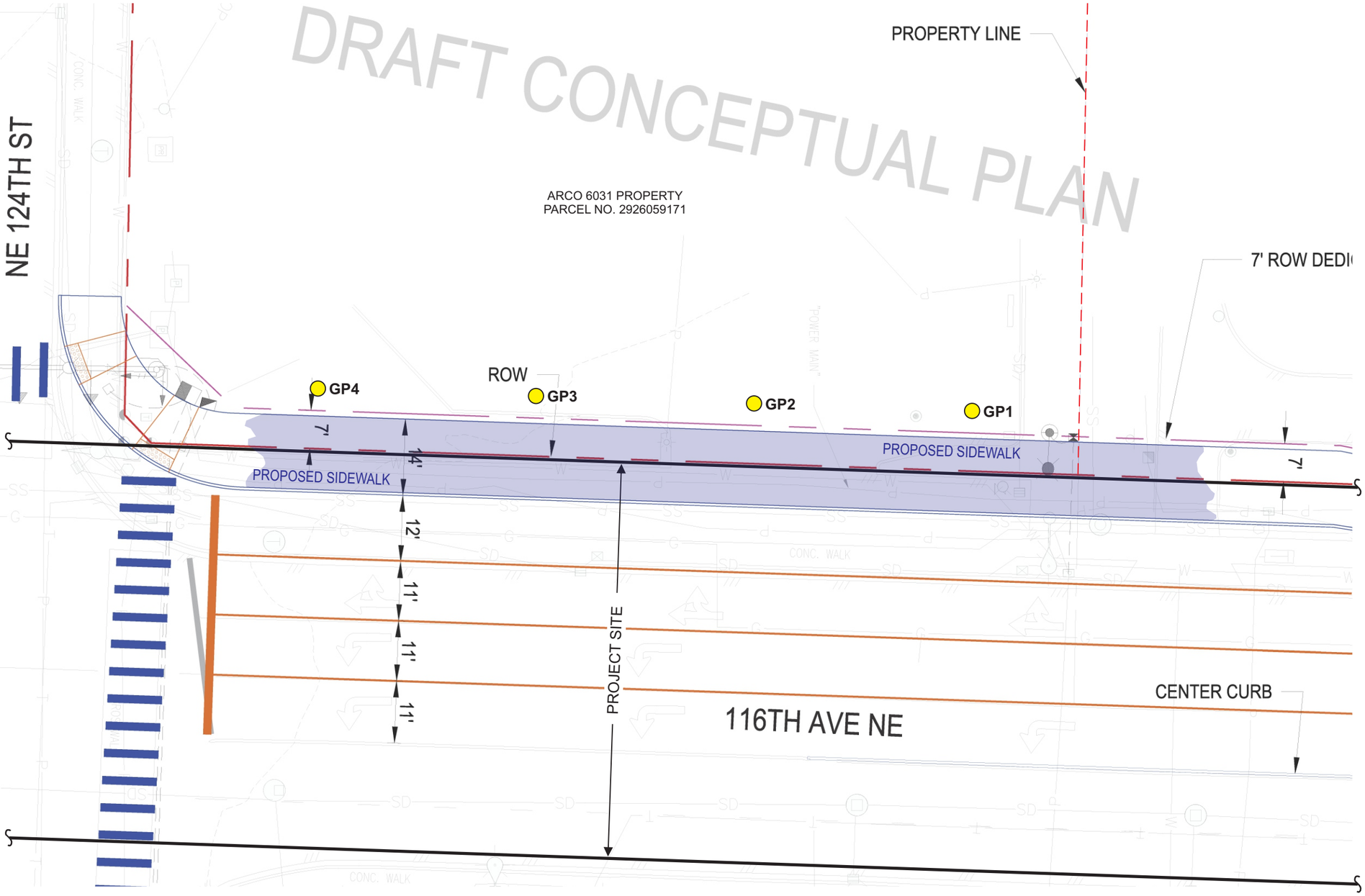
associated earth sciences incorporated

VICINITY MAP

116TH AVENUE NE & NE 124TH STREET INTERSECTION
KIRKLAND, WASHINGTON

PROJ NO.	DATE:	FIGURE:
20190348V001	1/20	1

\\kirkfile2\GIS\GIS_Projects\aaY2019\190348 116th Ave & NE 124th\aprx_mxd\20190348V001 F1 VM_116thAve.aprx



LEGEND:

GP EXPLORATION GEOPROBE BORING SEE NOTES

CONTOUR INTERVAL = N/A

NOTE: LOCATION AND DISTANCES SHOWN ARE APPROXIMATE.

NOTES:

1. BASE MAP REFERENCE: PARAMETRIX, 116TH AVE NE/NE 124TH ST, INTERSECTION IMPROVEMENTS, 12/16/19

2. BORING LOCATIONS ARE APPROXIMATELY 5 FEET WEST OF PROPOSED SIDEWALK.

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SITE AND EXPLORATION PLAN

116TH AVENUE NE AND NE 124TH STREET
KIRKLAND, WASHINGTON

PROJ NO.	DATE:	FIGURE:
20190348V001	4/20	2

TABLES

Table 1
Summary of Soil Analytical Results
Volatile Petroleum Compounds, Total Petroleum Hydrocarbons, and Lead
116th Avenue NE & NE 124th Street Intersection
Kirkland, Washington

				Analytical Results (milligrams per kilogram, mg/kg)									
				Volatile Petroleum Compounds [1], [2]					Total Petroleum Hydrocarbons [3], [4]			Metals [5]
Exploration	Sample ID	Sample Date	Depth (feet)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl t-butyl ether (MTBE)	Gasoline Range Hydrocarbons	Diesel Range Hydrocarbons	Oil Range Hydrocarbons	Total Lead
GP-1	GP1-3	1/15/2020	3	< 0.02	< 0.02	< 0.02	< 0.06	--	< 5	< 50	< 250	--
	GP1-6	1/15/2020	6	< 0.02	< 0.02	< 0.02	< 0.06	< 0.05	< 5	< 50	< 250	4.72
GP-2	GP2-5	1/15/2020	5	< 0.02	< 0.02	< 0.02	< 0.06	--	< 5	< 50	< 250	--
	GP2-7	1/15/2020	7	**0.051**	< 0.02	< 0.02	< 0.06	< 0.05	< 5	< 50	< 250	4.63
	GP2-10	1/15/2020	10	< 0.02	< 0.02	< 0.02	< 0.06	--	< 5	< 50	< 250	--
GP-3	GP3-6	1/15/2020	6	< 0.02	< 0.02	< 0.02	< 0.06	< 0.05	< 5	< 50	< 250	5.06
GP-4	GP4-5	1/15/2020	5	< 0.02	< 0.02	< 0.02	< 0.06	< 0.05	< 5	< 50	< 250	3.44
Model Toxics Control Act Cleanup Level [6]				0.03	7	6	9	0.1	30/100 [7]	2,000	2,000	250

NOTES:

(1) Samples were analyzed by Friedman & Bruya, Inc. of Seattle, Washington by EPA Method 8021B.

(2) Samples were analyzed by Friedman & Bruya, Inc. of Seattle, Washington by EPA Method 8260D.

(3) Samples were analyzed by Friedman & Bruya, Inc. of Seattle, Washington by NWTPH Method NWTPH-Gx.

(4) Samples were analyzed by Friedman & Bruya, Inc. of Seattle, Washington by NWTPH Method NWTPH-Dx.

(5) Samples were analyzed by Friedman & Bruya, Inc. of Seattle, Washington by EPA Method 6020B.

(6) MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Soil Cleanup Levels for Unrestricted Land Uses.

(7) MTCA Method A Cleanup Level is 30 mg/kg when benzene is detected and 100 mg/kg when benzene is not detected.

< = not detected at concentration exceeding the laboratory reporting limit.

Red = concentration exceeds MTCA cleanup level.

AESI = Associated Earth Sciences, Inc.

EPA = U.S. Environmental Protection Agency

MTCA = Washingston State Model Toxics Control Act

NWTPH = Northwest Total Petroleum Hydrocarbons

WAC = Washington Administrative Code

Table 2
Summary of Groundwater Analytical Results
Volatile Petroleum Compounds, Total Petroleum Hydrocarbons, and Lead
116th Avenue NE & NE 124th Street Intersection
Kirkland, Washington

Exploration	Sample ID	Sample Date	Screen Depth (feet)	Analytical Results (micrograms per liter, µg/L)									
				Volatile Petroleum Compounds [1], [2]					Total Petroleum Hydrocarbons [3], [4]			Metals [5]	
				Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl t-butyl ether (MTBE)	Gasoline Range Hydrocarbons	Diesel Range Hydrocarbons	Oil Range Hydrocarbons	Total Lead	Dissolved Lead
GP1	GP1-GW	1/15/2020	0-10	1.5	< 1	26	< 3	< 1	**1,900**	**940** x	< 250	7.78	< 1
GP2	GP2-GW	1/15/2020	0-10	**140**	2.0	94	150	--	**2,700**	**990** x	**720**	--	--
GP3	GP3-GW	1/15/2020	0-10	< 1	< 1	< 1	< 3	--	< 100	**1,500** x	**4,400**	--	--
GP4	GP4-GW	1/15/2020	0-10	< 1	< 1	< 1	< 3	< 1	< 100	58 x	< 250	**53.6**	< 1
Model Toxics Control Act Cleanup Level [6]				5	1,000	700	1,000	20	800/1,000 [7]	500	500	15	15

NOTES:

(1) Samples were analyzed by Friedman & Bruya, Inc. of Seattle, Washington by EPA Method 8021B.

(2) Samples were analyzed by Friedman & Bruya, Inc. of Seattle, Washington by EPA Method 8260D.

(3) Samples were analyzed by Friedman & Bruya, Inc. of Seattle, Washington by NWTPH Method NWTPH-Gx.

(4) Samples were analyzed by Friedman & Bruya, Inc. of Seattle, Washington by NWTPH Method NWTPH-Dx.

(5) Samples were analyzed by Friedman & Bruya, Inc. of Seattle, Washington by EPA Method 6020B.

(6) MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 720-1 Method A Cleanup Levels for Ground Water.

(7) MTCA Method A Cleanup Level is 800 µg/L when benzene is detected and 1,000 µg/L when benzene is not detected.

< = not detected at concentration exceeding the laboratory reporting limit.

x = the sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Red = concentration exceeds MTCA cleanup level.

AESI = Associated Earth Sciences, Inc.

EPA = U.S. Environmental Protection Agency

MTCA = Washingston State Model Toxics Control Act

NWTPH = Northwest Total Petroleum Hydrocarbons

WAC = Washington Administrative Code

APPENDIX A

Department of Ecology Records

ARCADIS
Infrastructure · Water · Environment · Buildings

Imagine the result

BP Tranche 2 Project

2014/2015 Site Status and Closure Request Report

ARCO Facility No. 01118 (6031)
11450 NE 124th Street
Kirkland, Washington 98033

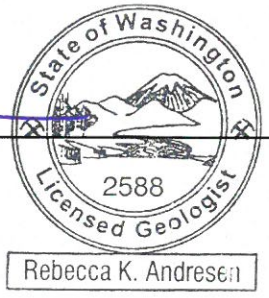
VCP No. NW2462
July 27, 2015

ARCADIS

Ophélie Encelle
Environmental Scientist II

Alan Kahal
Project Scientist

Rebecca Andresen, L.G.
Associate Vice President



2014/2015 Site Status and Closure Request Report

ARCO Facility No. 01118 (6031)
11450 NE 124th Street
Kirkland, Washington 98033

VCP No. NW2304

Prepared for:
BP West Coast Products, LLC

Prepared by:
ARCADIS
1100 Olive Way
Suite 800
Seattle, Washington 98101
Tel 206-325-5254
Fax 206-325-8218

Our Ref.:
GP09BPNA.WA10

Date:
July 27, 2015

Tables

Figures

Appendices

A	Property Details and Legal Description
B	UST and LUST Database Information
C	EDR Geocheck and Offsite Sensitive Receptors Reports
D	Historical Boring Logs
E	2014-2015 Groundwater Field Data Sheets and Notes
F	2014-2015 Groundwater Laboratory Analytical Reports and Chain of Custody Documentation
G	Bill of Lading
H	2014 Soil Laboratory Analytical Reports and Chain of Custody Documentation
I	Waste manifests
J	Terrestrial Ecological Evaluation Form
K	Site Specific Direct Contact Groundwater CUL
L	Site Specific Evaluation of Groundwater Velocity and Transport Velocity of Organic Constituents
M	Linear Regression Analysis
N	MTCATPH11.1 Worksheet for Soil Data Entry and Calculation
O	Disproportionate Cost Analysis

Acronyms and Abbreviations

amsl	above mean sea level
ARAR	applicable relevant and appropriate requirements
ARCADIS	ARCADIS U.S., Inc.
ARCO	Atlantic Richfield Company
AS	air sparge
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, total xylenes
btoc	below top of casing
CLARC	Cleanup Levels and Risk Calculation
COC	constituents of concern
CPOC	conditional point of compliance
CSM	conceptual site model
CUL	cleanup level
DCA	Disproportionate Cost Analysis
DRO	TPH as diesel range organics
Ecology	Washington State Department of Ecology
EDB	Ethylene Dibromide
EDC	1,2-Dichloroethane
EDR	Environmental Data Resources, Inc.
ft/d	feet per day
GRO	TPH as gasoline range organics
HO	TPH as heavy oil range organics
IC	Institutional Controls
Lancaster	Eurofins Lancaster Laboratories Environmental
LOQ	limit of quantitation
LUST	Leaking Underground Storage Tank
MDL	Laboratory method detection limit
mg/kg	milligrams per kilogram
MNA	Monitored Natural Attenuation
MTBE	methyl tertiary butyl ether
MTCA	Model Toxics Control Act
NAPL	Non-aqueous phase liquid
NFA	No Further Action
PID	photoionization detector
POC	points of compliance
RBC	risk-based concentrations
site	ARCO Facility No. 6031 located at 11450 NE 124th Street in Kirkland, Washington

TEE	Terrestrial Ecological Evaluation
TPH	Total Petroleum Hydrocarbons
µg/L	micrograms per liter
USCS	Unified Soil Classification System
USGS	United States Geologic Society
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WAC	Washington Administrative Code

1. Introduction

On behalf of BP West Coast Products, LLC, ARCADIS U.S., Inc. (ARCADIS) has prepared this 2014/2015 Site Status and Closure Request for Atlantic Richfield Company (ARCO) Facility No. 6031 located at 11450 NE 124th Street in Kirkland, Washington (Site). The Site and surrounding areas are illustrated on **Figure 1**.

This report summarizes 2014/2015 activities, past investigation results and remedial actions at the Site and has been completed following the submittal of an application to Washington State Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP). This closure request presents a request to Ecology for a No Further Action (NFA) determination regarding historical subsurface impacts to soil and groundwater associated with former operations by ARCO. The following information will demonstrate that an NFA determination is the appropriate action regarding the Site.

2. Property Information

2.1 Property Description

The Site is located at the northwest corner of the intersection of 116th Avenue Northeast and Northeast 124th Street in Kirkland, Washington, as shown in **Figure 2**.

The Site is 28,512 square feet, or 0.65 acre and currently owned by Harbor Olympic Land 6031, LLC. The Site was operating as an ARCO retail gasoline station with convenience store until March 2011. The station still contains four fuel dispensers and three 12,000-gallon underground storage tanks (USTs) based on the Tank Data Summary from Ecology. The USTs are located on the south portion of the property. The entire Site is paved with asphalt or concrete with the exception of the station building, fuel dispensers, signage, and landscaped areas. A legal description of the property, as well as other details relating to past and present ownership and operations at the property is presented as **Appendix A**. A tank data summary is presented in **Appendix B**.

2.2 Property Ownership and Use

2.2.1 Past Ownership and Use

According to the King County Department of Assessments, the Site was first built in 1968. The land use of the property at that time is unknown and no information is

available concerning property ownership, sales history, or tax roll history prior to 1982. The King County Department of Assessments does not indicate the property's land use has ever varied from its use as a retail gas station. Furthermore, the King County Department of Assessments does not indicate the property was owned by any organizations other than ARCO until 2001. At this time, ownership of the property transferred from ARCO to BP West Coast Products. BP West Coast Products LLC later sold the property to Harbor Olympic Land 6031, LLC in September 2009. The property was operating as a retail gasoline station until 2011. In 2011, Harbor Olympic Land 6031, LLC transferred a portion of the property to the City of Kirkland.

In November of 1987, three fiberglass reinforced plastic, corrosion resistant composite, double shelled, 12,000 gallon USTs were installed onsite. These tanks were upgraded in 1998. The USTs contained leaded and unleaded gasoline at the time of their installation. Based on past reports and Ecology's Tank Data Summary, there is no indication of any other former UST basin locations at the Site (Ecology, 2015). Over-excavation occurred at the property during dispenser island, product piping and turbine upgrade activities conducted from 2001 to 2002; however the location of the upgraded structures has not changed. The following table summarizes Ecology regulated USTs currently present at the property.

Tank ID	Tank Volume (gallons)	Content	Installation Date	Decommissioning Date
1 REG	12,000	Leaded Gasoline (historical) Unleaded Gasoline (current)	11/01/1987	n/a
2 U/L	12,000	Unleaded Gasoline	11/01/1987	n/a
3 SUP	12,000	Unleaded Gasoline	11/01/1987	n/a

2.2.2 Current Ownership and Use

In 2009, the ownership and operation of the property was transferred from BP West Coast Products LLC to Harbor Olympic Land 6031, LLC. In March 2011, a triangle of 5 feet by 5 feet of the southeast corner of the Site was ceded to the city of Kirkland. Although all the structures are still onsite, the site is currently closed and fenced and does not operate as a service station and retail store.

2.2.3 Future Ownership and Use

The future use and ownership of the property is unknown, however it is anticipated to continue to be used as a gas station and to be zoned for commercial use.

2.3 Property Zoning and Location

The property is located in a commercial area of Kirkland, Washington, and is zoned for commercial use as a retail gas station and a convenience store as described under standard industrial classification (SIC) code #5541.

A fast food restaurant is located to the north, 116th Avenue Northeast and then a retail gas station are located to the east, Northeast 124th street and then a fast food restaurant are located to the south and a food store is located to the west. The nearest residential area to the station is located approximately 0.15 mile northwest to the Site. Lake Washington is located approximately 1.3 miles southwest of the property. Site features are depicted on **Figure 2**.

2.4 Site Discovery and Definition

Based on available information, petroleum impacts at the property cannot be tied to any specific known event. Soil impacts were first encountered during dispenser island and turbines upgrade activities in the first quarter of 2001. Trenching occurred at depths from 2 to 5.5 feet below ground surface (bgs), and approximately 17 tons of soil were removed from the Site and disposed of. The Site was reported as a new release site to Ecology on March 7, 2001 (Case No. N516532) (Delta, 2001). On May 1st, 2003, Ecology listed the property with a “cleanup started” status under the Leaking Underground Storage Tank (LUST) Program (Release ID: 591774). LUST Database Information are presented as **Appendix B**.

The Site is defined under the Model Toxics Control Act (MTCA) as all areas affected by the petroleum hydrocarbon impacts associated with the property, as well as impacts on adjacent parcels. The Site is defined as the central portion of the property, extending from the UST basin and the dispenser islands to the monitoring wells of the Site where impacts were observed. The boundaries of the Site in accordance with MTCA are illustrated on **Figure 3**.

2.5 Regulatory Consultation

In May of 2003, the Site was registered on the LUST list with release ID 591774. In 2011, ARCADIS applied to have the Site registered in the Ecology VCP and was accepted with VCP Project No. NW2403. Following the acceptance in the VCP, ARCADIS included the Site in the multi-site agreement VCP with Ecology with new VCP No. NW2462. LUST Database Information is presented as **Appendix B**.

2.6 Area Drinking Water Sources

The City of Kirkland's public water supply is acquired by Cascade Water Alliance, an association of regional water districts and cities. The water provided to the City of Kirkland is purchased from Seattle Public Utilities (SPU), and originates from the protected watersheds of the Cedar and South Fork Rivers.

According to an Environmental Data Resources, Inc. (EDR) Geocheck Report from 2011 (Inquiry Number 2982393.4s), there are 40 U.S. Geological Survey (USGS) monitoring wells within one mile of the property. The USGS wells are specifically used for the collection of hydrogeological data, and are not used for drinking water purposes. There is one USGS well within 1/8th of a mile north-northwest of the Site, with a total depth of 125 feet bgs. This well was installed in 1948. There are three wells located 1/8th to 1/4th of a mile from the Site, located southeast, southwest and northeast of the Site, with well depths ranging from 40 to 162 feet bgs. Groundwater data collection at these wells began as early as 1951. Also, there are eight wells located 1/4th to 1/2 of a mile from the Site, with well depths ranging from 13 to 162 feet bgs. Groundwater data collection at these wells began as early as 1901. Finally, there are 28 USGS wells located 1/2 to 1 mile from the property, with well depths ranging from 6.5 to 139 feet bgs. Groundwater data collection at these wells began as early as 1901. In addition, there is one well listed in the Aquiflow database located 1/2 of a mile to 1 mile east-southeast from the Site. Wells in this database are used for the collection of hydrogeological data, and are not used for drinking water purposes. The well located 1/2 of a mile to 1 mile from the Site was installed in 1995, and has a total depth exceeding 10 feet bgs. The EDR Geocheck Report is available in **Appendix C**.

A 2015 online search of the Ecology well log database and the King County Groundwater Program was conducted in addition to a review of the Environmental Data Resources, Inc. (EDR) Geocheck Report, 2011 (Inquiry Number 2982393.4s) to check the drinking water sources within the vicinity of the Site. According to Ecology well log database, there are 59 water wells within 3 miles northeast of the Site. (Groundwater flow direction at the Site is generally to the north or northeast.) Only one

of the water wells is located within 1 mile of the Site. This well is located approximately 0.6 mile northeast of the Site and was installed to a depth of 168 feet bgs in 1996 for irrigation purposes at the Evergreen Hospital. There are 21 wells located between 1 and 2 miles northeast from the Site. 19 of them are used for dewatering purposes and 2 of them are used for domestic purposes. These latter two wells are located approximately 1.8 miles east-northeast and 1.9 miles northeast, respectively, from the Site and were installed to a depth of 138 feet bgs and 201 feet bgs, respectively.

There are no wells reported in the King County Groundwater Program within one mile of the Site.

According to the EDR Report, Ecology well log database, and the King County Groundwater Program there is a total of 42 wells within one mile of the property. Of these, one well is used for irrigation purposes, approximately 0.6 mile northeast of the Site. Two wells are used for domestic purposes at approximately 1.8 miles east-northeast and 1.9 miles northeast of the Site.

2.7 Offsite Public and Environmental Receptors

According to an EDR Offsite Receptor Report (Inquiry #2982393.3s), there are no offsite environmental receptors within one mile of the property. However, there is one offsite public receptor, a healthcare facility, located within 1/8th of a mile north-northeast from the property. Four offsite public receptors are located 1/8th to 1/4th of a mile from the property, and include health care facilities. Fifty-one offsite public receptors are located 1/4th to 1/2 of a mile from the property, and include health care facilities. A total of fifty-three offsite public receptors are located 1/2 to 1 mile from the property, including 47 health care facilities, 3 daycare facilities, 1 public school, 1 private school and 1 nursing home.

The healthcare facility located within 1/8th of a mile north-northeast of the property, Long's Drugs, is a retail store and pharmacy and does not provide medical services. Therefore, it is unlikely any area offsite public or environmental receptors have been exposed to petroleum hydrocarbons from the property. The EDR Offsite Receptor Report is available as **Appendix C**.

3. Environmental Conditions

3.1 Physiographic Setting and Topography

The Site is located in the Puget Lowland, bound by the North Cascade Mountains to the east, South Cascade Mountains to the south, Puget Sound and Olympic Mountains to the west. Specifically, the Site is located approximately 1.3 miles to the northeast of Lake Washington, in a depression area close to the border of the Lake Washington Watershed and the Lake Sammamish Watershed. The Site elevation is approximately 135 feet above mean sea level (amsl) and the topography is generally flat.

3.2 Geology and Hydrogeology

The Site is located in the Puget Lowland which is underlain by unconsolidated deposits originating from continental glacial drift from the Pleistocene age (WA DNR, 2005). Such deposits are typically sand and gravel, which are as much as 3,000 feet deep, and often form discontinuous lenses. The USGS identifies the specific deposit at the site as Qtb, Transitional beds - nonglacial and glacial deposits beneath sand of the Vashon outwash - consisting mostly of massive to bedded medium-gray to dark-gray clay, silt and fine to very fine sand (USGS, 1983).

Previous assessments indicate that the Site is underlain by sand and silty sand to a depth of 4 to 8 feet bgs. This material is underlain by silty-clay and clay to the maximum depth explored, at 31.5 feet bgs. Cross sections detailing the subsurface lithology based on previous and current subsurface investigations are illustrated on **Figures 4a** through **4c**. Site boring logs are included in **Appendix D**.

The Site is located within the Puget-Willamette Trough Regional Aquifer System, which is a linear elongated basin stretching from the Canadian border in Washington to central Oregon. Specifically, the Site is located in an unconsolidated-deposit aquifer, which is the principle aquifer type in the Puget Sound Lowlands. Sand and gravel lenses underlain in the area can retain localized productive groundwater (USGS, 1994).

Historically, depth to groundwater measured in monitoring wells at the Site has ranged from 2.15 to 9.43 feet below top of casing (btoc). Groundwater flow direction is generally to the north or northeast. Historic groundwater flow directions are illustrated in a groundwater rose diagram on **Figure 5**. During the most recent groundwater monitoring event in March 2015, depth to groundwater was between 2.54 and 6.42 feet btoc in wells MW-2 and MW-4, respectively.

A map containing the most recent groundwater gauging data is illustrated on **Figures 6a** through **6f**, and a table containing recent and historical groundwater gauging data is presented in **Table 1**.

3.3 Groundwater Flow Regime and Endpoint

Groundwater at the Site generally flows to the north-northeast. The Site is located approximately 1.3 miles to the northeast of Lake Washington, in a depression area close to the border of the Lake Washington Watershed and the Lake Sammamish Watershed. This water body is most likely the endpoint of the local groundwater. However, to be conservative, MTCA Method A Groundwater cleanup levels (CULs) will be applied to areas immediately surrounding the MTCA Site boundary in order to provide protection for a more conservative drinking water beneficial use scenario. This ensures downgradient areas beyond the Site are also protected for drinking water beneficial use.

4. Summary of Previous Site Investigations

Soil impacts were first encountered during dispenser island and turbine upgrade activities in February 2001. During these activities, soils samples from beneath the turbines were not detected above laboratory method detection limits (MDLs) for Total Petroleum Hydrocarbons (TPH) as gasoline range organics (GRO) and benzene, toluene, ethylbenzene, total xylenes (BTEX, collectively). However, soil samples from beneath the dispenser islands were detected above MTCA Method A CULs for GRO and BTEX. These soil samples were over excavated in 2001/2002 (Delta, 2001).

Between December 2001 and January 2002, additional dispenser line upgrades and over-excavation activities were conducted onsite. During these activities, soils samples from beneath the dispenser islands were detected above MTCA Method A CULs for GRO, benzene and methyl tertiary butyl ether (MTBE). Some of these soil samples were over excavated. Soil samples from beneath the trench were detected above MTCA Method A CULs for GRO and BTEX (Delta, 2002). Lead was also analyzed but was not detected above the MTCA Method A CUL.

A subsurface investigation was conducted in April 2003 to characterize dissolved and residual-phase petroleum impacts at the Site. Five borings were advanced and monitoring wells were installed in each boring (MW-1 through MW-5). The borings were advanced between 11.5 to 31.5 feet bgs, and water was encountered in each boring at depths between 2.5 to 8.5 feet bgs. During these activities, one soil sample from MW-1 was detected above MTCA Method A CULs for benzene (Delta, 2003).

Site soil analytical data are presented in **Table 2** and on **Figures 7a** and **7b**.

Groundwater monitoring was initiated at the Site in April 2003 after installation of groundwater monitoring wells MW-1 to MW-5, and has occurred quarterly, semiannually or annually through 2014. Analyzed constituents in groundwater included GRO, BTEX, MTBE, Ethylene Dibromide (EDB) and 1,2-Dichloroethane (EDC). Total lead and dissolved lead were added in August 2003. Concentrations above the MTCA Method A groundwater CULs were observed in samples collected from the five groundwater monitoring wells. EDB and EDC were analyzed twice and were never detected above MDLs. Total lead was detected above MTCA Method A CUL in samples collected from wells MW-1, MW-3 and MW-5 but dissolved lead was never observed at concentrations above the MTCA Method A CUL. Toluene was never observed at concentrations above the MTCA Method A CUL and ethylbenzene and xylenes were only observed at concentrations above the MTCA Method A CULs once in a sample collected from one well (in 2003 in MW-2). GRO and benzene have been observed at concentrations above the MTCA Method A CULs in samples collected from wells MW-1 and MW-2 up to 2005. MTBE was observed at concentrations above the MTCA Method A CUL in samples collected from wells MW-1, MW-3 and MW-4. Dissolved phase concentrations have not exceeded the MTCA Method A CULs for groundwater since 2005 for most of the wells and most of the constituents with the exception of MTBE in samples collected from well MW-1. Recent and historical groundwater monitoring data are available in **Table 1**.

5. Summary of Previous Remedial Actions

In February 2001, dispenser island and turbine upgrade activities were conducted and trenching occurred at depths from 2 to 5.5 feet bgs. Following excavation activities, approximately 17 tons of soil were removed from the Site and disposed of (Delta, 2001).

Between December 2001 and January 2002, additional dispenser line upgrades and over-excavation activities were conducted onsite. Activities included the replacement of dispenser lines in the same onsite location, installation of secondary containment for dispensers and UST fill and turbine ports, installation of an oil/water separator, and sewer line trenching. Based on analytical results from the 2001 dispenser island and turbine upgrade, soils in the vicinity of the dispenser islands and lines were excavated to a maximum depth of 9 feet bgs. Soils in the vicinity of the dispenser islands and lines were over-excavated and replaced with clean imported fill. The open sewer line trench ran to the northeast corner of the Site and was excavated to depths between 3 and 5 feet bgs. The soils excavated during secondary containment installation at the

UST were analyzed and were not determined to contain hydrocarbon constituents. Therefore the excavated soil was returned to the UST basin. The oil/water separator was installed northeast of the dispenser islands. A total of 893.15 tons of soil containing hydrocarbon constituents was removed from the Site and disposed of (Delta, 2002).

During over-excavation activities, underground remediation system piping was installed in the dispenser island trench prior to backfilling. The piping runs parallel to the northeastern border of the canopy, perpendicular to the dispenser islands. The remediation piping layout indicated six “monuments for future air sparge well locations” and three “monuments for future soil vapor extraction well locations” were to be installed between the dispenser islands (Delta, 2002). The locations of the air sparge/soil vapor extraction (AS/SVE) well monuments were field confirmed by ARCADIS personnel during a site visit in April 2010. AS/SVE wells have not been installed in these monuments.

Site soil analytical data are presented in **Table 2** and on **Figures 7a** and **7b**. An over-excavation location map is illustrated on **Figure 7a**.

6. Summary of 2014-2015 Activities

6.1 Groundwater Monitoring Activities

On January 22nd, February 17th, May 14th, August 6th and December 12th, 2014 and March 9th 2015, ARCADIS conducted groundwater monitoring activities at the Site. For the quarterly sampling activities in 2014, ARCADIS contracted Blaine Tech Services, Inc. to conduct the groundwater monitoring. Groundwater monitoring field data sheets are included as **Appendix E**. Groundwater gauging data and select analytical results are summarized in **Table 1** and on **Figures 6a** through **6f**. A historical groundwater flow direction rose diagram is presented on **Figure 5**.

Groundwater samples from monitoring activities were analyzed for the following constituents of concern (COCs):

- GRO by Ecology Northwest Method NWTPH-Gx;
- BTEX by Environmental Protection Agency (EPA) Method 8260;
- MTBE by EPA Method 8260; and
- Lead by EPA Method 6010 or 6020.

Groundwater samples were collected in laboratory-provided bottles and placed in a cooler with ice and submitted to Eurofins Lancaster Laboratories Environmental (Lancaster) located in Lancaster, Pennsylvania, under standard chain-of-custody procedures. The laboratory analytical report and chain-of-custody documentation are included as **Appendix F**. The bill of lading for the waste water generated during the groundwater monitoring events is presented as **Appendix G**.

6.1.1 First Quarter Monitoring Events 2014

On January 22nd, 2014, monitoring wells MW-1 and MW-2 were gauged and MW-1 was sampled via low-flow purge methods. A duplicate was also collected from MW-1. The depth to groundwater during this sampling event ranged between 2.81 feet btoc in well MW-2 to 5.05 feet btoc in well MW-1. Groundwater elevations during this sampling event ranged from 123.41 feet amsl in well MW-2 to 125.83 feet amsl in well MW-1. The COCs detected above laboratory reporting limits (RLs) did not exceed the MTCA Method A CULs.

On February 17th, 2014, monitoring wells MW-1 through MW-5 were gauged and sampled via low-flow purge methods. The depth to groundwater during this sampling event ranged between 2.80 feet btoc in well MW-2 to 5.75 feet btoc in well MW-4. Groundwater elevations during this sampling event ranged from 123.42 feet amsl in well MW-2 to 132.56 feet amsl in well MW-5. The inferred direction of groundwater flow is to the northeast. The COCs detected above laboratory reporting limits (RLs) did not exceed the MTCA Method A CULs.

6.1.2 Second Quarter Monitoring Event 2014

On May 14th, 2014, monitoring well MW-1 was gauged and sampled via low-flow purge methods. A duplicate was also collected from MW-1. The depth to groundwater during this sampling was 4.53 feet btoc. Groundwater elevations during this sampling event was 126.35 feet amsl. The COCs detected above laboratory RLs did not exceed Method A CULs.

6.1.3 Third Quarter Monitoring Event 2014

On August 6th, 2014, monitoring wells MW-1 through MW-5 were gauged and MW-1 was sampled via low-flow purge methods. A duplicate was also collected from MW-1. The depth to groundwater during this sampling event ranged between 2.95 feet btoc in well MW-2 to 7.65 feet btoc in well MW-4. Groundwater elevations during this sampling event ranged from 123.27 feet amsl in well MW-2 to 129.93 feet amsl in

well MW-5. The inferred direction of groundwater flow is to the northeast. Groundwater samples collected during this sampling event contained MTBE concentrations greater than the MTCA Method A CUL of 20 micrograms per liter (µg/L) in both sample and duplicate collected from MW-1. The remaining COCs detected above laboratory RLs did not exceed Method A CULs.

6.1.4 Fourth Quarter Monitoring Event 2014

On December 12th, 2014, monitoring wells MW-1 through MW-5 were gauged and MW-1 was sampled via low-flow purge methods. A duplicate was also collected from MW-1. The depth to groundwater during this sampling event ranged between 2.15 feet btoc in well MW-2 to 6.23 feet btoc in well MW-4. Groundwater elevations during this sampling event ranged from 124.07 feet amsl in well MW-2 to 133.23 feet amsl in well MW-5. The inferred direction of groundwater flow is the northeast. The COCs detected above laboratory RLs did not exceed Method A CULs.

6.1.5 First Quarter Monitoring Event 2015

On March 9th, 2015, monitoring wells MW-1 through MW-5 were gauged and sampled via low-flow purge methods. A duplicate was also collected from MW-1. The depth to groundwater during this sampling event ranged between 2.54 feet btoc in well MW-2 to 6.42 feet btoc in well MW-4. Groundwater elevations during this sampling event ranged from 123.68 feet amsl in well MW-2 to 133.01 feet amsl in well MW-5. The inferred direction of groundwater flow is to the northeast. The COCs detected above laboratory RLs did not exceed Method A CULs.

6.2 2014 Subsurface Investigation

On March 11th, 2014, ARCADIS conducted a subsurface investigation. Two soil borings, SB-100 and SB-101, were advanced in order to delineate and confirm historic soil COC concentrations, and develop site specific CULs. Boring SB-100 was advanced between the oil-water separator and monitoring well MW-1. Boring SB-101 was advanced in the northeastern portion of the Site close to the sewer line and MW-2.

Drilling activities were conducted by a licensed drilling subcontractor, Cascade Drilling, LP. The soil borings were cleared using an air-knife and vacuum truck to 6.5 feet bgs to reduce the potential for damage to subsurface utilities. The borings were then advanced from 6.5 feet bgs to their respective terminal depth with a truck mounted direct-push probe. Boring SB-101 was terminated at 15 feet bgs, while boring SB-100

was terminated at 10 feet bgs. Groundwater was encountered around 7 feet bgs in each boring.

Soil samples were collected for field screening at approximately 2.5 feet bgs and 5 feet bgs using a hand auger during clearing activities. From 6.5 feet bgs to the boring terminus, continuous soil samples were collected from the direct-push probe in five foot acetate sleeves. Boring logs were prepared by an ARCADIS field staff using the Unified Soil Classification System (USCS) and are included in **Appendix D**. Field screening of soil samples was performed using a photoionization detector (PID) and visual inspection methods.

Analytical samples were collected in laboratory-provided bottles and placed in a cooler with ice. Samples were submitted to Lancaster in Lancaster, Pennsylvania, under standard chain-of-custody protocol. Soil samples were analyzed for the following COCs:

- GRO by Ecology Northwest Method NWTPH-Gx;
- TPH as diesel range organics (DRO) and TPH as heavy oil range organics (HO) by Ecology Northwest Method NWTPH-Dx;
- BTEX by EPA Method 8260; and
- Lead by EPA 6010.

Soil samples were collected for laboratory analysis from depths that corresponded to adjacent historical soil impacts as well as areas where PID screening indicated potential impacts.

SB-100 analytical samples were collected from 5 feet bgs (corresponding to the historical sample from MW-1 at 5 feet bgs), 7-8.5 feet bgs (corresponding to the historical sample 6031-12/28-SUMPB-7.5 at 7.5 feet bgs) and 9-10 feet bgs. Concentrations of GRO, DRO, HO, toluene, ethylbenzene, xylenes and MTBE were not detected exceeding MDLs or MTCA Method A CULs. Benzene was detected at a concentration above the MTCA Method A CUL (0.03 milligrams per kilogram (mg/kg)) in one soil sample collected at 7 to 8.5 feet bgs (0.032 mg/kg). Therefore, historical impacts of GRO and xylenes associated with sample 6031-12/28-SUMPB-7.5 are confirmed to be in compliance with MTCA. However, historical impacts of benzene are still present at this location. Benzene was detected at concentration below the MTCA Method A CUL in the soil sample collected at 5 feet bgs. Therefore, historical impacts of benzene associated with sample B-1-5 are confirmed to be in compliance with MTCA.

SB-101 analytical samples were collected at 5 feet bgs (corresponding to historical sample 6031-1/26-TR2-5 at 5 feet bgs), 6.5 feet bgs and 10 feet bgs (corresponding to elevated PID readings). Concentrations of DRO, HO, BTEX, MTBE and Lead were not detected exceeding MDLs or MTCA Method A CULs. A concentration of GRO was detected above the MTCA Method A CUL of 30 mg/kg when benzene is detected in the duplicate soil sample collected at 5 feet bgs (38 mg/kg), however GRO concentrations in the parent sample and in the samples collected at further depths were below Method A CUL for GRO when benzene is detected. None of the soil samples contained benzene concentrations above the laboratory limit of quantification (LOQ) and none of the soil samples contained GRO concentrations above the MTCA Method A CUL of 100 mg/kg when benzene is not detected. Therefore, historical impacts of BTEX associated with sample 6031-1/26-TR2-5 are confirmed to be in compliance with MTCA.

Additionally, soil from SB-100 7-8.5 feet bgs was analyzed for volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) by the Ecology Northwest Method VPH/EPH, respectively. Laboratory analytical reports and chain of custody documentation are included as **Appendix H**. Soil analytical data are presented in **Table 2** and on **Figure 7a** and **7b.** The VPH/EPH data are included in **Table 3**.

Soil cuttings and waste water generated during soil boring activities were contained in Department of Transportation-approved, 55-gallon steel drums. The investigation derived waste (IDW) was appropriately labeled and stored onsite pending disposal. Following receipt of laboratory analytical data the soil and water IDW was collected and transported by Kleen Environmental Technology for disposal at a certified waste disposal facility. Waste manifests are included as **Appendix I**.

7. Potential Petroleum Hydrocarbon Impacts – Other Media

Petroleum hydrocarbon impacts have been investigated in the soils and groundwater onsite. The following are other areas for potential petroleum hydrocarbon impacts.

7.1 Surface Waters

Annual average rainfall is approximately 36 inches in Kirkland, Washington. There is no surface water, area of sediment deposit or floodplain at the site. Therefore, surface water at the Site is limited to runoff from precipitation. Since development as a retail gas station and service station, the Site has been paved with asphalt or concrete with the exception of minimal landscaped areas; therefore infiltration of surface water into the groundwater table is limited.

No known impacts to surface waters have occurred due to the past operation of the Site as a retail gasoline station.

7.2 Sediment

Surface waterways and associated sediments are not present at the Site. Therefore, no known impacts to sediments have occurred due to historic retail gasoline station operations at the Site.

7.3 Soil Vapor

The Site is currently zoned for commercial use as a retail gas station and a convenient store and is assumed to remain in this condition in the future. Furthermore, the site is currently vacant. Section 1.2 of the vapor intrusion guidance states:

> "A worker potentially exposed to vapor intrusion-contaminated indoor air is regularly and simultaneously exposed to the same hazardous chemical vapors in the workplace. The workplace vapor concentrations are routinely much higher than any levels expected from vapor intrusion. This worker understands that exposure to the particular chemical is part of the job and is enrolled in the company's Occupational Safety and Health Act (OSHA) compliant employee protection program. Because the exposure scenario described here is regulated under OSHA, the guidance has not been developed to assess or otherwise address such a situation.
>
> Although dry-cleaning businesses and automobile filling stations are not manufacturing operations, the same logic may apply to evaluating vapor intrusion in their associated buildings. That is, the guidance has not been developed to assess or otherwise address situations where a subsurface vapor intrusion source potentially threatens indoor air quality, but: a) indoor workers are regularly exposed to the same hazardous chemical vapors in the workplace due to the nature of the business; b) the workplace-related vapor concentrations are routinely much higher than any levels expected from vapor intrusion; and, c) the workers are enrolled in an OSHA-compliant employee protection program (Ecology, 2009)."

Because this site is a petroleum facility, workers at the site may be exposed to petroleum constituents in ambient air. The contribution to the total concentrations from potential vapor migration from soil gas is considered minimal.

Table B-1 within the Ecology vapor intrusion guidance contains groundwater screening levels considered to be protective of potential exposures via the vapor intrusion pathway to indoor air. COCs that have historically been detected in groundwater at the site include GRO, BTEX and MTBE. BTEX and MTBE concentrations have not been detected in groundwater above the respective Table B-1 groundwater screening levels since February 2012. Therefore the historical groundwater COC concentrations are considered to be protective of indoor air.

The Ecology vapor intrusion guidance suggests the groundwater screening levels would be conservative for receptors at the Site. Specifically, groundwater screening levels are calculated using Method B cleanup levels for indoor air, which are stated to be overly conservative for commercial receptor scenarios. Parameters such as body weight and exposure duration used in the groundwater screening levels differ from the parameters that would be expected for a commercial receptor. Section 6.6.2 of the vapor intrusion guidance states:

“Where the building of concern is being used commercially (but is not located on an industrial property), and the most highly exposed receptors are workers, the Method B exposure assumptions in WAC 173-340-750 Equations 750-1 and 750-2 are likely to be overly conservative. Average body weight, for example, in Equation 750-1 is 16 kg (representing a child), whereas the receptors of concern at most commercial properties will be adults with an average weight closer to 70 kg. In addition, the amount of time exposed will often be less than default values: most receptors in a commercial building will not be exposed to contaminated indoor air 24 hours per day, seven days a week, all year long. Therefore, while subsurface source concentrations must eventually be remediated to cleanup levels derived from Method B air cleanup levels to free the property of any future development restrictions, current receptors can be considered protected if indoor air concentrations are somewhat higher than Method B air cleanup levels.”

TPH is considered a cumulative measurement of several carbon chain compounds. Because of this cumulative result, the evaluation of TPH exposure via the vapor intrusion pathway based on historical data is not technically feasible. Furthermore, Ecology has not provided a TPH indoor air cleanup level for the evaluation of the vapor intrusion pathway within the Ecology vapor intrusion guidance or Cleanup Levels and Risk Calculations (CLARC) database.

Due to the expected current and future exposure and likely receptor scenarios supported by the construction and zoning of the site, and historical COC comparison to conservative groundwater screening criteria, the potential vapor intrusion pathway is not considered to pose an unacceptable risk to current and future receptors at the Site. Furthermore, there are no remaining soil impacts above 4-feet at the Site (in the vadose zone). Impacts below 4-feet are likely submerged below the water table, and volatilization to soil gas would not occur.

7.4 Ecological and Natural Resources

The property is located in a commercial area of Kirkland, Washington, and is zoned for commercial use as a retail gas station and a convenience store as described under standard industrial classification (SIC) code #5541. The entire Site is paved with asphalt or concrete with the exception of minimal landscaped areas. Because there are no contiguous undeveloped lands in the vicinity of the Site, this area is not considered to be suitable habitat to support native vegetation and/or wildlife. Furthermore, traffic corridors and similar features surrounding the Site further reduce the potential use of the area by wildlife.

7.5 Cultural and Archaeological Resources

There is no indication that cultural and/or archaeological resources are present at the Site. Therefore, no known impacts to cultural and archaeological resources have occurred due to retail gasoline station operations at the Site.

8. Conceptual Site Model

Possible pathways associated with potential exposures to petroleum hydrocarbon constituents detected in the soil and groundwater at the Site are described below. The conceptual site model (CSM), or exposure evaluation flowchart provides a summary of the relationships between primary sources (i.e. release mechanisms), secondary sources (i.e. exposure media), transport mechanisms, exposure pathways, and potential current and future receptors. Details of the CSM for the Site are provided in the following sections.

8.1 Potential Constituent Sources

The primary source of dissolved phase COCs at the Site includes the historical release of gasoline to soil and groundwater. No specific known release has occurred at the Site, however previous soil and groundwater investigations and remediation activities

indicate a release most likely occurred from the dispenser islands and the USTs. Historic depths to water have ranged from 2.15 to 9.43 feet btoc. Potential releases from the dispenser islands may have occurred in the vadose zone, the smear zone, the saturated zone, or all three. Therefore, a direct release of gasoline to soil and groundwater is considered for the CSM.

The primary source of COCs at the Site are leaks from the dispenser islands and the USTs. The secondary source is considered to be hydrocarbon impacted soil and dissolved phase hydrocarbons in the groundwater.

8.2 Potential Receptors and Transport Mechanisms

The property is located in a commercial area of Kirkland and is zoned for commercial use as a retail gas station and a convenient store and is expected to remain a commercial use area in the future. Although all the structures are still onsite, the Site is currently closed and fenced and does not operate as a service station and retail store. There are currently no plans to redevelop the Site, and it is likely to remain a retail gas station and service station in the future.

8.2.1 Dissolved Product in Groundwater

The Site is currently closed and fenced; therefore, there are no current human receptors for groundwater. Potential future receptors for groundwater include construction workers exposed during potential redevelopment activities, as well as potential commercial workers onsite.

Transport mechanisms for dissolved petroleum hydrocarbons in groundwater include advection, diffusion, and volatilization. Groundwater transport may lead to ingestion or dermal absorption of dissolved petroleum hydrocarbons. During the most recent groundwater monitoring event in March 2015, depths to groundwater ranged from 2.54 and 6.42 feet btoc. Historically, depth to groundwater measured in monitoring wells at the Site has ranged from 2.15 to 9.43 feet. The groundwater flow direction based on groundwater monitoring wells measured across the Site is mainly to the north/northeast.

Ingestion is not considered to be a likely exposure scenario. Groundwater at the Site is not currently used as a potable water source. As described in Section 2.6., the water provided to the City of Kirkland originates from the protected watersheds of the Cedar and South Fork Rivers. Also, there are currently no public drinking water wells within half of a mile of the Site. Additionally, the groundwater flow direction based on

groundwater monitoring wells measured across the Site is to the north/northeast, which is towards a public road, not towards an area where there is a potential future potable water source. Therefore, this exposure scenario is not complete for current or future receptors.

Utility/trench workers typically work at depths between 1 to 10 feet bgs. Regarding the depths to groundwater at the Site, it is possible for utility/trench receptors to be directly exposed to constituents in groundwater beneath the Site. Therefore, pathways associated with potential direct contact exposures to constituents in groundwater for future onsite construction and excavation worker receptors, such as those maintaining utility lines, are potentially complete.

Another potential transport mechanism at the Site may include volatilization of constituents in groundwater to outdoor air and/or indoor air of current and future onsite buildings, or air within a trench used by future onsite construction workers. Although the COCs may volatilize from groundwater to outdoor air and may be inhaled by future onsite potential receptors, this exposure pathway is considered to be insignificant given the atmospheric dilution effects from wind. Site COCs have not been detected in groundwater above the respective Table B-1 groundwater screening levels since February 2012, or do not have established screening levels for vapor migration. Therefore this pathway is considered potentially complete, but insignificant.

8.2.2 Surface Soils (<15 feet)

Transport mechanisms for petroleum hydrocarbons in soil include leaching of residual phase petroleum hydrocarbons from soil (surface, <15 feet bgs, or subsurface >15 feet bgs) into groundwater, runoff and volatilization. Direct contact with soil could also potentially lead to exposure pathways, including incidental ingestion of soil, inhalation of fugitive dust, or dermal contact with soil.

Leaching of residual phase petroleum hydrocarbons from soil (surface, <15 feet bgs, or subsurface >15 feet bgs) into groundwater is another transport mechanism which may lead to exposure through ingestion and dermal absorption. However, this transport mechanism leads to exposure pathways in groundwater, rather than exposure pathways in soil. Potential exposure pathways associated with groundwater are discussed in Section 8.2.1.

Storm water and surface runoff water is contained in the storm water drainage system and soils are not exposed at or near ground surface. Therefore, runoff is not considered a significant transport mechanism.

Another potential transport mechanism at the Site may include volatilization of constituents in soil to outdoor air and/or indoor air of current and future onsite buildings, or air within a trench used by future onsite construction workers. Although the COCs may volatilize from soil to outdoor air and may be inhaled by onsite potential receptors, this exposure pathway is considered to be insignificant given the atmospheric dilution effects from wind.

The Site is currently paved with asphalt or concrete with the exception of minimal landscaped areas and is expected to remain the same in the future. The pavement currently serves as a barrier between surface soil and potential receptors. However, utility trench workers often work at depths between 1 and 10 feet bgs and could be exposed to surface soil by direct contact exposure pathways. The Site may also be redeveloped in the future and direct contact could potentially lead to exposure pathways for future construction workers. Therefore, pathways associated with direct contact exposures to constituents in surface soils for future human receptors are potentially complete.

8.2.3 Dissolved Product in Surface water

Human receptors may be exposed to surface water via direct contact, ingestion, inhalation or from eating contaminated seafood. No surface water or sediments are present on the Site. However, it is possible for groundwater to discharge to surface water. Because the closest surface water is located more than 500 feet from the site, surface water is not been considered a potentially complete pathway.

8.2.4 Ecological Receptors

Transport mechanisms potentially leading to the exposure of petroleum hydrocarbons to terrestrial ecological receptors are not present at the Site. According to WAC 173-340-7491(1)(a-d), if the Site meets any one of the four exclusion criteria, no further terrestrial ecological evaluation (TEE) is necessary for the Site. A TEE evaluation form, in accordance with MTCA (WAC 173-340-7490 to -7493) was completed for the Site and submitted to Ecology in April 2011. The Site was found to qualify for exclusion from further evaluation. Specifically, the Site met TEE exclusion criteria in WAC 173-340-4791(1)(c) for undeveloped land, stating:

- There is less than 0.25 acre of contiguous undeveloped land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins of furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide,

benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

- Sites not containing any of the chemicals above, there is less than 1.5 acres of contiguous undeveloped land on or within 500 feet of any area of the site

The Site is currently paved with asphalt or concrete with the exception of the landscaped areas, and is located in a commercial area of Kirkland. Areas within 500 feet of the Site are developed and are also paved with asphalt or concrete. The specific chemicals listed in the criteria are not present at the Site. Since the Site is devoid of ecological habitat and surface water is absent from the Site, it is anticipated that ecological receptors are absent from the Site. It is expected that the Site will remain as a retail gas station and service station.

Therefore, the TEE exclusion submitted in 2011 is currently valid and potential exposure pathways for terrestrial ecological receptors are not complete. The 2011 TEE is included as part of **Appendix J.**

8.3 Potentially Complete Exposure Pathways

Based on the information presented in the previous sections, potentially complete exposure pathways at the Site include the following:

- Dermal contact with groundwater by future onsite construction workers.

- Volatilization of groundwater to indoor air and potential inhalation by future onsite receptors or volatilization of groundwater to air within a trench and potential inhalation by future onsite construction workers.

- Exposure pathways associated with dermal contact with surface soil, including incidental ingestion of soil, inhalation of fugitive dust, or dermal contact with soil by future receptors.

- Volatilization of soil to indoor air and potential inhalation by future onsite receptors or volatilization of soil to air within a trench and potential inhalation by future onsite construction workers.

  These potential exposure pathways are considered to be insignificant, and the risk to human health is likely to be low. Petroleum hydrocarbon impacts from subsurface to soil vapor are likely to be negligible. Furthermore, the Site is largely

paved with concrete or asphalt and no future re-development of the Site has been planned. The CSM is illustrated on **Figure 8**.

9. Cleanup Standards

A cleanup standard consists of the following three elements [WAC 173-340-700(3)]:

- CUL, the concentration that must be met to protect human health and the environment,
- Points of compliance (POC), the location where the CUL must be achieved,
- Other regulatory requirements commonly referred to as applicable or relevant and appropriate requirements (ARARs), that apply to the Site because of the type of action or the location of the Site.

The cleanup standards were developed using the MTCA Method B approach and Site specific information (Ecology, 2007). The CULs and POCs are presented in this section.

9.1 Constituents of Concern

COCs are the chemicals expected to account for most of the risks at a site, and cleanup standards must be developed for each COC in each medium. The COCs for groundwater and soil were developed in accordance with WAC 173-340-703. The COCs are presented in this section.

9.1.1 Groundwater COCs.

Operations at the property included the UST storage and distribution of unleaded and regular gasoline. Groundwater monitoring was initiated at the Site in 2003, and GRO, BTEX, MTBE, EDB and EDC as well as total lead and dissolved lead were selected as COCs based on historical distribution of gasoline from the USTs. EDB and EDC were analyzed twice and were never detected above MDLs.

The final list of groundwater COCs is as follows:

- TPH Fractions[1]
- Benzene
- Toluene
- Ethylbenzene
- Xylenes
- MTBE
- Lead

TPH are calculated as the sum of GRO, DRO and HO in accordance with the MTCA Method B TPH 11.1 worksheet. Concentrations of toluene have not historically exceeded the groundwater MTCA Method A CUL typically used at retail petroleum sites. Therefore, although toluene is listed as a groundwater COC, this constituent has always been in compliance with MTCA. Total lead was detected above MTCA Method A CUL but dissolved lead was never observed at concentration above MTCA Method A CUL. Therefore, although lead is listed as a groundwater COC, this constituent has always been in compliance with MTCA.

9.1.2 Soil COCs

Soil samples were first collected at the Site in 2001 during dispenser island and turbine upgrade activities. At this time, samples were analyzed for GRO and BTEX, and these analytes were detected above MTCA Method A CULs. Additional dispenser line upgrades and over-excavation activities were conducted in 2001/2002. At this time, soil samples were analyzed for GRO, BTEX, MTBE and lead. Of these, GRO, BTEX and MTBE were detected at concentrations exceeding MTCA Method A CULs and lead at concentrations above MDLs. DRO and HO were later added as soil analytes during soil sampling in 2014, and only HO were detected at concentrations exceeding MDLs but not exceeding MTCA Method A Soil CULs.

[1] This is calculated as the sum of GRO, DRO, and HO concentrations.

The final soil COCs for the Site are:

- TPH[2]
- Benzene
- Toluene
- Ethylbenzene
- Total Xylenes
- MTBE
- Lead

Concentrations of total lead have not historically exceeded the soil MTCA Method A CULs typically used at retail petroleum sites. Therefore, although lead is listed as a soil COC, it has always been in compliance with MTCA.

9.2 Cleanup Levels

This section presents the criteria and rationale for determining CULs for groundwater and soils. Such CULs were determined by assuming a conditional point of compliance (CPOC) approach for site cleanup activities, according to WAC-173-340-720(8)(C):

"*Where it can be demonstrated under WAC 173-340-350 through 173-340-390 that it is not practicable to meet the cleanup level throughout the site within a reasonable restoration time frame, the department may approve a conditional point of compliance that shall be as close as practicable to the source of hazardous substances, and except as provided under (d) of this subsection, not to exceed the property boundary. Where a conditional point of compliance is proposed, the person responsible for undertaking the cleanup action shall demonstrate that all practicable methods of treatment are to be used in the site cleanup.*"

A conditional point of compliance approach is proposed for this Site using monitoring wells in close proximity to the source of hazardous substances. Subsequent sections of this report demonstrate:

[2] This is calculated as the sum of GRO, DRO, and HO concentrations.

- It is not practicable to meet Method A CULs within the MTCA site boundary within a reasonable restoration time frame.

- Previous remedial activities at the Site have been attempted to reduce the concentrations of hazardous substances below MTCA Method A CULs, and

- Based on an evaluation of natural attenuation at the Site, practicable methods of treatment are being used in the Site cleanup.

9.2.1 Groundwater Cleanup Standards

The following subsections present the endpoints, CULs, and POC for groundwater at the Site.

9.2.1.1 Endpoints for Cleanup Levels

Groundwater at the Site generally flows to the north-northeast. The Site is located approximately 1.3 miles to the northeast of Lake Washington, in a depression area close to the border of the Lake Washington Watershed and the Lake Sammamish Watershed. This water body is most likely the endpoint for local groundwater. However, to be conservative, MTCA Method A Groundwater CULs will be applied to areas immediately surrounding the MTCA Site boundary in order to provide protection for a drinking water beneficial use scenario. This ensures downgradient areas beyond the Site are also protected for drinking water beneficial use.

9.2.1.2 POC Groundwater Cleanup Levels

Established MTCA Method B groundwater CULs are calculated based on an assumed exposure scenario of ingestion of potable groundwater. However, this exposure scenario is not complete since the groundwater at the Site is not currently used as drinking water. Furthermore, an environmental covenant will insure that groundwater at the Site will not be used as drinking water in the future.

Therefore, at the Site, the only potentially complete exposure pathway is direct contact with dissolved phase hydrocarbons in groundwater including dermal contact and inhalation of volatile constituents by construction and excavation worker receptors.

Direct contact Method B groundwater CULs were therefore developed for the Site in accordance with WAC 173-340-720(6) which states that CULs for such sites may be

determined through a site specific risk assessment as long as methods outlined in WAC 173-340-708 are followed.

Specific methodologies used to calculate CULs for petroleum mixtures and individual constituents are outlined in *Appendix C* of the *Cleanup Levels Report Former ARCO Facility No. 5236* (ARCADIS, 2014). The more conservative of the cancer versus the non-cancer CUL is presented for BTEX. The calculated direct contact Method B Groundwater CULs, presented below for BTEX, are proposed as generic values.

To specifically address petroleum mixtures, two soil samples were collected during the installation of soil boring SB-100. This boring was installed in an area of known historical impacts and is considered to be representative of soil impacts at the Site. The fractionated data of each sample gives a site-specific weight fraction which is combined in equation B-69 with the non-carcinogenic CUL calculated for each TPH fraction to generate a TPH CUL per sample (ARCADIS, 2014). The site-specific TPH Method B CUL presented below is based upon the fractionated soil sample (**Appendix K**).

These CULs are presented as follows:

Method B Direct Contact Groundwater Cleanup Levels

COC[1]	Groundwater Cleanup Level (µg/L)
TPH	9,950
Benzene	1,900
Toluene	210,000
Ethylbenzene	4,700
Total Xylenes	23,000
MTBE	66,000
Note: [1] Proposed groundwater CUL based on groundwater direct contact pathway (Table K-1 in Appendix K).	

Total lead was detected above the MTCA Method A CUL but dissolved lead was never observed at a concentration above the MTCA Method A CUL. Although lead is listed

as a groundwater COC, this constituent has always been in compliance with MTCA. Therefore, because dissolved lead concentrations have never exceeded the MTCA Method A CUL, a direct contact groundwater CUL was not established for this COC. A direct contact groundwater CUL was not established for EDB and EDC because these constituents are not considered as COCs.

9.2.1.3 CPOC Groundwater Cleanup Levels

In order to be protective of the endpoint of potential future drinking water resources in the region, CPOC monitoring wells need to be in compliance with MTCA Method A Groundwater CULs. If groundwater is shown to be in compliance with MTCA Method Groundwater A CULs at the groundwater CPOCs, downgradient groundwater will be protected for this exposure scenario, with regards to releases from the Site.

Method A Groundwater CULs for Site COCs include:

Method A Groundwater Cleanup Levels

COC	Method A Groundwater Cleanup Level (µg/L)
GRO[1]	800/1,000
DRO	500
HO	500
Benzene	5
Toluene	1,000
Ethylbenzene	700
Total Xylenes	1,000
MTBE	20
Lead	15

Note:
[1] If benzene is present in a given sample, the CUL for GRO is 800. If benzene is not present the CUL is 1,000

9.2.1.4 Groundwater POC and CPOC

Dissolved-phase COC concentrations from the groundwater monitoring well located within the areas affected by the petroleum hydrocarbon impacts associated with the dispenser islands and the USTs was used for a POC monitoring well. This well is identified as MW-1.

According to WAC-173-340-720(8)(C), CPOC monitoring wells are necessary in order to determine if dissolved phase petroleum hydrocarbons are migrating offsite to the assumed endpoint. To be conservative, the endpoint for Site groundwater is assumed to be potential future drinking water wells and CPOCs can be used to determine if such a receptor has the potential to be impacted. CPOC monitoring wells are positioned such that plume migration would be detected, and compliance with groundwater CULs would be indicative of a stable or shrinking plume. Compliance for the CPOC would indicate potential future drinking water resources were protected.

The CPOC wells for this Site are located directly at the MTCA Site boundary, and consist of four existing monitoring wells. These wells are located along the upgradient, crossgradient, and downgradient sides of the MTCA Site boundary, as shown on Figure 3. Concentrations in these wells are below Method A CULs and so the concentrations are protective of future drinking water resources in the region. The Site CPOC monitoring wells are listed below:

CPOC Monitoring Well	Hydraulic Direction from Plume	Geographic Direction from Plume
MW-2	Downgradient	Northeast
MW-3	Cross gradient	Southeast
MW-4	Cross gradient	Northwest
MW-5	Upgradient	Southwest

9.2.1.5 Groundwater and COC Transport Evaluation

To date, offsite plume migration exceeding the applicable CULs has not been observed. To evaluate the potential for future offsite migration at COC concentrations exceeding CULs, a detailed evaluation of groundwater velocity and transport velocity of COCs was completed. The purpose of this evaluation was to determine the amount of time required for groundwater and organic constituents to potentially travel from a well

within the MTCA Site boundary to a downgradient offsite CPOC well. Detailed methodologies and calculations are included as **Appendix L**.

Aquifer testing has not been conducted at the Site; therefore, no site-specific estimates of hydraulic conductivity exist. Hydraulic conductivity was estimated based on literature values for the lithology present in MW-1 and MW-2. At both monitoring wells, boring logs indicate that the soil consists of fine to large grained sand and small to large gravel with silt to a depth of approximately 5.5 feet bgs, with a discontinuous sandy silt layer at 6.5 to 7.5 feet bgs and silty clay to clay below 7.5 feet bgs. Historical soil boring data indicate that impacts above either Method A or Method B MTCA CULs were found in soil samples taken between 2 and 9 feet bgs. Based on literature values, the expected range of hydraulic conductivity values for the site lithology is between 0.1 and 0.3 foot per day (ft/d). Groundwater elevation data from three recent monitoring events (January, February, and August 2014) were used to calculate the hydraulic gradient at the Site. For hydraulic conductivity values of 0.1 and 0.3 ft/d and an assumed mobile porosity of 0.10, the estimated average mean groundwater velocity is between 0.043 and 0.13 ft/d. This corresponds to an estimated groundwater travel time between MW-1 and MW-2 of 1 to 4 years.

The transport velocity of organic constituents is typically slower than the groundwater velocity due to interaction of organic constituents with the soil matrix and, when data are available, should be used for estimation of travel times of constituents in groundwater. The transport velocity is calculated by dividing the groundwater velocity by a retardation factor.

Benzene and methyl tertiary butyl ether (MTBE) have historically been detected at the Site at concentrations that exceed MTCA Method A CULs. Using methods and calculations in **Appendix L**, a range of travel times between monitoring wells MW-1 and MW-2 was calculated based on the sorption characteristics of these COCs. Specifically, the travel time for MTBE is estimated to be between 2 and 5 years, and the travel time for benzene is estimated to be between 3 and 8 years. Additionally, this approach does not account for any natural attenuation that occurs along this flow path, which would further reduce concentration levels or even preclude the arrival of groundwater impacts at downgradient monitoring wells; therefore, this approach provides a conservative estimate.

Soil impacts were first observed in the vicinity of the dispenser islands in 2001, indicating that 14 years, at a minimum, have elapsed since impacts occurred at the Site. Given that the calculated travel times for MTBE and benzene between MW-1 and

MW-2 are less than 14 years, this suggests that plume attenuation is occurring, and offsite migration of concentrations exceeding the applicable CULs is unlikely to occur.

9.2.1.6 Linear Regression Analysis

In addition to evaluating groundwater velocity and COC transport velocities at the Site, the trend in groundwater MTBE concentrations measured over time at monitoring well MW-1 was assessed to understand the potential for future offsite migration at concentrations exceeding the MTCA Method A CUL, as well as the potential for ongoing attenuation of groundwater MTBE impacts. A statistical analysis of the groundwater monitoring data was completed to evaluate the temporal trend in dissolved-phase MTBE at MW-1, as well as to demonstrate the effectiveness of remedial activities and overall plume stability. This monitoring location was selected based on review of the available groundwater monitoring data from the Site, with the COC chosen for linear regression analysis based on the following criteria:

(1) The dataset has a minimum of eight analytical results, with at least 50 percent detections, and
(2) Any of the monitoring data exceeded the CULs during the last four years (2011 through 2015).

Based on these criteria, linear regression analysis was used to evaluate the MTBE concentration trend at monitoring well MW-1. Dissolved-phase COCs are currently below the MTCA Method A CULs or below MDLs at the four other monitoring well locations at the Site, and have been since 2005.

A linear regression analysis using natural log-normalized concentration data was conducted to estimate trend direction, rate of concentration decrease, and approximate time to achieve the CUL for the selected location and constituent following USEPA protocols (EPA 2002). Where duplicate samples were collected, the parent sample result was used in the computation. Results of the linear regression analysis, including coefficient of determination (R^2 value), p-value of the correlation, and trend direction are summarized in **Table M-1**, with the individual analysis included as **Appendix M**. The R^2 value is a measure of how well the linear regression fits the site data; R^2 values less than 0.1 indicate poor model fits, while R^2 values greater than 0.5 indicate stronger model fits. The p-value of the correlation provides a measure of the level of significance of the statistical test. The correlation was accepted as significant if the p-value was less than or equal to 0.05 (95 percent confidence level), and not significant if the p-value was greater than 0.05. The trend direction was defined as decreasing if the

slope of the linear regression was negative and increasing if the slope of the regression was positive.

The linear regression analysis indicates a statistically significant decreasing trend in the groundwater MTBE concentration at MW-1 from April 2003 through March 2015. The most recent result measured in March 2015 was 15 µg/L; this is an order of magnitude less than the historical maximum concentration observed at this location (842 µg/L in 2003) and is less than the 20 µg/L CUL. The linear regression analysis projects a July 2013 date to reach the CUL at MW-1, and five of the last ten analytical results since July 2013 have been below the 20 µg/L CUL for MTBE.

In summary, the MTBE concentration in groundwater at MW-1 is statistically significantly decreasing as a result of remedial activities (soil excavations) that ended in 2002 and ongoing natural attenuation processes. Dissolved-phase COCs are non-detect or are below their respective CULs at the four other monitoring locations at the Site, including at the compliance points. Overall, these analyses suggest that the groundwater plume at the Site is attenuating and is not migrating or expanding.

9.2.2 Soil Cleanup Standards

Method B soil CULs are endpoints for the Site [WAC 173-340-740(3)(b)]: Six possible endpoints must be considered for soil:

- TEE
- Direct human contact (incidental ingestion)
- Leaching to groundwater
- Residual saturation
- Inhalation of soil vapors
- Dermal contact with soil

9.2.2.1 Terrestrial Ecological Evaluation for Soil

As described in section 8.2.4., a TEE evaluation form, in accordance with MTCA (WAC 173-340-7490 to -7493) was completed for the Site and submitted to Ecology in April 2011. The Site was found to qualify for exclusion from further evaluation. The 2011 TEE is included as part of **Appendix J.**

9.2.2.2 *Direct Human Contact Soil Pathway*

Soil CULs for direct human contact were developed in accordance with MTCA Method B, WAC 173-340-740(3)(b)(iii), Equations 740-1, 740-2, and 740-3, and Ecology's MTCATPH11.1 spreadsheet for petroleum mixtures. No changes were made to the default exposure assumptions in any of the equations. The option for inclusion of dermal contact was not considered as presented in Section 9.2.3.6.

Based upon results of these calculations, the proposed TPH direct contact soil CUL for the Site is 4,299 mg/kg. This CUL was calculated based upon the median of the fractionated samples collected during the installation of soil boring SB-100. These samples were collected in an area of known historical impacts and are considered to be representative of soil impacts at the Site. The MTCATPH11.1 Worksheet for Soil Data Entry and Calculation are presented as **Appendix N**. The summary of results for the fractionated samples is presented as **Table N-1** in **Appendix N**.

The CULs for the direct contact pathway for BTEX and MTBE are based upon MTCA Method B direct contact [WAC 173-340-740(3)(b)(iii)(B)]. These CULs are 18 mg/kg for benzene, 6,400 mg/kg for toluene, 8,000 mg/kg for ethylbenzene, 16,000 mg/kg for total xylenes and 556 mg/kg for MTBE. The direct soil contact values are presented in Section 8.2.4.

Concentrations of total lead have not historically exceeded the soil MTCA Method A CULs typically used at retail petroleum sites. Therefore, although lead is listed as a soil COC, it has always been in compliance with MTCA.

9.2.2.3 *Soil Leaching Pathway*

In order to demonstrate compliance with WAC 173-340-740(3)(b)(iii)(A), an empirical demonstration was used to demonstrate that soil concentrations will not cause an exceedance of groundwater CULs. As defined under WAC 173-340-747(3)(f) and WAC 173-340-747(9), the following are required for the empirical demonstration:

- The measured groundwater concentration is less than or equal to the applicable groundwater cleanup level established under WAC 173-340-720; and
- The measured soil concentration will not cause an exceedance of the applicable groundwater CUL established under WAC 173-340-720 at any time in the future. Specifically, it must be demonstrated that a sufficient amount of time has elapsed for migration of hazardous substances from soil into groundwater

to occur and that the characteristics of the site (e.g., depth to groundwater and infiltration) are representative of future site conditions. This demonstration may also include a measurement or calculation of the attenuating capacity of soil between the source of the hazardous substance and the groundwater table using site-specific data.

Compliance monitoring was used to assess whether the empirical demonstration has been successful. The presence/absence of dissolved phase hydrocarbons at CPOCs will be used as the main line of evidence for compliance. The presence of dissolved phase hydrocarbons exceeding Method A Groundwater CULs would indicate non-compliance with MTCA.

Historically, depth to groundwater measured in monitoring wells at the Site has ranged from 2.15 to 9.43 feet btoc. Historical soil impacts were found at depths ranging from 2 to 8.5 feet bgs, however all soil samples collected at depths less than 3 feet bgs with exceedances of CULs were overexcavated during remediation activities.

Compliance at the Site has empirically been demonstrated to date and the endpoint is protected. COC concentrations at CPOC wells have been shown to be less than Method A Groundwater CULs for at least four consecutive quarters. Furthermore, sufficient time has passed for COCs to migrate from soil to groundwater, and therefore it is empirically demonstrated that soil impacts are not a future source to groundwater. For these reasons, according to WAC 173-340-747(3)(f) and WAC 173-340-747(9), it is empirically demonstrated that soil concentrations do not and will not cause an exceedance of groundwater CULs.

Therefore, the soil leaching pathway is not considered complete.

9.2.2.4 Soil Residual Saturation

Non-aqueous phase liquid (NAPL) has never been observed at the Site. According to WAC 173-340-747(10)(a), either residual saturation screening levels or an empirical demonstration can be made to ensure soil concentrations will not result in the accumulation of NAPL on or in groundwater. Residual saturation screening levels are presented in MTCA Table 747-5, and include 1,000 mg/kg for GRO, 2,000 mg/kg for DRO and 2,000 mg/kg for HO. Historical analytical data from soil samples do not typically exceed the default residual saturation values for GRO, DRO or HO. Four soil samples contained GRO concentrations above the residual saturation screening level, however three of them were over excavated during remediation activities and 6031-

1/26-TR2-5 was confirmed to be below residual saturated screening levels in 2014 with SB-101 (**Figure 7a** and **Figure 7b**).

An empirical demonstration may also be used to show that NAPL in soil is not impacting groundwater, if the following three criteria can be met [WAC 173-340-747(10)(c)]:

- NAPL is not accumulating on or in groundwater.
- The soil contamination has been present sufficiently long for NAPL to reach groundwater.
- Site conditions will not change in the future to promote NAPL migration.

Historical and current groundwater gauging data show that NAPL has not been detected in any monitoring well at the Site. According to historical and current conditions at the Site, NAPL is and has not been accumulating on or in groundwater, and Site conditions are not anticipated to change in the future to promote NAPL migration. Furthermore, impacts have been detected since February, 2001 and have been present sufficiently long for NAPL to reach groundwater. Therefore, according to criteria from WAC 173-340-747(10)(c), NAPL in soil is not impacting groundwater.

9.2.2.5 Soil Vapor Pathway

WAC 173-340-740(3)(b)(iii)(C) identifies conditions that trigger whether or not an evaluation of the soil to vapor pathway shall be required. These conditions include the following:

- For GRO, whenever the TPH concentration is significantly higher than a concentration derived for protection of groundwater for drinking water beneficial use under WAC 173-340-747(6) using the default assumptions.
- For DRO, whenever the TPH concentration is greater than 10,000 mg/kg.
- For other volatile organic compounds (VOCs), including petroleum components, whenever the concentration is significantly higher than a concentration derived for protection of groundwater for drinking water beneficial use under WAC 173-340-747(4).

DRO and HO concentrations in Site soil have not been detected above 10,000 mg/kg. GRO, BTEX and MTBE have been detected in Site soil at concentrations higher than concentrations derived for protection of groundwater for drinking water beneficial use, which under MTCA requires further evaluation of the soil to vapor pathway. However, all soil concentrations exceeding MTCA Method A CULs were either excavated, or were detected below the water table, where volatilization to soil gas would not occur. Therefore, further evaluation of the soil to vapor pathway is not warranted.

As discussed in Section 9.1.2, the final soil COCs include TPH (sum of GRO, DRO, and HO concentrations), BTEX, MTBE and Lead.

Historical COC groundwater concentrations have been compared to screening levels in Table B-1 of the Ecology vapor intrusion guidance considered to be protective of indoor air. Concentrations of COCs in groundwater have not been detected above groundwater screening levels since February 2012. Therefore the historical groundwater COC concentrations are considered to be protective of indoor air. Furthermore, the Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State (Ecology, 2009) suggests the groundwater screening levels would be conservative for receptors at the Site. Specifically, groundwater screening levels are calculated using Method B cleanup levels for indoor air, which are stated to be overly conservative for commercial receptor scenarios. Parameters such as body weight and exposure duration used in the groundwater screening levels differ from the parameters that would be expected for a commercial receptor. Section 6.6.2 of the vapor intrusion guidance states:

> "Where the building of concern is being used commercially (but is not located on an industrial property), and the most highly exposed receptors are workers, the Method B exposure assumptions in WAC 173-340-750 Equations 750-1 and 750-2 are likely to be overly conservative. Average body weight, for example, in Equation 750-1 is 16 kg (representing a child), whereas the receptors of concern at most commercial properties will be adults with an average weight closer to 70 kg. In addition, the amount of time exposed will often be less than default values: most receptors in a commercial building will not be exposed to contaminated indoor air 24 hours per day, seven days a week, all year long. Therefore, while subsurface source concentrations must eventually be remediated to cleanup levels derived from Method B air cleanup levels to free the property of any future development restrictions, current receptors can be considered

> protected if indoor air concentrations are somewhat higher than Method B air cleanup levels."

Additionally, the Site is currently zoned for commercial use as a retail gas station and a convenience store and is assumed to remain in this condition in the future. Because this site is a petroleum facility, workers at the site may be exposed to petroleum constituents in ambient air, the contribution to the total concentrations from potential vapor migration is considered minimal. Section 1.2 of the vapor intrusion guidance states:

> "A worker potentially exposed to vapor intrusion-contaminated indoor air is regularly and simultaneously exposed to the same hazardous chemical vapors in the workplace. The workplace vapor concentrations are routinely much higher than any levels expected from vapor intrusion. This worker understands that exposure to the particular chemical is part of the job and is enrolled in the company's Occupational Safety and Health Act (OSHA) compliant employee protection program. Because the exposure scenario described here is regulated under OSHA, the guidance has not been developed to assess or otherwise address such a situation.
>
> Although dry-cleaning businesses and automobile filling stations are not manufacturing operations, the same logic may apply to evaluating vapor intrusion in their associated buildings. That is, the guidance has not been developed to assess or otherwise address situations where a subsurface vapor intrusion source potentially threatens indoor air quality, but: a) indoor workers are regularly exposed to the same hazardous chemical vapors in the workplace due to the nature of the business; b) the workplace-related vapor concentrations are routinely much higher than any levels expected from vapor intrusion; and, c) the workers are enrolled in an OSHA-compliant employee protection program."

Based on the exposure due to onsite fueling activities, the contribution of sub-surface dissolved petroleum constituents potentially migrating to indoor or ambient air is considered minimal in comparison.

Due to the conservative nature of the groundwater screening levels, and Site-specific factors that decrease likelihood of this exposure scenario, further evaluation of the vapor intrusion pathway is not warranted.

9.2.2.6 Soil Dermal Contact Pathway

Dermal contact with the COCs must be evaluated if changes have been made to the MTCA Method B direct contact equations, WAC 173-340-740, Equations 740-1 and 740-2 [WAC 173-340-740(3)(c)(iii)]. No changes were made to the equations for calculating CULs.

9.2.3 Summary of Soil Cleanup Levels

The final soil CUL for TPH (4,299 mg/kg) is proposed based upon direct contact. The soil CULs based upon direct contact for benzene (18 mg/kg), toluene (6,400 mg/kg), ethylbenzene (8,000 mg/kg), total xylenes (16,000 mg/kg) and MTBE (556 mg/kg) should be adopted as final CULs for soil at the Site.

The proposed and final CULs for soil are provided in the table below:

Method B Soil Cleanup Levels

COC	Soil Cleanup Level (mg/kg)
TPH[1]	4,299
Benzene[2]	18
Toluene[2]	6,400
Ethylbenzene[2]	8,000
Total Xylenes[2]	16,000
MTBE	555

Notes:
[1] Proposed soil CUL based on soil direct contact pathway (Table N-1).
[2] Ecology Cleanup Levels and Risk Calculation (CLARC) database, Accessed March 2014.

Although lead is listed as a COC for soil, this COC has not been detected in any soil sample at concentrations exceeding the MTCA Method A CUL inside or outside of the current MTCA Site boundary. Therefore, this COC is considered in compliance with MTCA, and a direct contact soil CUL was not established for this COC.

9.2.4 Soil Points of Compliance

Soil COC concentrations protective of direct contact for soil at the Site are met within the standard soil POC, which is within 15 feet of the ground surface. Soil CULs appear to be protective of the residual saturation pathway throughout the saturated and unsaturated zones.

9.3 Applicable Relevant and Appropriate Requirements

According to WAC 173-340-360(2), all cleanup actions under MTCA must comply with applicable state and federal laws. Such laws are defined under MTCA as including ARARs. The ARARs for the Site include

Federal

- Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901-6992, 40 CFR Part 260-268) – Investigation Derived Waste (IDW) and any other waste produced during activities at the Site will be handled per RCRA regulations, and implemented according to WAC 173-303.

- Occupational Safety and Health Act (OSHA) (29 CFR 1910) – Site activities will be conducted in a manner compliant with OSHA standards and regulations.

- Rules for Transport of Hazardous Waste (49 CFR 107, 171) – Hazardous waste generated at the Site will be appropriately characterized to determine package, transportation and transportation requirements.

State

- Source water protection (WAC 246-290-135) – All new and existing drinking water wells will establish a wellhead protection program that includes an inventory of potential groundwater contamination sources and be appropriately delineated from all potential contamination sources.

- Model Toxics Control Act (WAC 173-340) – Site activities will occur in accordance with MTCA Statutes and Regulations.

- Dangerous Waste Regulations (WAC 173-303) - Investigation Derived Waste (IDW) and any other waste produced during activities at the Site will be handled per RCRA regulations, and implemented according to WAC 173-303.

- Minimum Standards for Construction and Maintenance of Wells, Regulation and Licensing of Well Contractors and Operators (RCW 18.104, WAC 173-160, 162). Resource protection wells will be constructed and maintained according to the appropriate regulations.

- Washington Industrial Safety and Health Act, Chapter 296-62 WAC - Site activities will be conducted in a manner compliant with Washington Industrial Safety and Health Act standards and regulations.

- Maximum Environmental Noise Levels (WAC 173-60) – Site activities will be conducted at appropriate noise levels, according to WAC 173-60.

10. Compliance with MTCA Statutes and Regulations

10.1 Conditional Points of Compliance

Due to historical and current site conditions, a conditional point of compliance approach was used to address site cleanup activities, according to WAC-173-340-720(8)(C). In order to use this approach, it must be demonstrated that:

- It is not practicable to meet the cleanup level throughout the site within a reasonable restoration time frame, and

- The person responsible for undertaking the cleanup action shall demonstrate that all practicable methods of treatment are to be used in the site cleanup.

The MTCA Site boundary is defined as the central portion of the property, extending from the UST basin and the dispenser islands to the monitoring wells of the Site where impacts were observed. Since soil and groundwater impacts are in close vicinity to current retail gas station infrastructure, intrusive remedial activities in these areas are not possible. Therefore, it would not be practicable to meet MTCA Method A CULs within a reasonable restoration time frame.

Furthermore, historical remedial activities have been conducted at the Site to reduce source mass. In 2001, during dispenser island and turbine upgrade activities, approximately 17 tons of soil were removed from the Site and disposed of. In late 2001/2002 a total of 893.15 tons of soil containing hydrocarbon constituents was removed from the Site and disposed of.

Concentrations of all COCs in samples collected from the CPOC monitoring wells at the property have been less than MTCA Method A Groundwater CULs since June of 2005. Furthermore, site specific transport velocity calculations indicate the travel time from well MW-1 to MW-2 would be less than 5 years for MTBE, and less than 8 years for benzene. Therefore, based on the transport velocity calculations, adequate travel time for COCs to travel from MW-1 to MW-2 has occurred. Finally, based on the linear regression analysis, MTBE in groundwater at MW-1 is statistically significantly decreasing. Dissolved-phase COCs are non-detect or are below their respective CULs at the four other monitoring locations at the Site, including at the compliance points. These analyses suggested that the groundwater plume at the Site is stable and not migrating.

Based on current and historical analytical data, transport velocity calculations, and the linear regression analysis, the hydrocarbon plume is either stable or shrinking and natural attenuation is occurring. Therefore, offsite migration of concentrations exceeding the applicable CULs is unlikely to occur.

Therefore, it is demonstrated that it is not practicable to meet the cleanup level throughout the Site within a reasonable restoration time frame, and all practicable methods of treatment have been to be used in the site cleanup. Therefore, the use of this approach is in compliance with the requirements stated by MTCA in WAC-173-340-720(8)(C).

10.2 Soil

Hydrocarbon impacts in soil exceeding applicable CULs are present locally at the Site:

- Approximately 49 soil samples have been collected from various locations across the Site during excavation activities, soil investigations and monitoring well installations.
- 26 historical soil samples contained COC concentrations greater than MTCA Soil CULs:
    - Of these samples, nine were over-excavated during the 2001/2002 excavation.
    - Additionally, one soil sample was confirmed to be below MTCA Method A Soil CULs during 2014 confirmation soil sampling.

- The remaining soil samples that were not over-excavated or confirmed during 2014 confirmation sampling, are located below the water table. CPOC monitoring wells downgradient from these samples do not exceed MTCA Method A Groundwater CULs, therefore an empirical demonstration is used to show that soil concentrations do not cause an exceedance of groundwater CULs.

Therefore, this medium is considered in compliance with MTCA.

10.3 Groundwater

Hydrocarbon impacts in groundwater exceeding applicable CULs are not present at the Site:

- Concentrations of all Site COCs in samples collected from the Site POC monitoring well (MW-1) have been less than MTCA Method B Groundwater CULs since groundwater monitoring was initiated at this well.

- Concentrations of all COCs in samples collected from the CPOC monitoring wells at the property have been less than MTCA Method A Groundwater CULs since June of 2005.

Therefore, this medium is considered in compliance with MTCA.

10.4 Surface Waters

No known impacts to surface waters have occurred due to the past operation of the Site as a retail gasoline station. Therefore, this medium is considered in compliance with MTCA at the Site.

10.5 Sediment

No known impacts to sediments have occurred due to the past operation of the Site as a retail gasoline station. Therefore, this medium is considered in compliance with MTCA at the Site.

10.6 Soil Vapor

Soil vapor data have not been historically collected at the site. However, historical COC groundwater concentrations have been compared to screening levels in Table B-1 of

the Ecology vapor intrusion guidance considered to be protective of indoor air. Concentrations of COCs in groundwater have not been detected above groundwater screening levels since February 2012. Therefore the historical groundwater COC concentrations are considered to be protective of indoor air. All soil impacts at the Site were either removed by excavation, or were detected below the water table, where volatilization to soil gas would not occur.

10.7 Ecological and Natural Resources

The Site qualifies for an exclusion from the TEE according to WAC-173-340-7491, therefore ecological and natural resource related issues at the Site are considered in compliance with MTCA.

10.8 Cultural and Archaeological Resources

No known impacts to cultural and archaeological resources have occurred due to retail gasoline station operations at the Site. Therefore cultural and archaeological resource related issues at the Site are considered in compliance with MTCA.

11. Selection of Remedial Alternatives for Unrestrictive Land Use

Based on current concentrations of COCs in soil and groundwater, as well as the current exposure scenarios at the Site, a CPOC approach is proposed to demonstrate compliance with MTCA Modified Method B CULs. However, in order to achieve unrestricted land use at the Site, COCs in soil and groundwater are required to be less than MTCA Method A CULs. Therefore, three remedial alternatives were considered for future implementation at the Site, and one was selected. These alternatives are described in **Appendix O**, and include:

- Alternative 1 – Monitored Natural Attenuation (MNA) with Institutional Controls (ICs)
- Alternative 2 – Air Sparge/Soil Vapor Extraction (AS/SVE)
- Alternative 3 – Excavation with ICs

In order to select the appropriate remedial alternative, threshold requirements that protect human health and the environment, provide compliance with cleanup standards and applicable state and federal laws, and provide for compliance monitoring, according to WAC 173-340-360 (2)(a). Additionally, MTCA states that when selecting

an alternative, preference will be given to “permanent solutions to the maximum extent practicable.” “Permanent” is defined in WAC 173-340- 200 as a cleanup action in which the cleanup standards of WAC 173-340-700 through 173-340-760 are met without further action being required at the site being cleaned up, or at any other site involved with the cleanup action, other than the approved disposal of any residue from the treatment of hazardous substances. Evaluating the “maximum extent practicable” for each alternative requires the application of a disproportionate cost analysis (DCA) according to WAC 173-340-360(3)(e). Finally, additional criteria were evaluated with respect to reasonable restoration timeframe in order to select the appropriate remedial alternative, as specified in WAC 173-340-360(b). The evaluation of threshold requirements, the DCA, and criteria for the reasonable restoration time frame are included in **Appendix O.**

Based on the results of the DCA and the other applicable considerations, Alternative 1 was selected. This Alternative is proposed for the site as it represents the lowest disproportionate cost. Following the issuance of an NFA opinion based on Modified Method B CULs and a CPOC, ARCADIS proposes implementing Alternative 1 in order to continue cleanup actions necessary to achieve unrestricted land use for the Site.

12. Groundwater Monitoring Well Decommissioning

Five groundwater monitoring wells are located at the Site. Upon receipt of an NFA determination, monitoring well decommissioning activities will be completed in accordance with the WAC 173-160 Minimum Standards for Construction and Maintenance of Wells, dated August 2008. A licensed drilling subcontractor will remove the surface monument from the monitoring well locations. The residual annulus of the wells will be filled with hydrated medium-sized bentonite chips to the near surface and completed to the surface with original cover.

13. Waste Management

Soil cuttings and wastewater generated during the abandonment activities, if any, will be contained in Department of Transportation-approved 55-gallon steel drums. These drums will be appropriately labeled and temporarily stored onsite, pending waste removal. The drums will be removed from the Site and transported to an approved off-site disposal facility.

14. Electronic Information Management

ARCADIS understands that Ecology requires submittal of environmental data in electronic format prior to issuance of formal correspondence. ARCADIS will upload applicable information to the Ecology Electronic Information Management database and coordinate with representatives of Ecology to confirm successful upload.

15. Conclusions

Approximately 49 soil samples have been collected from various locations across the Site during excavation activities, soil investigations and monitoring well installations. Soil at the Site is considered to be in compliance with MTCA:

- One soil sample collected under the dispenser island at 8.5 feet bgs contained benzene concentration greater than MTCA Method B Soil CUL. However, benzene concentrations at the five site wells have been shown to be less than Method A Groundwater CUL since June 2005.

- Two historical soil samples contained concentrations of TPH greater than Method B Soil CUL and were over-excavated.

Groundwater monitoring has been conducted at the Site since 2003. Concentrations of COCs have not been detected greater than applicable MTCA CULs in Site monitoring wells since at least June 2005. Concentrations of COCs have not been detected greater than MTCA Method A Groundwater CULs in CPOC monitoring wells at the property since June 2005. Groundwater at the Site is considered in compliance with MTCA.

Due to historical and current site conditions, a conditional point of compliance approach was used to address site cleanup activities, according to WAC-173-340-720(8)(C). Since the remaining soil and groundwater impacts are located in close vicinity to current retail gas station infrastructure, intrusive remedial activities are not possible. Therefore, it would not be practicable to meet MTCA Method A CULs within a reasonable restoration time frame. Furthermore, historical remedial activities have been conducted (2001/2002 excavation activities) to reduce source mass. Based on current analytical data and transport velocity calculations, the hydrocarbon plume is either stable or shrinking, and natural attenuation is occurring. Therefore, offsite migration of concentrations exceeding the applicable CULs is unlikely to occur.

Groundwater at the Site is not currently used as drinking water; therefore ingestion is not an exposure pathway. Furthermore, an environmental covenant will insure that groundwater at the Site will not be used as drinking water in the future. Current groundwater concentrations in Site CPOC wells show that offsite migration of potential groundwater impacts is not occurring. Releases associated with the dispenser islands have been shown to be stable or decreasing.

Potential exposure pathways at the Site are either not considered complete or are not considered significant. The potential risks from possible exposures are likely to be low and, therefore, not significant. Furthermore, dissolved-phase concentrations in CPOC wells are below applicable CULs, which indicates that offsite receptors are protected. Therefore, potential exposures to concentrations of petroleum hydrocarbons in soil or groundwater at the Site are not expected to pose significant risk to human health or the environment.

No apparent threat to human health or the environment exists at the Site. Therefore, the direct contact exposure scenario is insignificant. In accordance with MTCA cleanup regulations WAC 173-340 revised November 2007, ARCADIS requests that Ecology issue an NFA determination for the Site.

16. References

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ARCADIS

Available upon request

Appendix A

Property Details and Legal Description

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Appendix B

UST and LUST Database Information

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Appendix C

EDR Geocheck and Offsite Sensitive Receptors Reports

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Appendix D

Historical Boring Logs

ARCADIS

Available upon request

Appendix E

2014-2015 Groundwater Field Data Sheets and Notes

ARCADIS

Available upon request

Appendix F

2014-2015 Groundwater Laboratory Analytical Reports and Chain of Custody Documentation

ARCADIS

Available upon request

Appendix G

Bill of Lading

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Appendix H

2014 Soil Laboratory Analytical Reports and Chain of Custody Documentation

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Appendix I

Waste manifests

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Appendix J

Terrestrial Ecological Evaluation Form

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Appendix K

Site Specific Direct Contact Groundwater CUL

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Appendix L

Site Specific Evaluation of
Groundwater Velocity and Transport
Velocity of Organic Constituents

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Appendix M

Linear Regression Analysis

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Appendix N

MTCATPH11.1 Worksheet for Soil Data Entry and Calculation

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Appendix O

Disproportionate Cost Analysis

Tables

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-01118 (06031)

11450 N E 124th St, Kirkland, WA 98033

All analytical results are presented in micrograms per liter (µg/L)

Well	Date	Notes	TOC	DTW	NAPL	GWE	TPH	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							**--**	**800/1,000**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**20**	**0.01**	**5**	**15**	**15**
MTCA Method B CULs in µg/L							**9,950**	**--**	**--**	**--**	**1,900**	**210,000**	**4,700**	**23,000**	**66,000**	**--**	**--**	**--**	**--**
MTCA Method B CULs in µg/L							**9,950**	**--**	**--**	**--**	**1,900**	**210,000**	**4,700**	**23,000**	**66,000**	**--**	**--**	**--**	**--**
MW-1	4/25/2003	(P)	102.85	5.23	--	97.62	1,280	1,280	--	--	346	<5.00	9.95	151	842	<0.010	<1.00	--	--
MW-1	8/1/2003	(P)	102.85	5.71	--	97.14	1,090	1,090	--	--	305	<2.50	8.15	80	622	--	--	15.8	<1.00
MW-1	10/6/2003	(P)	102.85	6.05	--	96.80	262	262	--	--	31.5	<0.500	3.95	29.9	583	<0.010	<20.0	9.32	<1.00
MW-1	3/26/2004	(P)	102.85	5.57	--	97.28	429	429	--	--	49.1	<0.500	5.48	23.9	338	--	--	2.94	<1.00
MW-1	10/11/2004	(NP)	102.85	5.98	--	96.87	342	342	--	--	<0.400	<1.00	<1.00	66	327	--	--	<1.00	<1.00
MW-1	2/26/2005	(P)	102.85	5.17	--	97.68	292	292	--	--	19.7	<1.00	3.12	12.9	177	--	--	<1.00	<1.00
MW-1	6/13/2005	(NP)	102.85	5.82	--	97.03	326	326	--	--	<0.200	<0.500	2.54	13.2	164	--	--	<1.00	<1.00
MW-1	9/14/2005	(NP)	102.85	5.86	--	96.99	308	308	--	--	<0.500	0.629	<0.500	17.5	178	--	--	<1.00	--
MW-1	11/7/2005	(NP)	102.85	5.71	--	97.14	178	178	--	--	<0.300	<0.500	<0.500	1.04	198	--	--	<1.00	--
MW-1	1/24/2006	(NP)	102.85	5.21	--	97.64	187	187	--	--	<0.500	<0.500	<0.500	<3.00	78.8	--	--	<1.00	<1.00
MW-1	7/27/2006	(NP)	102.85	5.61	--	97.24	355	355	--	--	<0.500	<0.500	<0.500	<1.00	92.3	--	--	<1.00	--
MW-1	4/12/2007	(NP)	102.85	5.24	--	97.61	157	157	--	--	<0.500	<0.500	<0.500	<3.00	67.1	--	--	--	--
MW-1	4/9/2008	(NP)	102.85	4.92	--	97.93	107	107	--	--	<0.500	<0.500	<0.500	<3.00	33.9	--	--	--	--
MW-1	6/24/2009	(NP)	102.85	5.40	--	97.45	148	148	--	--	<0.200	0.77	<0.500	<1.00	44	--	--	<2.00	<2.00
MW-1	5/20/2010	(NP)	130.88	5.41	0.0	125.47	130	130	--	--	<0.50	<0.50	<0.50	<1.0	32	--	--	2.9	<2.0
MW-1	5/20/2010	(Dup)(NP)	130.88	5.41	0.0	125.47	130	130	--	--	<0.50	<0.50	<0.50	<1.0	34	--	--	2.8	<2.0
MW-1	8/10/2011	(LFP)	130.88	5.53	0.0	125.35	158	158	--	--	<1.0	<1.0	<1.0	<3.0	32.5	--	--	<10.0	<10.0
MW-1	8/10/2011	(Dup)(LFP)	130.88	5.53	0.0	125.35	166	166	--	--	<1.0	<1.0	<1.0	<3.0	31.6	--	--	<10.0	<10.0
MW-1	11/8/2011	(LFP)	130.88	5.82	0.0	125.06	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	50.0	--	--	<10.0	<10.0
MW-1	2/7/2012	(LFP)	130.88	5.01	0.0	125.87	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	21.0	--	--	<10.0	<10.0
MW-1	8/24/2012	(LFP)	130.88	5.65	0.0	125.23	107	107	--	--	<1.0	<1.0	<1.0	<3.0	35.3	--	--	<10.0	<10.0
MW-1	10/30/2012	(LFP)	130.88	5.75	0.0	125.13	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	33.6	--	--	5.2	4.5
MW-1	2/14/2013	(LFP)	130.88	5.01	0.0	125.87	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	14.6	--	--	<3.0	<3.0
MW-1	2/14/2013	(Dup)(LFP)	130.88	5.01	0.0	125.87	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	16.7	--	--	<3.0	<3.0
MW-1	5/8/2013	(LFP)	130.88	4.86	0.0	126.02	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	17.5	--	--	<10.0	<10.0
MW-1	8/27/2013	(LFP)	130.88	5.65	0.0	125.23	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	38.7	--	--	<10.0	<10.0
MW-1	8/27/2013	(Dup)(LFP)	130.88	5.65	0.0	125.23	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	39.2	--	--	<10.0	<10.0
MW-1	10/23/2013	(LFP)	130.88	5.49	0.0	125.39	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	38.7	--	--	<10.0	<10.0
MW-1	10/23/2013	(Dup)(LFP)	130.88	5.49	0.0	125.39	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	36.5	--	--	<10.0	<10.0
MW-1	11/5/2013	(LFP)	130.88	5.75	0.0	125.13	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	30	--	--	0.13(J)	<0.085
MW-1	11/5/2013	(Dup)(LFP)	130.88	5.75	0.0	125.13	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	31	--	--	0.13(J)	0.14(J)
MW-1	12/5/2013	(LFP)	130.88	5.42	0.0	125.46	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	27	--	--	0.82(J)	0.72(J)
MW-1	12/5/2013	(Dup)(LFP)	130.88	5.42	0.0	125.46	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	27	--	--	0.55(J)	0.12(J)
MW-1	1/22/2014	(LFP)	130.88	5.05	0.0	125.83	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	16	--	--	0.20(J)	<0.085
MW-1	1/22/2014	(Dup)(LFP)	130.88	5.05	0.0	125.83	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	17	--	--	0.20(J)	<0.085
MW-1	2/17/2014	(LFP)	130.88	4.30	0.0	126.58	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	7.6	--	--	<4.7	<4.7
MW-1	2/17/2014	(Dup)(LFP)	130.88	4.30	0.0	126.58	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	7.8	--	--	<4.7	<4.7
MW-1	5/14/2014	(LFP)	130.88	4.53	0.0	126.35	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	13	--	--	<0.085	0.12(J)
MW-1	5/14/2014	(Dup)(LFP)	130.88	4.53	0.0	126.35	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	14	--	--	<0.085	<0.085
MW-1	8/6/2014	(LFP)	130.88	5.21	0.0	125.67	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	27	--	--	<0.082	<0.082
MW-1	8/6/2014	(Dup)(LFP)	130.88	5.21	0.0	125.67	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	25	--	--	<0.082	0.088(J)
MW-1	12/12/2014	(LFP)	130.88	4.52	0.0	126.36	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	7.2	--	--	<0.082	--
MW-1	12/12/2014	(Dup)(LFP)	130.88	4.52	0.0	126.36	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	6.7	--	--	<0.082	--
MW-1	3/9/2015	(LFP)	130.88	4.78	0.0	126.10	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	15	--	--	<4.7	--
MW-1	3/9/2015	(Dup)(LFP)	130.88	4.78	0.0	126.10	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	14	--	--	--	--

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-01118 (06031)

11450 N E 124th St, Kirkland, WA 98033

All analytical results are presented in micrograms per liter (µg/L)

Well	Date	Notes	TOC	DTW	NAPL	GWE	TPH	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							**--**	**800/1,000**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**20**	**0.01**	**5**	**15**	**15**
MTCA Method B CULs in µg/L							**9,950**	**--**	**--**	**--**	**1,900**	**210,000**	**4,700**	**23,000**	**66,000**	**--**	**--**	**--**	**--**
MTCA Method A CULs in µg/L							**--**	**800/1,000**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**20**	**0.01**	**5**	**15**	**15**
MW-2	4/25/2003	(P)	98.20	2.24	--	95.96	184	184	--	--	**6.95**	<0.500	6.69	28.5	<5.00	<0.010	<1.00	--	--
MW-2	8/1/2003	(P)	98.20	4.41	--	93.79	**10,700**	**10,700**	--	--	**802**	<10.0	**833**	**1,240**	<4.00	--	--	1.99	<1.00
MW-2	10/6/2003	(P)	98.20	5.43	--	92.77	1,470	**1,470**	--	--	**221**	<0.500	207	7.44	<5.00	<0.010	<5.00	2.29	<1.00
MW-2	3/26/2004	(P)	98.20	2.91	--	95.29	221	221	--	--	**5.53**	<0.500	14.8	9.67	<1.00	--	--	<1.00	<1.00
MW-2	10/11/2004	(NP)	98.20	4.51	--	93.69	2,630	**2,630**	--	--	**259**	<1.00	120	261	<4.00	--	--	<1.00	<1.00
MW-2	2/26/2005	(P)	98.20	2.91	--	95.29	40	<80.0	--	--	0.28	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	<1.00
MW-2	6/13/2005	(NP)	98.20	3.33	--	94.87	40	<80.0	--	--	**5.82**	<0.500	0.97	<1.00	<2.00	--	--	<1.00	<1.00
MW-2	9/14/2005	(NP)	98.20	4.78	--	93.42	25	<50.0	--	--	0.873	0.55	<0.500	<1.00	<1.00	--	--	<1.00	--
MW-2	11/7/2005	(NP)	98.20	2.67	--	95.53	25	<50.0	--	--	<0.300	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	--
MW-2	1/24/2006	(NP)	98.20	2.82	--	95.38	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	<1.00	<1.00
MW-2	7/27/2006	(NP)	98.20	6.83	--	91.37	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	4.98	--
MW-2	4/12/2007	(NP)	98.20	2.90	--	95.30	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-2	4/9/2008	(NP)	98.20	2.65	--	95.55	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-2	6/24/2009	(NP)	98.20	4.08	--	94.12	40	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<2.00	<2.00
MW-2	5/20/2010	(NP)	126.22	2.85	0.0	123.37	25	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0	--	--	<2.0	<2.0
MW-2	8/10/2011	(LFP)	126.22	3.99	0.0	122.23	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-2	11/8/2011	(LFP)	126.22	2.92	0.0	123.30	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-2	2/7/2012	(LFP)	126.22	2.75	0.0	123.47	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-2	8/24/2012	(LFP)	126.22	4.47	0.0	121.75	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-2	8/24/2012	(Dup)(LFP)	126.22	4.47	0.0	121.75	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-2	10/30/2012	(LFP)	126.22	3.34	0.0	122.88	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-2	2/14/2013	(LFP)	126.22	2.58	0.0	123.64	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-2	5/8/2013	(LFP)	126.22	2.70	0.0	123.52	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-2	8/27/2013	(LFP)	126.22	4.97	0.0	121.25	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-2	11/5/2013	(LFP)	126.22	3.43	0.0	122.79	79(J)	79(J)	--	--	0.53(J)	<0.70	1.7(J)	<0.80	<0.50	--	--	0.21(J)	0.099(J)
MW-2	1/22/2014	(LFP)	126.22	2.81	0.0	123.41	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	2/17/2014	(LFP)	126.22	2.80	0.0	123.42	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	<0.50	--	--	<4.7	<4.7
MW-2	8/6/2014	(NS)	126.22	2.95	0.0	123.27	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	12/12/2014	(NS)	126.22	2.15	0.0	124.07	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	3/9/2015	(LFP)	126.22	2.54	0.0	123.68	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	<4.7	--
MTCA Method A CULs in µg/L							**--**	**800/1,000**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**20**	**0.01**	**5**	**15**	**15**
MW-3	4/25/2003	(P)	103.64	3.50	--	100.14	25	<50.0	--	--	0.736	<0.500	<0.500	<1.00	<5.00	<0.010	<1.00	--	--
MW-3	8/1/2003	(P)	103.64	4.69	--	98.95	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	10.9	--	--	**47.9**	<1.00
MW-3	10/6/2003	(P)	103.64	4.98	--	98.66	25	<50.0	--	--	<0.500	2.19	<0.500	<1.00	**25.6**	<0.010	<1.00	**49.6**	<1.00
MW-3	3/26/2004	(P)	103.64	3.65	--	99.99	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<5.00	--	--	<1.00	<1.00
MW-3	10/11/2004	(NS)	103.64	4.73	--	98.91	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	2/26/2005	(P)	103.64	3.62	--	100.02	40	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	2.63	--	--	<1.00	<1.00
MW-3	6/13/2005	(NP)	103.64	3.93	--	99.71	40	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	5.1	--	--	<1.00	<1.00
MW-3	9/14/2005	(NP)	103.64	4.99	--	98.65	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	1.37	--	--	<1.00	--
MW-3	11/7/2005	(NP)	103.64	3.31	--	100.33	25	<50.0	--	--	<0.300	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	--
MW-3	1/24/2006	(NP)	103.64	3.30	--	100.34	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	2.41	--	--	<1.00	<1.00
MW-3	7/27/2006	(NS)	103.64	5.65	--	97.99	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	4/12/2007	(NP)	103.64	3.81	--	99.83	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	2.81	--	--	--	--
MW-3	4/9/2008	(NP)	103.64	3.49	--	100.15	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	1.06	--	--	--	--

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-01118 (06031)

11450 N E 124th St, Kirkland, WA 98033

All analytical results are presented in micrograms per liter (µg/L)

Well	Date	Notes	TOC	DTW	NAPL	GWE	TPH	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							**--**	**800/1,000**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**20**	**0.01**	**5**	**15**	**15**
MTCA Method B CULs in µg/L							**9,950**	**--**	**--**	**--**	**1,900**	**210,000**	**4,700**	**23,000**	**66,000**	**--**	**--**	**--**	**--**
MTCA Method A CULs in µg/L							**--**	**800/1,000**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**20**	**0.01**	**5**	**15**	**15**
MW-3	6/24/2009	(NP)	103.64	4.03	--	99.61	40	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	2.26	--	--	<2.00	<2.00
MW-3	5/20/2010	(NP)	131.67	3.86	0.0	127.81	25	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0	--	--	9.2	<2.0
MW-3	8/10/2011	(LFP)	131.67	4.33	0.0	127.34	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	11/8/2011	(LFP)	131.67	4.26	0.0	127.41	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	11/8/2011	(Dup)(LFP)	131.67	4.26	0.0	127.41	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	2/7/2012	(LFP)	131.67	3.45	0.0	128.22	25	<50.0	--	--	4.7	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	2/7/2012	(Dup)(LFP)	131.67	3.45	0.0	128.22	25	<50.0	--	--	4.7	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	8/24/2012	(LFP)	131.67	4.72	0.0	126.95	25	<50.0	--	--	1.7	<1.0	1.1	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	10/30/2012	(LFP)	131.67	4.92	0.0	126.75	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-3	2/14/2013	(LFP)	131.67	3.53	0.0	128.14	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-3	5/8/2013	(LFP)	131.67	3.72	0.0	127.95	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	5/8/2013	(Dup)(LFP)	131.67	3.72	0.0	127.95	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	8/27/2013	(LFP)	131.67	5.21	0.0	126.46	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-3	11/5/2013	(LFP)	131.67	4.70	0.0	126.97	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	0.58(J)	--	--	0.53(J)	0.095(J)
MW-3	2/17/2014	(LFP)	131.67	3.32	0.0	128.35	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	<0.50	--	--	<4.7	<4.7
MW-3	8/6/2014	(NS)	131.67	4.14	0.0	127.53	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	12/12/2014	(NS)	131.67	3.08	0.0	128.59	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	3/9/2015	(LFP)	131.67	3.39	0.0	128.28	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	<4.7	--
MTCA Method A CULs in µg/L							**--**	**800/1,000**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**20**	**0.01**	**5**	**15**	**15**
MW-4	4/25/2003	(P)	104.46	8.52	--	95.94	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	**139**	<0.010	<1.00	--	--
MW-4	8/1/2003	(P)	104.46	8.99	--	95.47	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	**108**	--	--	1.65	<1.00
MW-4	10/6/2003	(P)	104.46	9.43	--	95.03	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	**180**	<0.010	<5.00	2.71	<1.00
MW-4	3/26/2004	(P)	104.46	7.76	--	96.70	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	16.2	--	--	1.91	<1.00
MW-4	10/11/2004	(NP)	104.46	9.20	--	95.26	40	<80.0	--	--	0.29	<0.500	<0.500	<1.00	3.94	--	--	<1.00	<1.00
MW-4	2/26/2005	(P)	104.46	8.32	--	96.14	40	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	**23.2**	--	--	<1.00	<1.00
MW-4	6/13/2005	(NP)	104.46	8.21	--	96.25	40	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	<1.00
MW-4	9/14/2005	(NP)	104.46	9.08	--	95.38	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	3.23	--	--	<1.00	--
MW-4	11/7/2005	(NP)	104.46	8.85	--	95.61	25	<50.0	--	--	<0.300	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	--
MW-4	1/24/2006	(NP)	104.46	7.22	--	97.24	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	1.28	--	--	<1.00	<1.00
MW-4	7/27/2006	(NP)	104.46	8.78	--	95.68	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	--
MW-4	4/12/2007	(NP)	104.46	7.54	--	96.92	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-4	4/9/2008	(NP)	104.46	6.37	--	98.09	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-4	6/24/2009	(NP)	104.46	7.64	--	96.82	40	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<2.00	<2.00
MW-4	5/20/2010	(NP)	132.47	6.90	0.0	125.57	25	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0	--	--	<2.0	<2.0
MW-4	8/10/2011	(LFP)	132.47	7.78	0.0	124.69	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-4	11/8/2011	(LFP)	132.47	8.42	0.0	124.05	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	1.2	--	--	<10.0	<10.0
MW-4	2/7/2012	(LFP)	132.47	6.32	0.0	126.15	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-4	8/24/2012	(LFP)	132.47	8.26	0.0	124.21	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-4	10/30/2012	(LFP)	132.47	8.84	0.0	123.63	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	1.6	--	--	7.0	<3.0
MW-4	2/14/2013	(LFP)	132.47	6.36	0.0	126.11	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-4	5/8/2013	(LFP)	132.47	5.79	0.0	126.68	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-4	8/27/2013	(LFP)	132.47	8.80	0.0	123.67	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-4	11/5/2013	(LFP)	132.47	8.60	0.0	123.87	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	0.60(J)	--	--	0.38(J)	<0.085
MW-4	2/17/2014	(LFP)	132.47	5.75	0.0	126.72	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	<0.50	--	--	<4.7	<4.7

Table 1
Groundwater Gauging Data and Select Analytical Results
WA-01118 (06031)

11450 N E 124th St, Kirkland, WA 98033

All analytical results are presented in micrograms per liter (µg/L)

Well	Date	Notes	TOC	DTW	NAPL	GWE	TPH	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDB	EDC	Total Lead	Dissolved Lead
Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) in µg/L							**--**	**800/1,000**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**20**	**0.01**	**5**	**15**	**15**
MTCA Method B CULs in µg/L							**9,950**	**--**	**--**	**--**	**1,900**	**210,000**	**4,700**	**23,000**	**66,000**	**--**	**--**	**--**	**--**
MTCA Method A CULs in µg/L							**--**	**800/1,000**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**20**	**0.01**	**5**	**15**	**15**
MW-4	8/6/2014	(NS)	132.47	7.65	0.0	124.82	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	12/12/2014	(NS)	132.47	6.23	0.0	126.24	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	3/9/2015	(LFP)	132.47	6.42	0.0	126.05	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	<4.7	--
MTCA Method A CULs in µg/L							**--**	**800/1,000**	**500**	**500**	**5**	**1,000**	**700**	**1,000**	**20**	**0.01**	**5**	**15**	**15**
MW-5	4/25/2003	(P)	108.45	5.13	--	103.32	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<5.00	<0.010	<1.00	--	--
MW-5	8/1/2003	(P)	108.45	6.54	--	101.91	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**52**	<1.00
MW-5	10/6/2003	(P)	108.45	6.87	--	101.58	25	<50.0	--	--	<0.500	0.529	<0.500	<1.00	<1.00	<0.010	<0.200	14	<1.00
MW-5	3/26/2004	(P)	108.45	4.91	--	103.54	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	**36**	<1.00
MW-5	10/11/2004	(NS)	108.45	7.45	--	101.00	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	2/26/2005	(P)	108.45	5.57	--	102.88	40	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	<1.00
MW-5	6/13/2005	(NP)	108.45	6.25	--	102.20	40	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	<1.00	<1.00
MW-5	9/14/2005	(NP)	108.45	7.11	--	101.34	25	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	<1.00	--	--	<1.00	--
MW-5	11/7/2005	(NP)	108.45	7.32	--	101.13	25	<50.0	--	--	<0.300	<0.500	<0.500	<1.00	<1.00	--	--	12	--
MW-5	1/24/2006	(NP)	108.45	4.40	--	104.05	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	<1.00	<1.00
MW-5	7/27/2006	(NS)	108.45	6.70	--	101.75	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	4/12/2007	(NP)	108.45	5.23	--	103.22	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-5	4/9/2008	(NP)	108.45	3.81	--	104.64	25	<50.0	--	--	<0.500	<0.500	<0.500	<3.00	<1.00	--	--	--	--
MW-5	6/24/2009	(NP)	108.45	6.53	--	101.92	40	<80.0	--	--	<0.200	<0.500	<0.500	<1.00	<2.00	--	--	2.2	<2.00
MW-5	5/20/2010	(NP)	136.46	5.42	0.0	131.04	25	<50	--	--	<0.50	<0.50	<0.50	<1.0	<1.0	--	--	7.8	<2.0
MW-5	8/10/2011	(LFP)	136.46	6.83	0.0	129.63	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-5	11/8/2011	(LFP)	136.46	7.12	0.0	129.34	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-5	2/7/2012	(LFP)	136.46	3.85	0.0	132.61	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-5	8/24/2012	(LFP)	136.46	7.16	0.0	129.30	25	<50.0	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-5	10/30/2012	(LFP)	136.46	7.74	0.0	128.72	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-5	10/30/2012	(Dup)(LFP)	136.46	7.74	0.0	128.72	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	3.5	<3.0
MW-5	2/14/2013	(LFP)	136.46	3.93	0.0	132.53	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<3.0	<3.0
MW-5	5/8/2013	(LFP)	136.46	4.89	0.0	131.57	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-5	8/27/2013	(LFP)	136.46	7.28	0.0	129.18	50	<100	--	--	<1.0	<1.0	<1.0	<3.0	<1.0	--	--	<10.0	<10.0
MW-5	11/5/2013	(LFP)	136.46	7.65	0.0	128.81	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	<0.50	--	--	<0.085	0.091(J)
MW-5	2/17/2014	(LFP)	136.46	3.90	0.0	132.56	25	<50	--	--	<0.50	<0.70	<0.80	<0.80	<0.50	--	--	<4.7	<4.7
MW-5	8/6/2014	(NS)	136.46	6.53	0.0	129.93	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	12/12/2014	(NS)	136.46	3.73	0.0	132.73	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	3/9/2015	(LFP)	136.46	3.45	0.0	133.01	25	<50	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	<4.7	--

msl = Mean sea level
TOC = Top of casing
NA = Not analyzed
NM = Not measured
ABD = Well abandoned
DUP = Duplicate sample
NS = Not sampled
P = Purge sampling
LFP = Low flow purge sampling
NP = No purge sampling
DTW = Depth to water below TOC

All analytical results are in micrograms per liter (µg/L)
TOC/DTW/NAPL/GWE measurements are in feet (ft)
ND = Not detected at or above the laboratory reporting limit
-- = Not analyzed/not applicable
GWE = Groundwater elevation above msl
NE = Top of casing not established
NAPL = Non-Aqueous Phase Liquid Thickness
GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics
DRO = Total Petroleum Hydrocarbons - Diesel Range Organics
HO = Total Petroleum Hydrocarbons- Heavy Oil Range Organics
BTEX = Benzene, Toluene, Ethylbenzene and Total Xylenes

J = estimated value – The result is greater than or equal to the Method Detection Limit (MDL) and less than the Limit of Quantitation (LOQ)
EDB = Ethylene Dibromide
EDC = 1,2-Dichloroethane
MTBE = Methyl Tertiary Butyl Ether
GRO, DRO, HO methods by Ecology NW Methods; BTEX, MTBE and EDB by 8260B, lead by EPA 6000/7000 Series, EDC by EPA 8011
Historic analysis by former consultant of BTEX, MTBE and EDB by EPA 8021B and confirmed with EPA 8260B if necessary
Groundwater Elevation - If NAPL is present, the elevation is corrected according to the following formula, (TOC elevation - depth to water) + (0.8 X NAPL Thickness)
800/1,000 = GRO MTCA cleanup levels with benzene present (800) and without (1,000)
Data collected prior to 2010 have been provided by previous consultants and are included as historical reference only
Site resurveyed in 2010. TOC elevation in reference to vertical datum N.A.V.D. 88 and horizontal datum NAD 83/98
BOLD constituent detected above MTCA Cleanup Levels

Table 2
Historical Soil Sample Analytical Results
WA-01118 (06031)

11450 N E 124th St, Kirkland, WA 98033

Year Drilled	Well #	Depth	Sample #	TPH[c]	GRO	DRO	HO	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Lead
Model Toxics Control Act (MTCA) Method A Cleanup Levels				--	30/100	2,000	2,000	0.03	7	6	9	0.1	250
MTCA Method B Cleanup Levels				4,299	--	--	--	18	6,400	8,000	16,000	556	--
MTCA Method A Cleanup Levels				--	30/100	2,000	2,000	0.03	7	6	9	0.1	250
1/25/2002	--	3	6031-1/25-TR1-3	2.50	<5.00	--	--	<0.0300	<0.0500	<0.0500	0.405	<0.100	6.11
MTCA Method B Cleanup Levels				4,299	--	--	--	18	6,400	8,000	16,000	556	--
2/21/2001	--	2.5	DISP 6-2.5FT[a]	3,270	3,270	--	--	<2.50	<7.14	18.1	226	--	--
2/21/2001	--	2.5	DISP 14/16-2.5FT[a]	128	128	--	--	0.0704	0.243	0.475	0.847	--	--
2/21/2001	--	2	DISP 2-2FT[a]	**19,300**	19,300	--	--	**44.3**	453	236	1,970	--	--
2/21/2001	--	2.5	DISP 9/11-2.5FT[a]	**4,620**	4,620	--	--	5.3	13.2	52.8	391	--	--
2/22/2001	--	5.5	TURB 1-5.5FT[a]	2.5	<5.00	--	--	<0.0500	<0.0500	<0.0500	0.124	--	--
2/22/2001	--	5.25	TURB 2-5.25FT[a]	2.5	<5.00	--	--	<0.0500	<0.0500	<0.0500	<0.100	--	--
2/22/2001	--	4.5	TURB 3-4.5FT[a]	2.5	<5.00	--	--	<0.0500	<0.0500	<0.0500	0.102	--	--
12/28/2001	--	4	6031-12/28-SUMPW-4[a]	2.5	<5.00	--	--	0.115	0.087	0.152	0.0954	<1.00	1.9
12/28/2001	--	7.5	6031-12/28-SUMPB-7.5	57.7	57.7	--	--	2.16	0.806	0.908	13.2	<1.00	5.15
12/28/2001	--	4	6031-12/28-SUMPE-4	5.18	5.18	--	--	<0.0300	<0.0500	0.0548	1.12	<0.100	3.1
12/28/2001	--	NA	6031-12/28-CS1	6.17	6.17	--	--	<0.0300	0.152	<0.0500	0.177	<0.100	1.88
12/28/2001	--	NA	6031-12/28-CS2	2.5	<5.00	--	--	<0.0300	0.0676	<0.0500	<0.100	<0.100	2.48
12/28/2001	--	NA	6031-12/28-CS3	2.5	<5.00	--	--	<0.0300	0.0546	<0.0500	0.121	<0.100	2.38
1/2/2002	--	8.5	6031-1/2-X1-8.5	2.5	<5.00	--	--	<0.0300	<0.0500	<0.0500	<0.100	0.113	12.1
1/2/2002	--	8.5	6031-1/2-X2-8.5	2.5	<5.00	--	--	0.555	<0.0500	<0.0500	<0.100	0.159	20.6
1/2/2002	--	5	6031-1/2-X3-5	2.5	<5.00	--	--	0.0696	<0.0500	<0.0500	<0.100	<0.100	3.05
1/2/2002	--	5	6031-1/2-X4-5[a]	2.5	<5.00	--	--	0.635	<0.0500	<0.0500	0.873	0.458	2.89
1/2/2002	--	5	6031-1/2-X5-5[a]	2.5	<5.00	--	--	0.258	<0.0500	<0.0500	0.617	<0.100	3.55
1/2/2002	--	5	6031-1/2-X6-5[a]	2.5	<5.00	--	--	0.0892	<0.0500	<0.0500	<0.100	<0.100	2.94
1/2/2002	--	5	6031-1/2-X7-5[a]	2.5	<5.00	--	--	0.18	<0.0500	<0.0500	<0.100	0.147	2.66
1/3/2002	--	8.5	6031-1/3-X8-5	2.5	<5.00	--	--	0.252	<0.0500	<0.0500	0.186	<1.00	2.89
1/3/2002	--	8.5	6031-1/3-X9-8.5	2.5	<5.00	--	--	0.625	<0.0500	0.302	0.764	<1.00	17.1
1/3/2002	--	8.5	6031-1/3-X10-8.5	2.5	<5.00	--	--	0.548	<0.0500	<0.0500	<0.100	<1.00	30.1
1/3/2002	--	8.5	6031-1/3-X11-8.5	11.4	11.4	--	--	1.79	<0.0500	0.528	2.48	<1.00	34
1/3/2002	--	6	6031-1/3-X12-6.0	2.5	<5.00	--	--	<0.0300	<0.0500	<0.0500	<0.100	<0.100	3.82
1/3/2002	--	9	6031-1/3-X13-9	2.5	<5.00	--	--	<0.0300	<0.0500	<0.0500	<0.100	<0.100	9.08
1/3/2002	--	6	6031-1/3-X14-6	2.5	<5.00	--	--	0.107	<0.0500	<0.0500	<0.100	<0.100	3.34
1/3/2002	--	8	6031-1/3-X15-8.0	2.5	<5.00	--	--	0.243	<0.0500	<0.0500	<0.100	<1.00	2.98
1/3/2002	--	8	6031-1/3-X16-8.0	2.5	<5.00	--	--	0.119	<0.0500	<0.0500	<0.100	<1.00	11.3
1/3/2002	--	8.5	6031-1/3-X17-8.5	69.3	69.3	--	--	**35.8**	<0.107	0.271	4.44	<2.14	18.3
1/3/2002	--	5	6031-1/3-X18-5.0	2.5	<5.00	--	--	0.371	<0.0500	0.0989	0.426	<0.100	2.81
1/3/2002	--	8	6031-1/3-X19-8.0	22.60	22.60	--	--	1.14	<0.104	<0.104	0.358	<0.208	58.4
1/3/2002	--	5	6031-1/3-X20-5.0	2.50	<5.00	--	--	<0.0300	<0.0500	<0.0500	0.888	<0.100	3.34
1/26/2002	--	5	6031-1/26-TR2-5	4,220	4,220	--	--	5.73	17.8	72.6	400	<4.00	3.99
1/26/2002	--	4	6031-1/26-TR3-4	2.5	<5.00	--	--	0.087	<0.0500	<0.0500	<0.100	<0.100	4.32
4/9/2003	B-1/MW-1	5	B-1-5	5.9	5.9	--	--	2.17	<0.0500	<0.0500	0.485	0.523/<1.00[b]	24.4
4/9/2003	B-2/MW-2	5	B-2-5	2.5	<5.00	--	--	<0.0300	<0.0500	<0.0500	<0.100	<0.100	4.77
4/9/2003	B-3/MW-3	5	B-3-5	2.5	<5.00	--	--	<0.0300	<0.0500	<0.0500	<0.100	<0.100	3.67
4/9/2003	B-4/MW-4	5	B-4-5	2.5	<5.00	--	--	<0.0300	<0.0500	<0.0500	<0.100	<0.100	4.45
4/9/2003	B-4/MW-4	15	B-4-15	2.5	<5.00	--	--	<0.0300	<0.0500	<0.0500	<0.100	<0.100	7.54
4/10/2003	B-5/MW-5	5	B-5-5	2.5	<5.00	--	--	<0.0300	0.0557	<0.0500	<0.100	<0.100	4.9
3/11/2014	SB-100	5.0	SB-100 5.0	23.4	1.7 J	< 3.4	20 J	0.0042 J	< 0.00091	< 0.00091	0.0086	0.00062 J	4.16
3/11/2014	SB-100	7-8.5	SB-100 7-8.5	29.1	< 1.8	< 4.4	26 J	0.032	< 0.0014	< 0.0014	0.0022 J	0.027	21.2
3/11/2014	SB-100	8.5-10	SB-100 8.5-10	9.8	< 1.4	< 4.2	< 14	< 0.00060	< 0.0012	< 0.0012	< 0.0012	0.0039 J	7.22
3/11/2014	SB-101	5	SB-101 5.0	23.5	15	< 3.9	< 13	0.0020 J	< 0.0012	0.044	0.014	< 0.00060	5.76
3/11/2014	SB-101	5	DUP-1 (SB-101 5.0)	46.5	38	< 4.0	< 13	0.0020 J	< 0.0013	0.062	0.016	< 0.00065	6.00
3/11/2014	SB-101	6.5-8.0	SB-101 6.5-8.0	25.6	8.6	< 3.9	15 J	0.0035 J	< 0.0011	0.10	0.061	< 0.00065	5.80
3/11/2014	SB-101	9-10	SB-101 9-10	9.2	< 1.4	< 3.9	< 13	< 0.00049	< 0.00098	< 0.00098	< 0.00098	< 0.00049	6.48

Notes:

All analytical results are in milligrams per kilogram (mg/kg)
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
HO = Heavy Oil
BTEX = Benzene, Toluene, Ethylbenzene and Total Xylenes
MTBE = Methyl Tertiary Butyl Ether
GRO, DRO, HO methods by Ecology NW Methods
BTEX by EPA 8021B
MTBE by EPA 8021B and confirmed by 8260B
Lead by EPA 6000/7000 Series
J = estimated value detected in-between the method detection limit and the limit of quantitation

30/100 = GRO MTCA cleanup levels with benzene present (30) and without (100)
Depths are listed in feet below ground surface
-- = Not Analyzed/Not Applicable
NE = Not established
ND = Not detected
< = Not detected greater than laboratory detection limit. Value listed is laboratory detection limit.
[a] = Sample over-excavated
[b] = MTBE concentration was detected by Method 8021B and confirmed below method reporting limits by Method 8
[c] = GRO, DRO and HO concentrations added together for comparison to TPH MTCA Method B Cleanup Level. If constituent was not detected, one half of the minimum dection limit was added to attain the sum of the TPH.

BOLD Bold and shaded cells represent concentrations greater than MTCA Cleanup Levels in soil

Table 3
Soil VPH/EPH Analytical Results
WA-01118 (06031)

11450 N E 124th St, Kirkland, WA 98033

Date Sampled	Well #	Depth	Sample #	EPH							
				Aliphatic Hydrocarbon				Aromatic Hydrocarbon			
				C-10-C-12	C-12-C-16	C-16-C-21	C-21-C-34	C-10-C-12	C-12-C-16	C-16-C-21	C-21-C-34
3/11/2014	SB-100	7-8.5	SB-100 7-8.5	< 1.4	< 1.4	< 4.3	< 8.7	< 1.4	< 1.4	< 2.9	< 2.9
3/11/2014	SB-101	5	DUP-1 (SB-101 5.0)	1.3 J	< 1.3	< 3.8	< 7.7	< 1.3	< 1.3	< 2.6	< 2.6

Year Drilled	Well #	Depth	Sample #	VPH									
				Aliphatic Hydrocarbon			Aromatic Hydrocarbon						
				C-5-C-6	C-6-C-8	C-8-C-10	C-8-C-10	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	MTBE
3/11/2014	SB-100	7-8.5	SB-100 7-8.5	< 4.34	< 4.34	< 4.34	< 4.34	0.266 J	< 0.0869	< 0.0869	< 0.174	< 0.0869	0.105 J
3/11/2014	SB-101	5	DUP-1 (SB-101 5.0)	< 4.15	< 4.15	6.12 J	< 4.15	< 0.0830	< 0.0830	0.106 J	< 0.166	< 0.0830	< 0.0830

Notes:

All analytical results are in milligrams per kilogram (mg/kg)

MTBE = Methyl Tertiary Butyl Ether

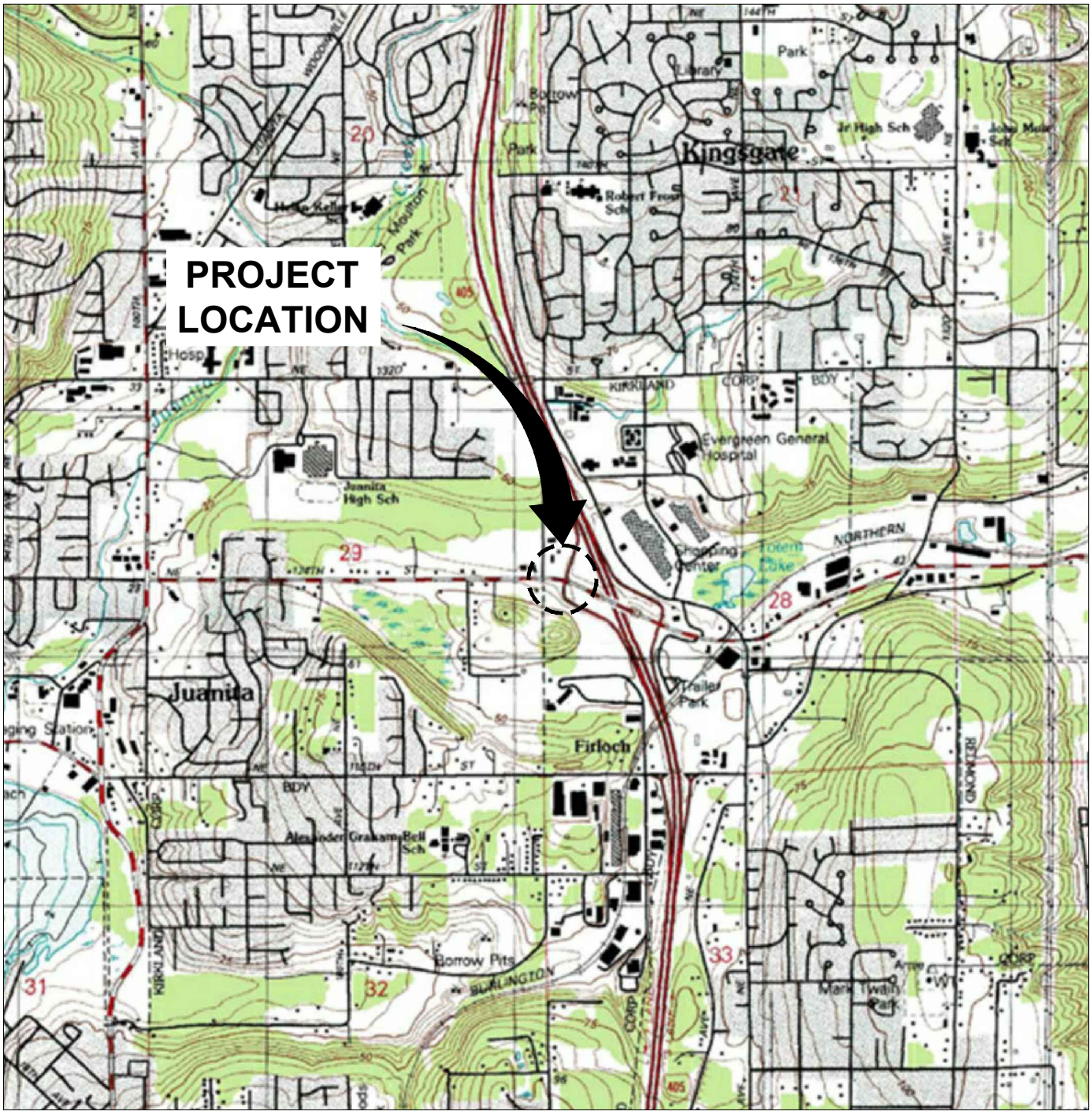
EPH/VPH by WA EPH/ WA VPH

Depths are listed in feet below ground surface

< = Not detected greater than laboratory detection limit. Value listed is laboratory detection limit.

J = estimated value detected in-between the method detection limit and the limit of quantitation

Figures



REFERENCE: BASE MAP USGS 7.5. X 15 MIN. TOPO. QUAD., BELLEVUE NORTH , WA, 1982.

0 2000

SCALE FEET

North

BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON

2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

SITE LOCATION MAP

ARCADIS

FIGURE 1

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Emeryville\ACT\GP09BPNAWA10\Q0000\CloseReq_AnnualSS 2015\DWG\GP09BPNAWA10 N01.dwg LAYOUT: 1 SAVED: 7/8/2015 3:20 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 7/8/2015 3:27 PM BY: REYES, ALEC
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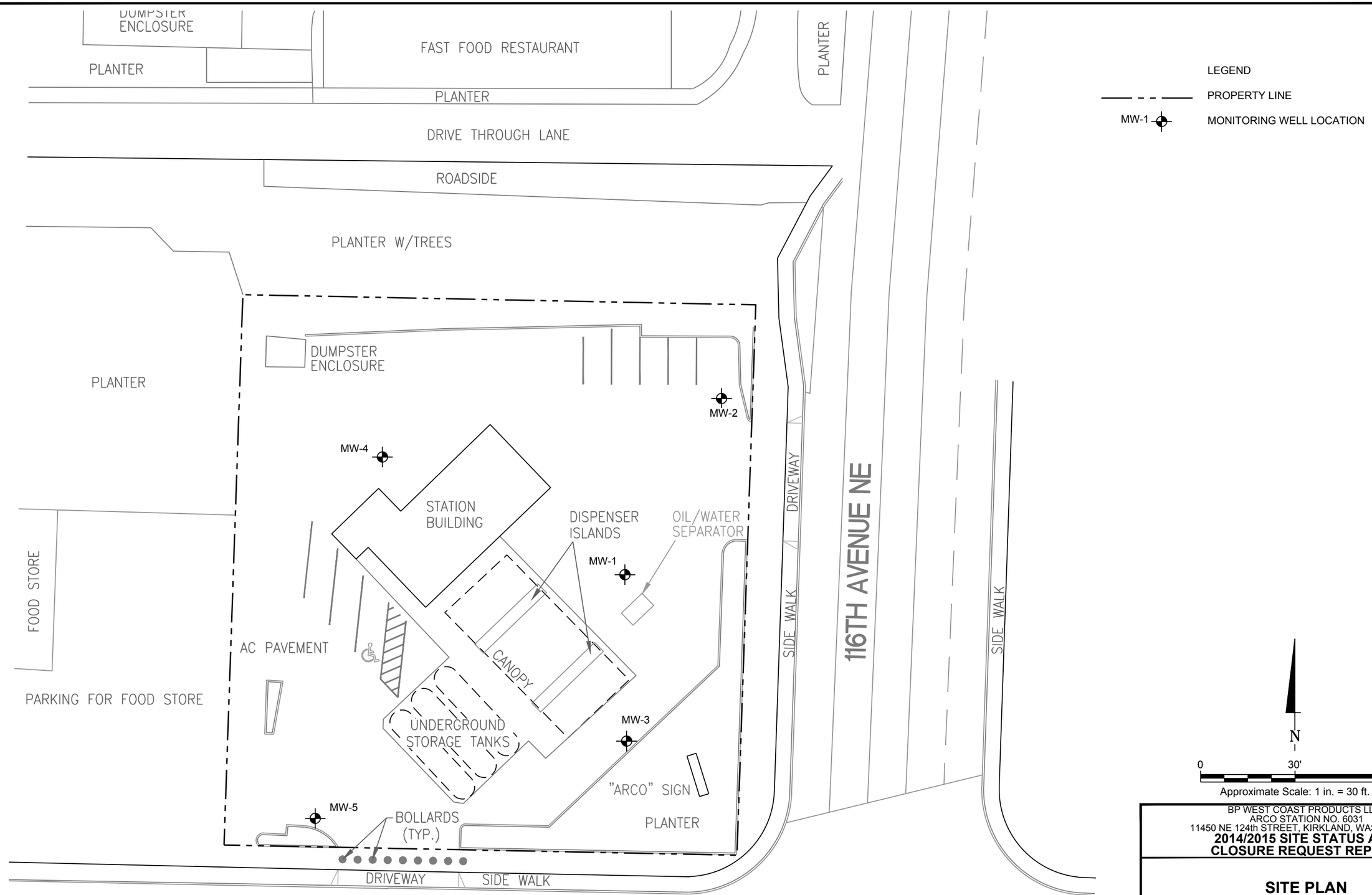
USGS TOPO 6031.jpg



Approximate Scale: 1 in. = 30 ft.

BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON

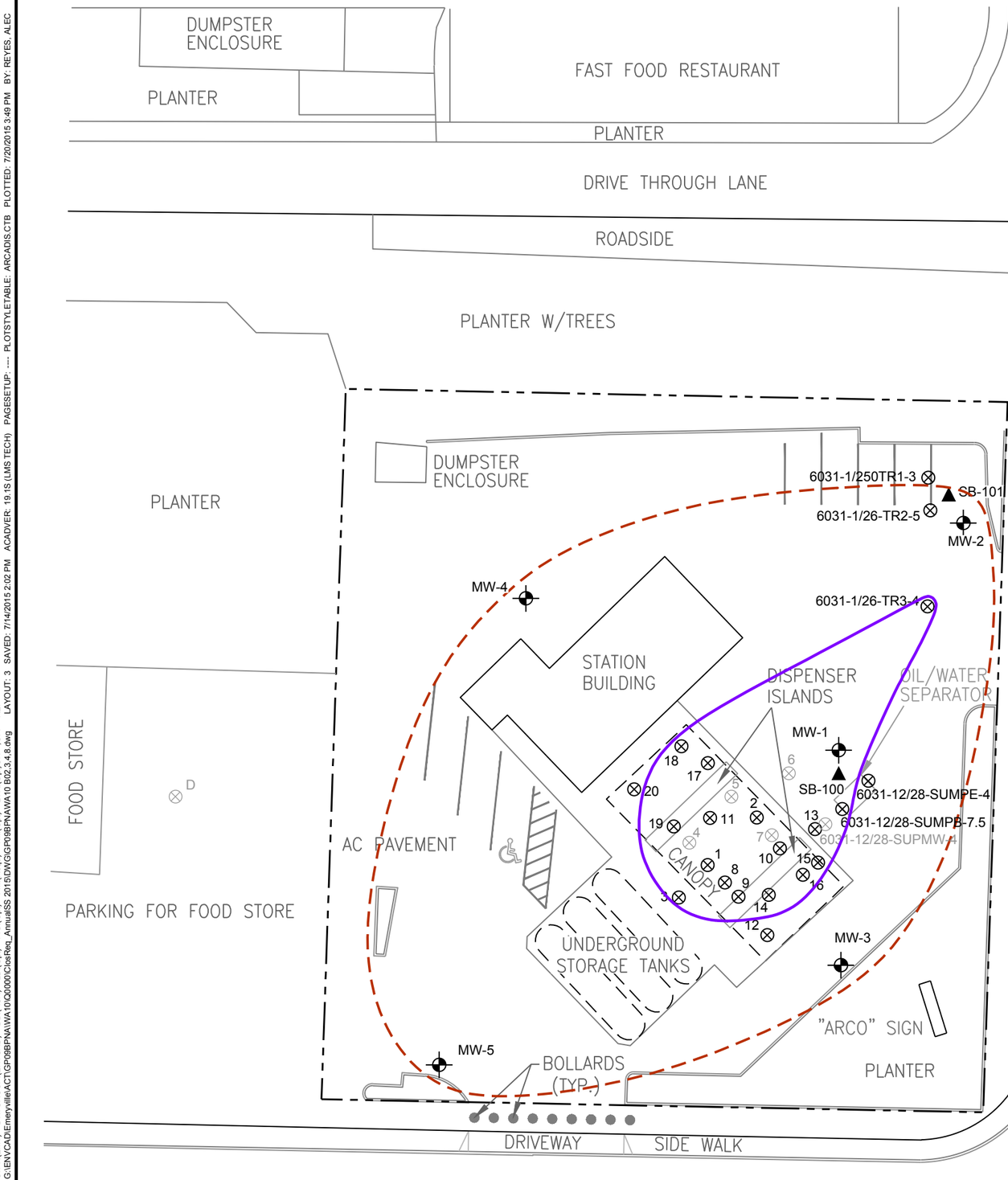
2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

SITE PLAN

ARCADIS

FIGURE **2**

CITY:(EMV) DIV/GROUP:(ENVCAD) DB:(ASR) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Emeryville\ACT\GP09BPNA\WA10\Q000\CloseReq_Annual\SS 2015\DWG\GP09BPNAWA10 B02.3.4.8.dwg LAYOUT: 2 SAVED: 4/21/2015 12:21 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 7/8/2015 3:27 PM BY: REYES, ALEC



LEGEND

- PROPERTY LINE
- MW-1 — MONITORING WELL LOCATION
- SB-100 — SOIL BORING LOCATION
- 1 — HISTORICAL SOIL SAMPLE LOCATION
- 4 — OVER EXCAVATED SOIL SAMPLE
- MTCA SITE BOUNDARY
- AREA CURRENTLY EXCEEDING MTCA METHOD A CLEANUP LEVELS
- MTCA — MODEL TOXICS CONTROL ACT

SAMPLE NO.	SAMPLE ID
1	6031-1/2-X1-8.5
2	6031-1/2-X2-8.5
3	6031-1/2-X3-5
4	6031-1/2-X4-5
5	6031-1/2-X5-5
6	6031-1/2-X6-5
7	6031-1/2-X7-5
8	6031-1/3-X8-5
9	6031-1/3-X9-8.5
10	6031-1/3-X10-8.4
11	6031-1/3-X11-8.5
12	6031-1/3-X12-6.0
13	6031-1/3-X13-9
14	6031-1/3-X14.6
15	6031-1/3-X15-8.0
16	6031-1/3-X16-8.0
17	6031-1/3-X17-8.5
18	6031-1/3-X18-5.0
19	6031-1/3-X19-8.0
20	6031-1/3-X20-5.0

N

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

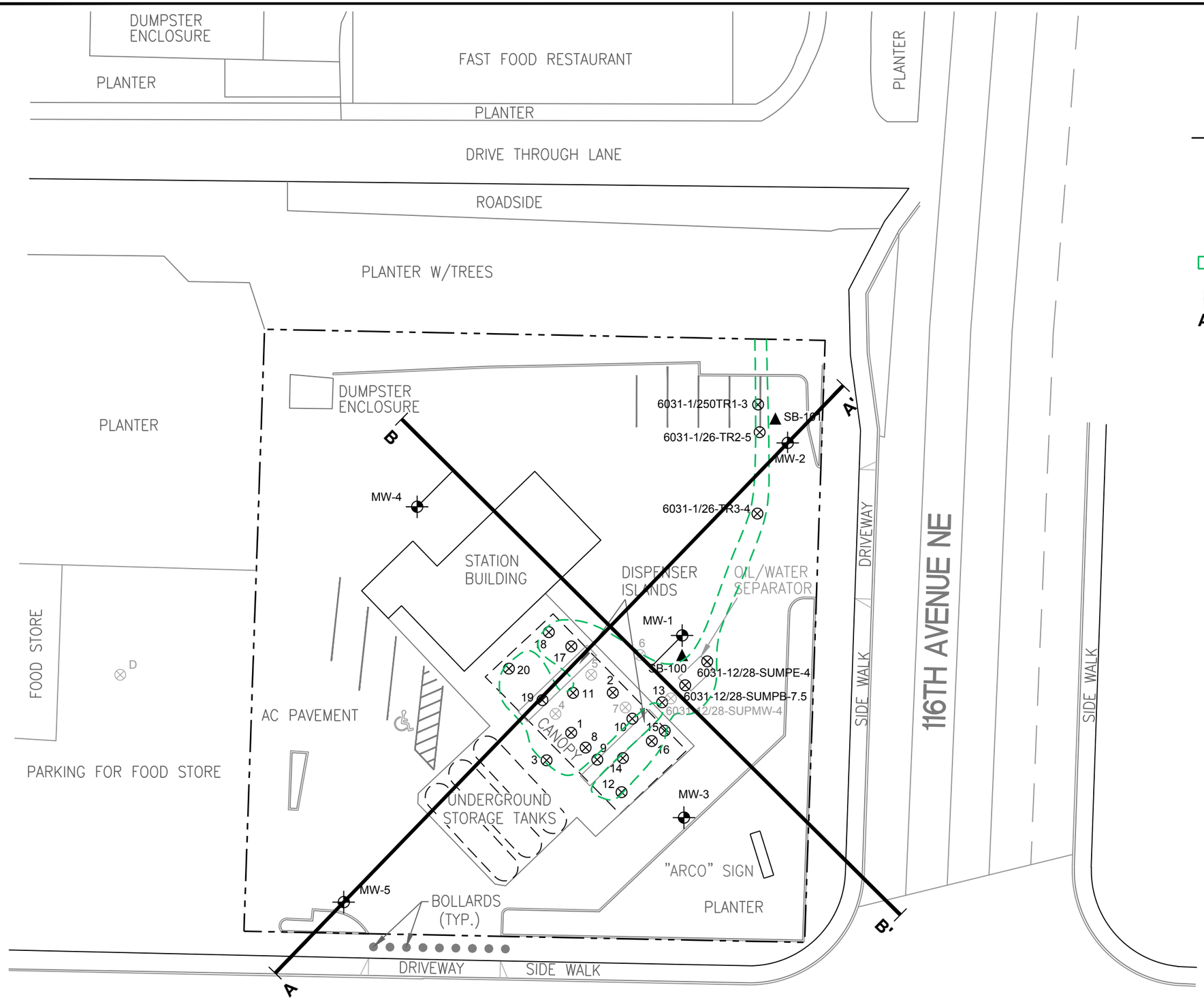
BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON
2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

MODEL TOXICS CONTROL ACT SITE BOUNDARY MAP

ARCADIS

FIGURE 3



LEGEND

- PROPERTY LINE
- MW-1 — MONITORING WELL LOCATION
- SB-100 — SOIL BORING LOCATION
- 1 — HISTORICAL SOIL SAMPLE LOCATION
- 4 — OVER EXCAVATED SOIL SAMPLE
- LIMITS OF EXCAVATION
- A — A' CROSS SECTION LOCATION

SAMPLE NO.	SAMPLE ID
1	6031-1/2-X1-8.5
2	6031-1/2-X2-8.5
3	6031-1/2-X3-5
4	6031-1/2-X4-5
5	6031-1/2-X5-5
6	6031-1/2-X6-5
7	6031-1/2-X7-5
8	6031-1/3-X8-5
9	6031-1/3-X9-8.5
10	6031-1/3-X10-8.4
11	6031-1/3-X11-8.5
12	6031-1/3-X12-6.0
13	6031-1/3-X13-9
14	6031-1/3-X14.6
15	6031-1/3-X15-8.0
16	6031-1/3-X16-8.0
17	6031-1/3-X17-8.5
18	6031-1/3-X18-5.0
19	6031-1/3-X19-8.0
20	6031-1/3-X20-5.0

N

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

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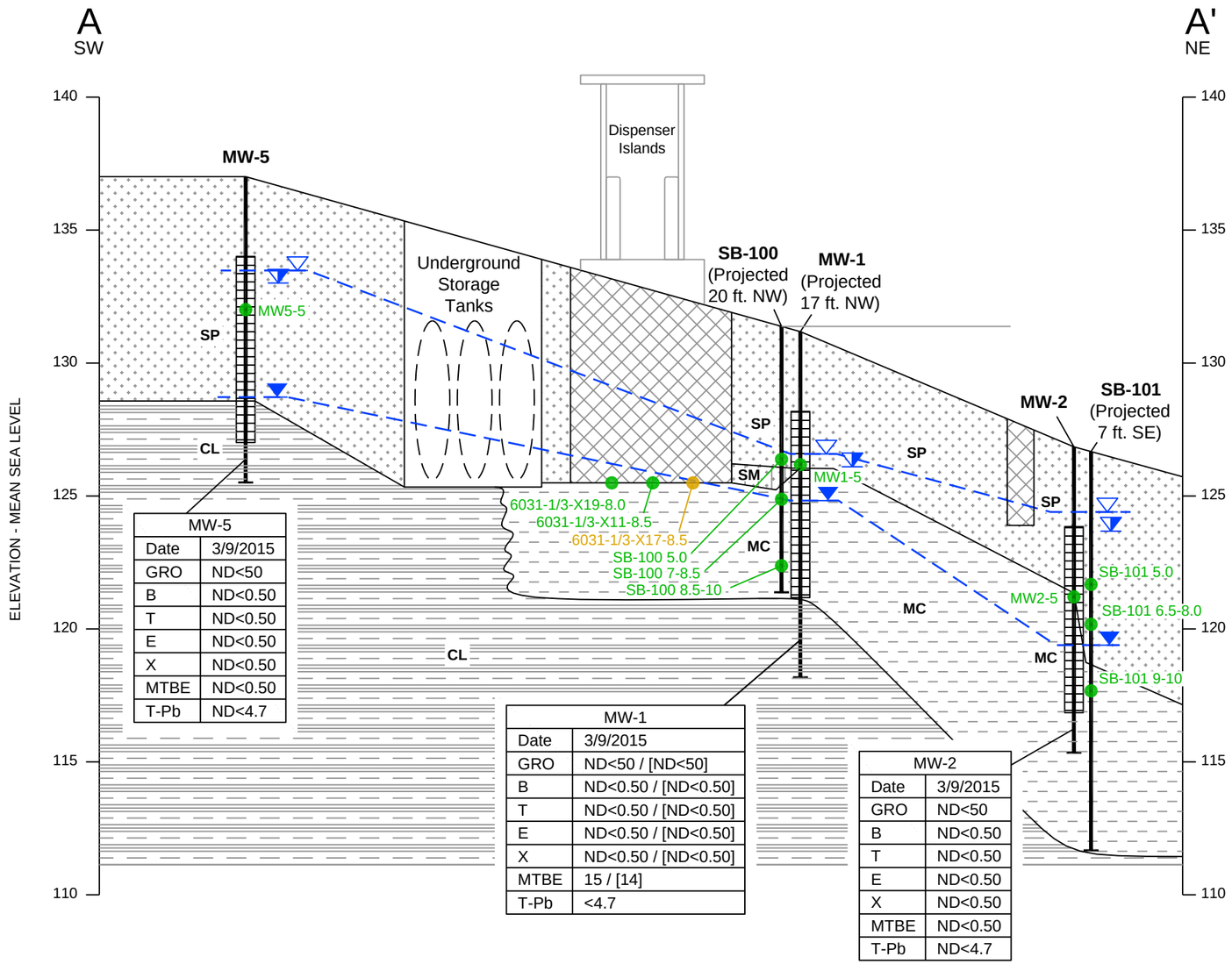
2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

GEOLOGIC CROSS SECTION PROFILE MAP

ARCADIS

FIGURE **4a**

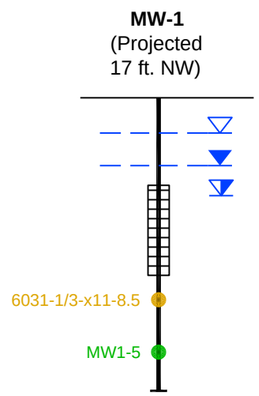


MW-5	
Date	3/9/2015
GRO	ND<50
B	ND<0.50
T	ND<0.50
E	ND<0.50
X	ND<0.50
MTBE	ND<0.50
T-Pb	ND<4.7

MW-1	
Date	3/9/2015
GRO	ND<50 / [ND<50]
B	ND<0.50 / [ND<0.50]
T	ND<0.50 / [ND<0.50]
E	ND<0.50 / [ND<0.50]
X	ND<0.50 / [ND<0.50]
MTBE	15 / [14]
T-Pb	<4.7

MW-2	
Date	3/9/2015
GRO	ND<50
B	ND<0.50
T	ND<0.50
E	ND<0.50
X	ND<0.50
MTBE	ND<0.50
T-Pb	ND<4.7

LEGEND



WELL OR BORING ID, (PROJECTED DISTANCE AND DIRECTION)

GROUND SURFACE

HISTORICAL HIGH WATER LEVEL

HISTORICAL LOW WATER LEVEL

WATER LEVEL MARCH 9, 2015

WELL CONSTRUCTION SHOWING SCREENED INTERVAL

SAMPLE ID AND DEPTH WITH EXCEEDANCE OF MTCA METHOD B

SAMPLE ID AND DEPTH WITHOUT EXCEEDANCE OF MTCA METHOD B

SP — SAND: FINE TO COARSE GRAIN WITH SOME GRAVELS AND TRACE OF SILT

SM — SAND SILT MIXTURES

CL — CLAY, COARSE SAND UP TO 15%

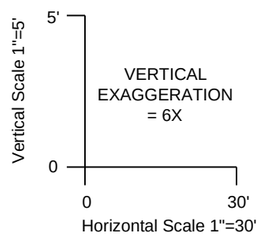
MC — SILT CLAY MIXTURES

EXCAVATION

LOCATION ID	
GRO	Total Petroleum Hydrocarbons as Gasoline Range Organics (µg/L) / [Duplicate (µg/L)]
B	Benzene (µg/L) / [Duplicate (µg/L)]
T	Toluene (µg/L) / [Duplicate (µg/L)]
E	Ethylbenzene (µg/L) / [Duplicate (µg/L)]
X	Total Xylenes (µg/L) / [Duplicate (µg/L)]
MTBE	Methyl Tertiary Butyl Ether (µg/L) / [Duplicate (µg/L)]
T-Pb	Total Lead (µg/L) / [Duplicate (µg/L)]

ND — NOT DETECTED, VALUE SHOWN IS DETECTION LIMIT

(µg/L) — MICROGRAMS PER LITER



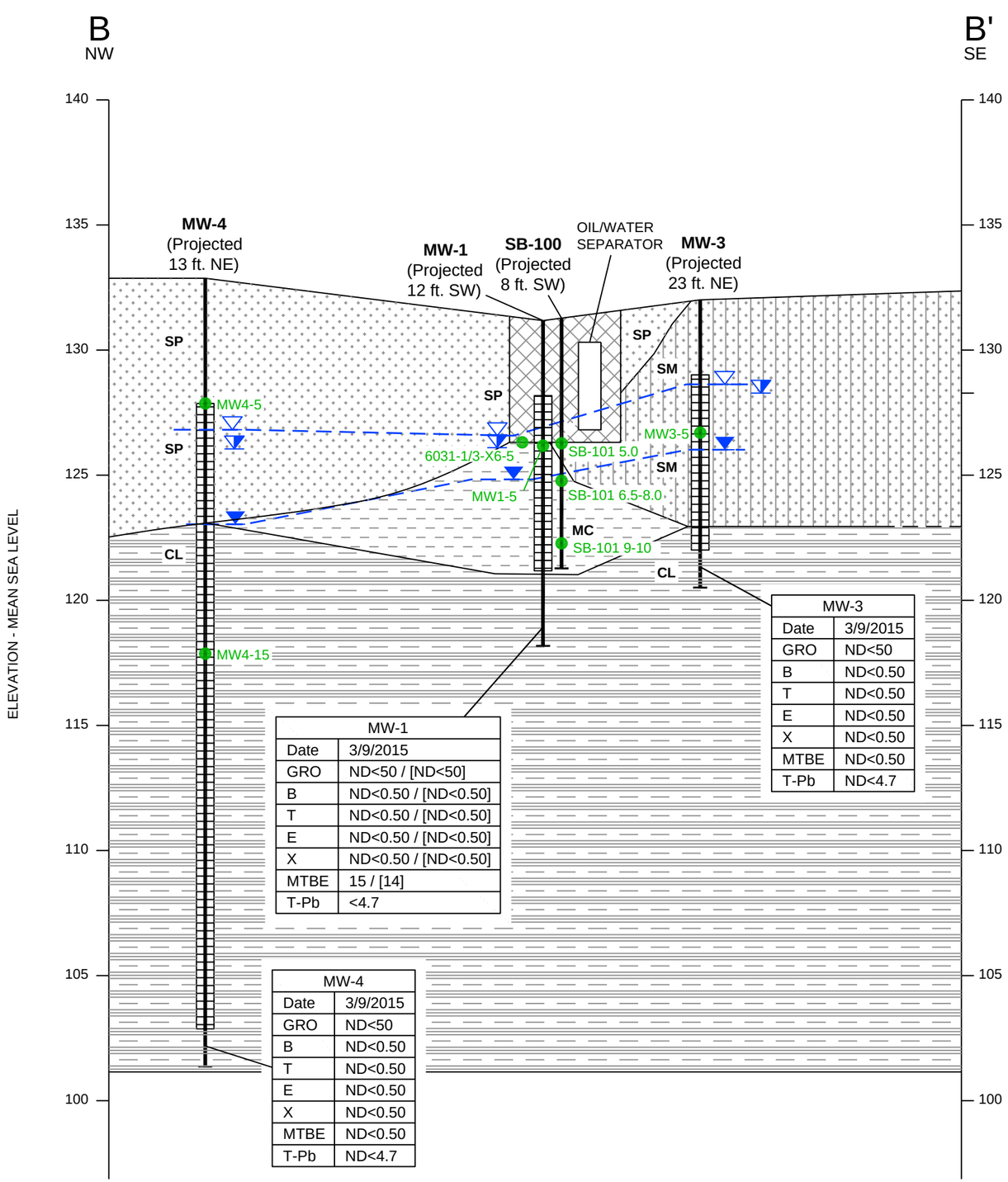
BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON

2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

GEOLOGIC CROSS SECTION A - A'

ARCADIS

FIGURE
4b

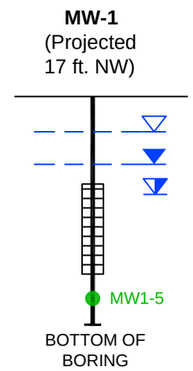


MW-1	
Date	3/9/2015
GRO	ND<50 / [ND<50]
B	ND<0.50 / [ND<0.50]
T	ND<0.50 / [ND<0.50]
E	ND<0.50 / [ND<0.50]
X	ND<0.50 / [ND<0.50]
MTBE	15 / [14]
T-Pb	<4.7

MW-3	
Date	3/9/2015
GRO	ND<50
B	ND<0.50
T	ND<0.50
E	ND<0.50
X	ND<0.50
MTBE	ND<0.50
T-Pb	ND<4.7

MW-4	
Date	3/9/2015
GRO	ND<50
B	ND<0.50
T	ND<0.50
E	ND<0.50
X	ND<0.50
MTBE	ND<0.50
T-Pb	ND<4.7

LEGEND



WELL OR BORING ID, (PROJECTED DISTANCE AND DIRECTION)

GROUND SURFACE

HISTORICAL HIGH WATER LEVEL

HISTORICAL LOW WATER LEVEL

WATER LEVEL MARCH 9, 2015

WELL CONSTRUCTION SHOWING SCREENED INTERVAL

SAMPLE ID AND DEPTH WITHOUT EXCEEDANCE OF MTCA METHOD B

SP — SAND: FINE TO COARSE GRAIN WITH SOME GRAVELS AND TRACE OF SILT

SM — SAND SILT MIXTURES

CL — CLAY, COARSE SAND UP TO 15%

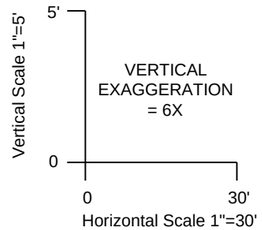
MC — SILT CLAY MIXTURES

EXCAVATION

LOCATION ID	
GRO	Total Petroleum Hydrocarbons as Gasoline Range Organics (µg/L) / [Duplicate (µg/L)]
B	Benzene (µg/L) / [Duplicate (µg/L)]
T	Toluene (µg/L) / [Duplicate (µg/L)]
E	Ethylbenzene (µg/L) / [Duplicate (µg/L)]
X	Total Xylenes (µg/L) / [Duplicate (µg/L)]
MTBE	Methyl Tertiary Butyl Ether (µg/L) / [Duplicate (µg/L)]
T-Pb	Total Lead (µg/L) / [Duplicate (µg/L)]

ND — NOT DETECTED, VALUE SHOWN IS DETECTION LIMIT

(µg/L) — MICROGRAMS PER LITER



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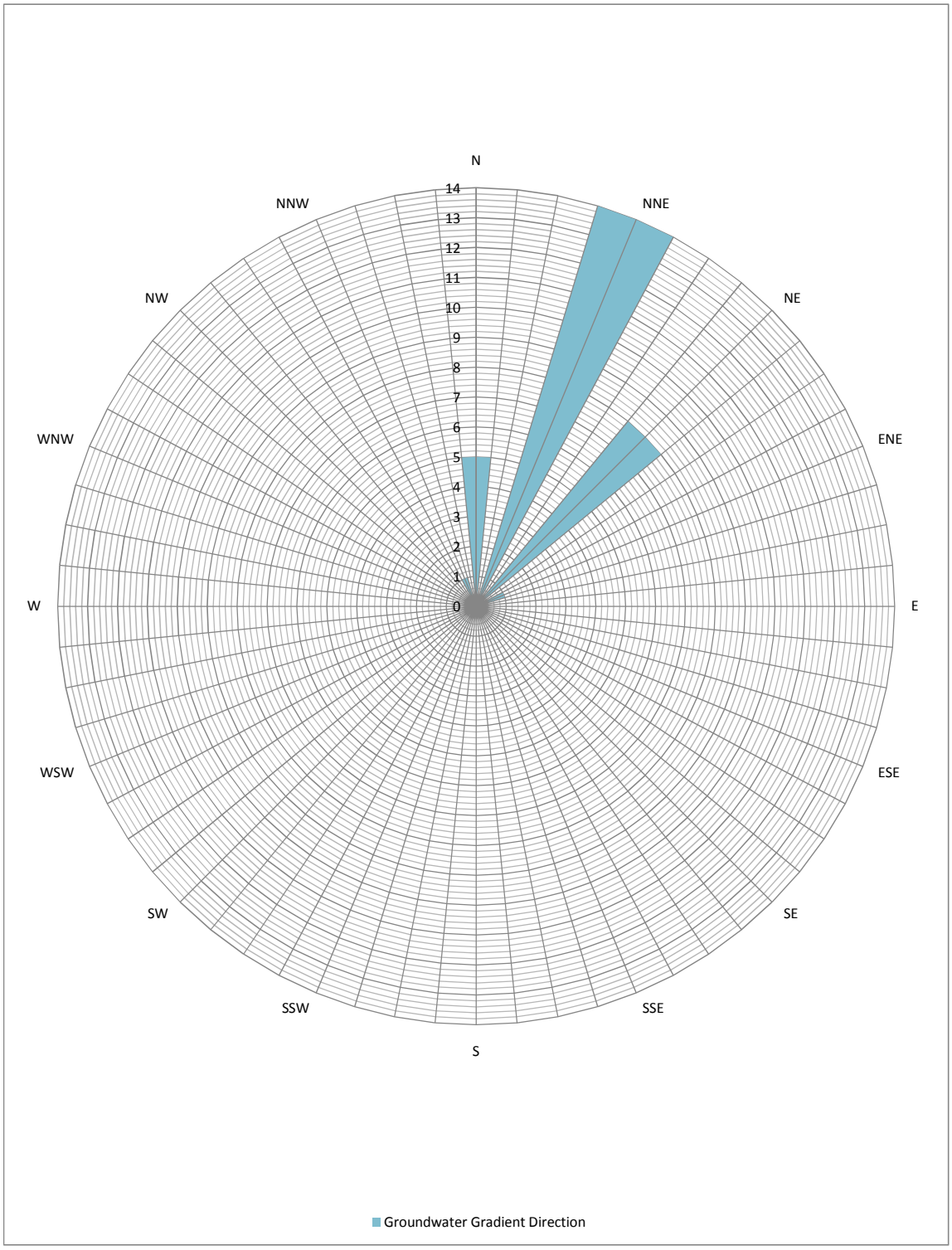
GEOLOGIC CROSS SECTION B - B'

ARCADIS

FIGURE
4c



Legend

N=North
NNE= North Northeast
NE= Northeast
ENE= East Northeast
E= East
ESE= East Southeast
SE=Southeast
SSE= South Southeast
S= South
SW= Southwest
SSW= South Southwest
WSW= West South West
W= West
WNW= West Northwest
NW=Northwest
NNW= North Northwest
14 = Number of Events Observed

Note

Rose diagram based on gradient direction calculations from groundwater monitoring events conducted by ARCADIS since top of casing survey in May 2010.

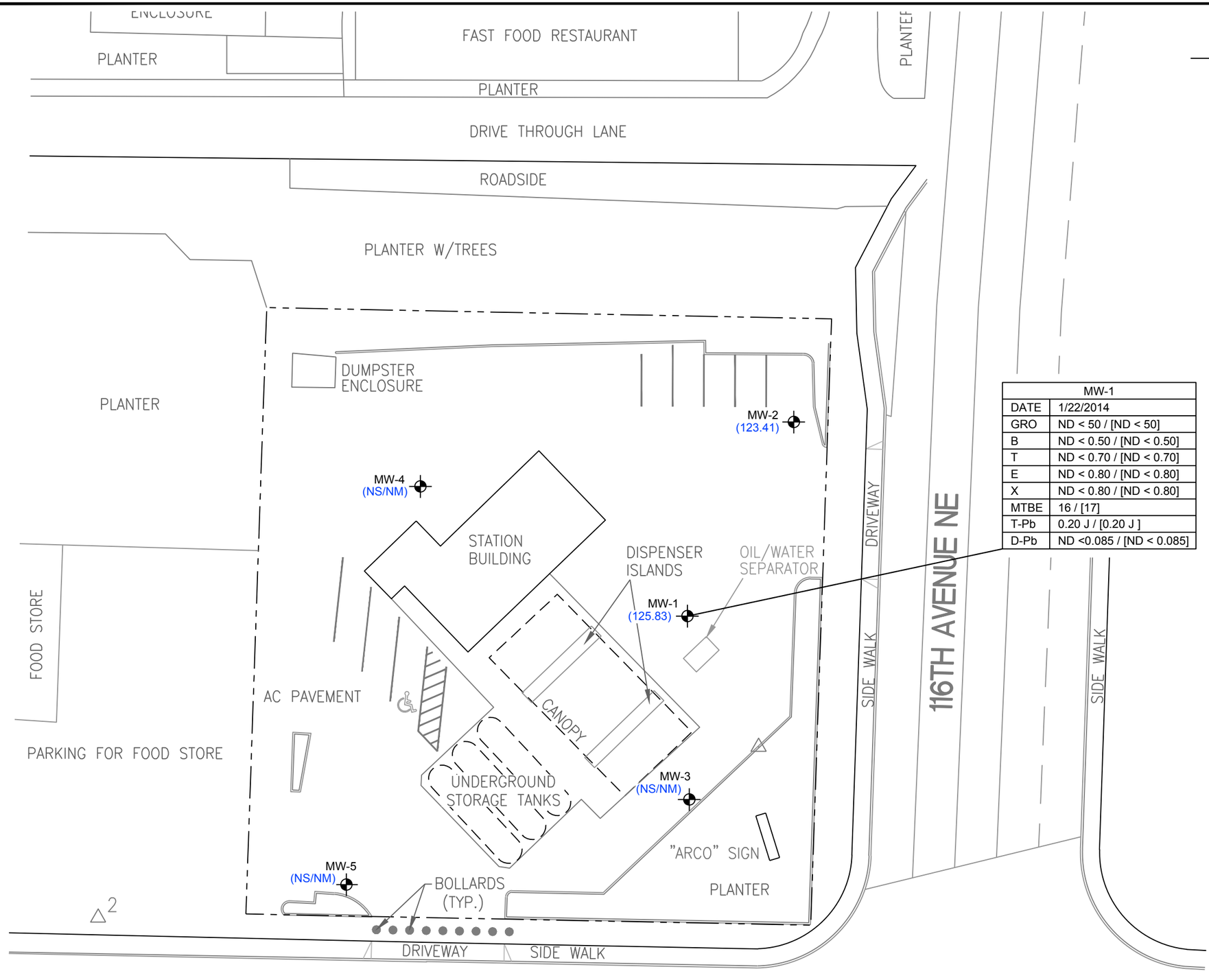
BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NORTHEAST 124TH STREET,KIRKLAND, WA

2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

HISTORICAL GROUNDWATER GRADIENT DIRECTION ROSE DIAGRAM

ARCADIS
Infrastructure · Water · Environment · Buildings

FIGURE
5



MW-1	
DATE	1/22/2014
GRO	ND < 50 / [ND < 50]
B	ND < 0.50 / [ND < 0.50]
T	ND < 0.70 / [ND < 0.70]
E	ND < 0.80 / [ND < 0.80]
X	ND < 0.80 / [ND < 0.80]
MTBE	16 / [17]
T-Pb	0.20 J / [0.20 J]
D-Pb	ND <0.085 / [ND < 0.085]

LEGEND

———	PROPERTY LINE
MW-1	MONITORING WELL LOCATION
(123.52)	GROUNDWATER ELEVATION (FEET ABOVE MSL)
MSL	MEAN SEA LEVEL
ND	NOT DETECTED, VALUE SHOWN IS DETECTION LIMIT
(µg/L)	MICROGRAMS PER LITER
ND	NOT DETECTED, VALUE SHOWN IS DETECTION LIMIT
NS/NM	NOT SAMPLED / NOT MEASURED
J	ESTIMATED VALUE - THE RESULT IS ≥ THE METHOD DETECTION LIMIT (MDL) AND < THE LIMIT OF QUANTITATION (LOQ).

SAMPLE ID	
GRO	Gasoline Range Organics (µg/L) [DUPLICATE (µg/L)]
B	Benzene (µg/L) [DUPLICATE (µg/L)]
T	Toluene (µg/L) [DUPLICATE (µg/L)]
E	Ethylbenzene (µg/L) [DUPLICATE (µg/L)]
X	Total Xylenes (µg/L) [DUPLICATE (µg/L)]
MTBE	Methyl Tertiary Butyl Ether (µg/L) [DUPLICATE (µg/L)]
T-Pb	Total Lead (µg/L) [DUPLICATE (µg/L)]
D-Pb	Dissolved Lead (µg/L) [DUPLICATE (µg/L)]

N

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

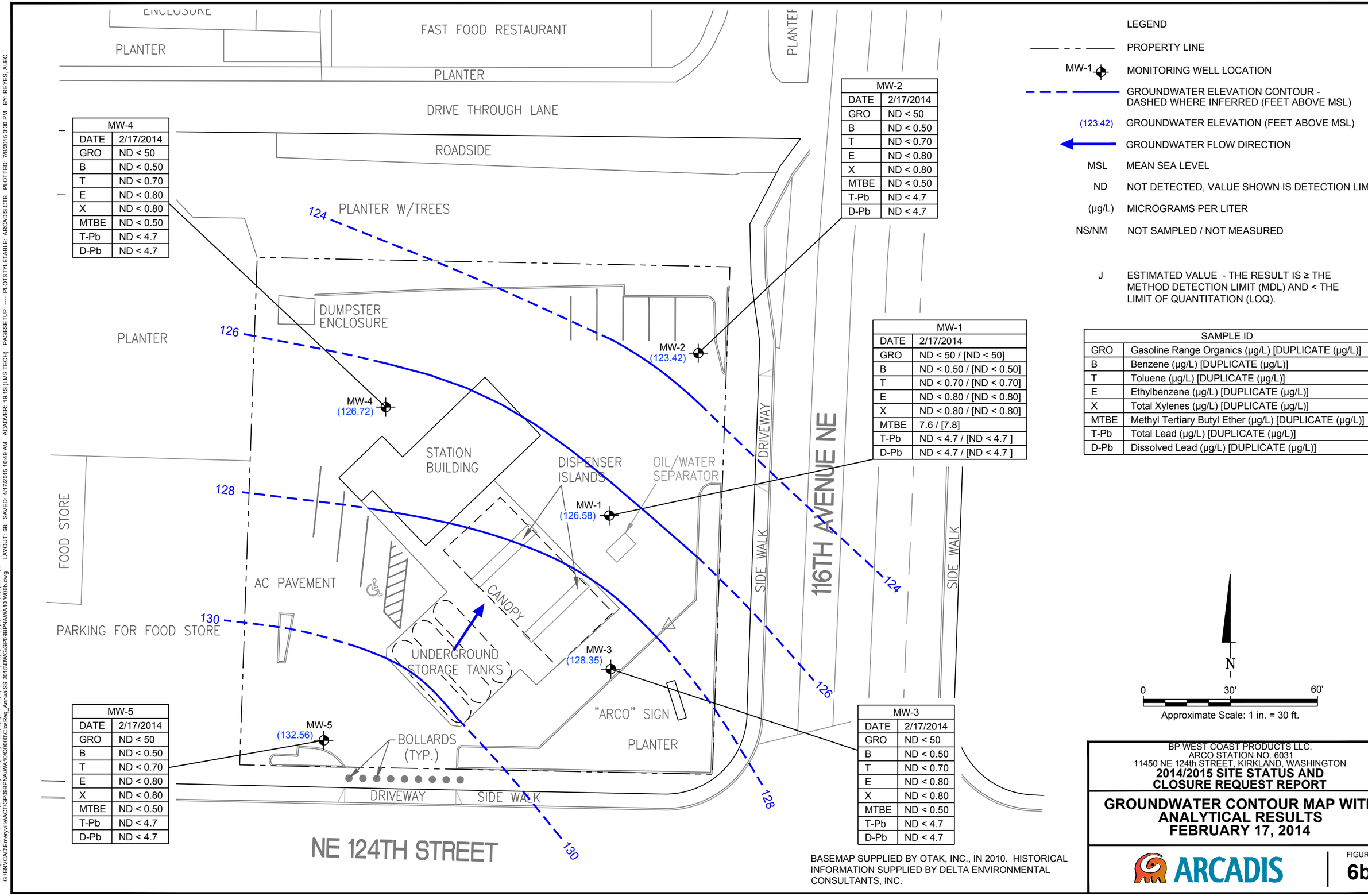
BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON

2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

GROUNDWATER ELEVATION MAP WITH ANALYTICAL RESULTS JANUARY 22, 2014

ARCADIS

FIGURE **6a**



MW-4	
DATE	2/17/2014
GRO	ND < 50
B	ND < 0.50
T	ND < 0.70
E	ND < 0.80
X	ND < 0.80
MTBE	ND < 0.50
T-Pb	ND < 4.7
D-Pb	ND < 4.7

MW-2	
DATE	2/17/2014
GRO	ND < 50
B	ND < 0.50
T	ND < 0.70
E	ND < 0.80
X	ND < 0.80
MTBE	ND < 0.50
T-Pb	ND < 4.7
D-Pb	ND < 4.7

MW-1	
DATE	2/17/2014
GRO	ND < 50 / [ND < 50]
B	ND < 0.50 / [ND < 0.50]
T	ND < 0.70 / [ND < 0.70]
E	ND < 0.80 / [ND < 0.80]
X	ND < 0.80 / [ND < 0.80]
MTBE	7.6 / [7.8]
T-Pb	ND < 4.7 / [ND < 4.7]
D-Pb	ND < 4.7 / [ND < 4.7]

MW-5	
DATE	2/17/2014
GRO	ND < 50
B	ND < 0.50
T	ND < 0.70
E	ND < 0.80
X	ND < 0.80
MTBE	ND < 0.50
T-Pb	ND < 4.7
D-Pb	ND < 4.7

MW-3	
DATE	2/17/2014
GRO	ND < 50
B	ND < 0.50
T	ND < 0.70
E	ND < 0.80
X	ND < 0.80
MTBE	ND < 0.50
T-Pb	ND < 4.7
D-Pb	ND < 4.7

LEGEND

- PROPERTY LINE
- MW-1 — MONITORING WELL LOCATION
- GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FEET ABOVE MSL)
- (123.42) — GROUNDWATER ELEVATION (FEET ABOVE MSL)
- GROUNDWATER FLOW DIRECTION
- MSL — MEAN SEA LEVEL
- ND — NOT DETECTED, VALUE SHOWN IS DETECTION LIMIT
- (µg/L) — MICROGRAMS PER LITER
- NS/NM — NOT SAMPLED / NOT MEASURED
- J — ESTIMATED VALUE - THE RESULT IS ≥ THE METHOD DETECTION LIMIT (MDL) AND < THE LIMIT OF QUANTITATION (LOQ).

SAMPLE ID	
GRO	Gasoline Range Organics (µg/L) [DUPLICATE (µg/L)]
B	Benzene (µg/L) [DUPLICATE (µg/L)]
T	Toluene (µg/L) [DUPLICATE (µg/L)]
E	Ethylbenzene (µg/L) [DUPLICATE (µg/L)]
X	Total Xylenes (µg/L) [DUPLICATE (µg/L)]
MTBE	Methyl Tertiary Butyl Ether (µg/L) [DUPLICATE (µg/L)]
T-Pb	Total Lead (µg/L) [DUPLICATE (µg/L)]
D-Pb	Dissolved Lead (µg/L) [DUPLICATE (µg/L)]

N

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
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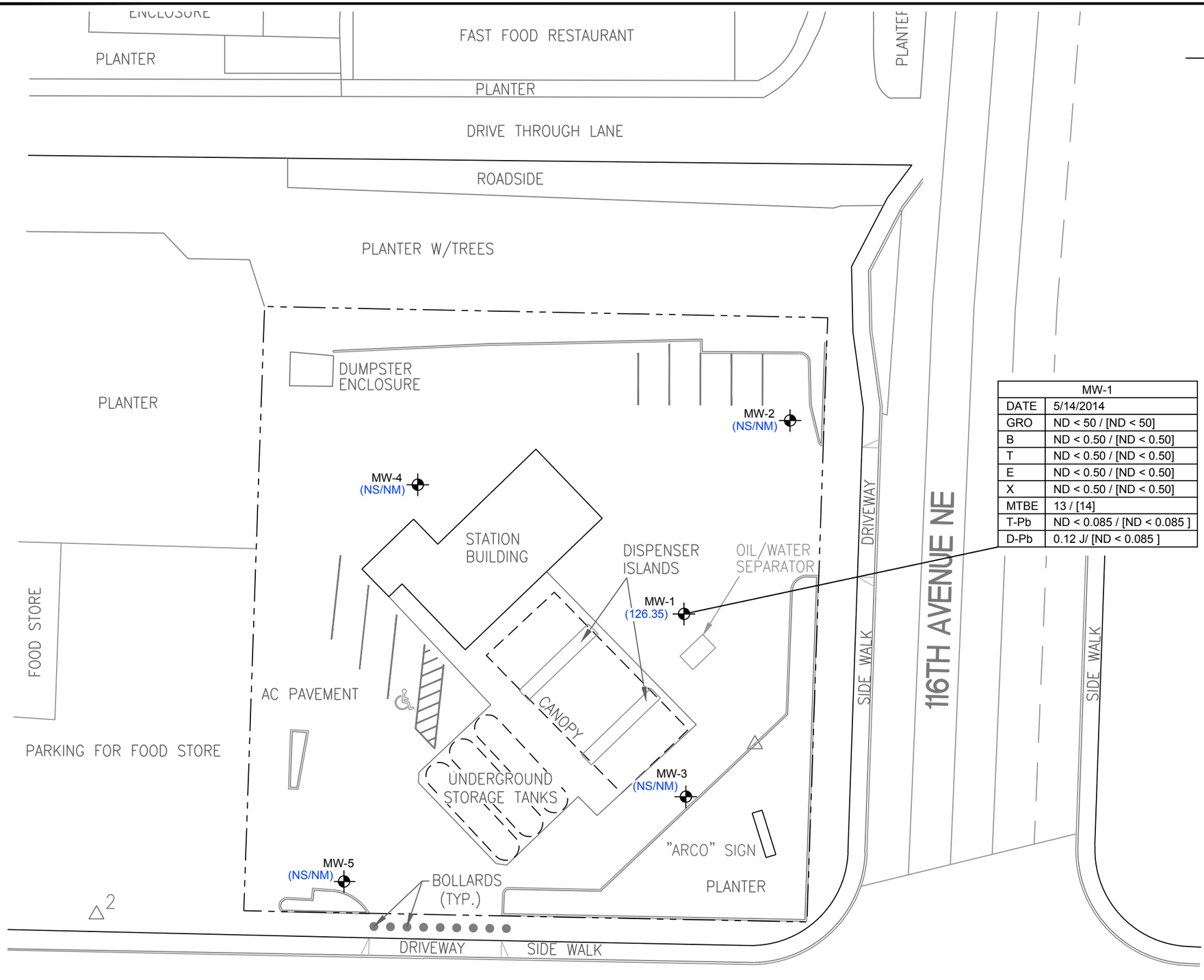
2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

GROUNDWATER CONTOUR MAP WITH ANALYTICAL RESULTS FEBRUARY 17, 2014

ARCADIS

FIGURE **6b**



MW-1	
DATE	5/14/2014
GRO	ND < 50 / [ND < 50]
B	ND < 0.50 / [ND < 0.50]
T	ND < 0.50 / [ND < 0.50]
E	ND < 0.50 / [ND < 0.50]
X	ND < 0.50 / [ND < 0.50]
MTBE	13 / [14]
T-Pb	ND < 0.085 / [ND < 0.085]
D-Pb	0.12 J/ [ND < 0.085]

LEGEND

———	PROPERTY LINE
MW-1 ⊕	MONITORING WELL LOCATION
(123.42)	GROUNDWATER ELEVATION (FEET ABOVE MSL)
MSL	MEAN SEA LEVEL
ND	NOT DETECTED, VALUE SHOWN IS DETECTION LIMIT
(µg/L)	MICROGRAMS PER LITER
NS/NM	NOT SAMPLED / NOT MEASURED
J	ESTIMATED VALUE - THE RESULT IS ≥ THE METHOD DETECTION LIMIT (MDL) AND < THE LIMIT OF QUANTITATION (LOQ).

SAMPLE ID	
GRO	Gasoline Range Organics (µg/L) [DUPLICATE (µg/L)]
B	Benzene (µg/L) [DUPLICATE (µg/L)]
T	Toluene (µg/L) [DUPLICATE (µg/L)]
E	Ethylbenzene (µg/L) [DUPLICATE (µg/L)]
X	Total Xylenes (µg/L) [DUPLICATE (µg/L)]
MTBE	Methyl Tertiary Butyl Ether (µg/L) [DUPLICATE (µg/L)]
T-Pb	Total Lead (µg/L) [DUPLICATE (µg/L)]
D-Pb	Dissolved Lead (µg/L) [DUPLICATE (µg/L)]

N

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

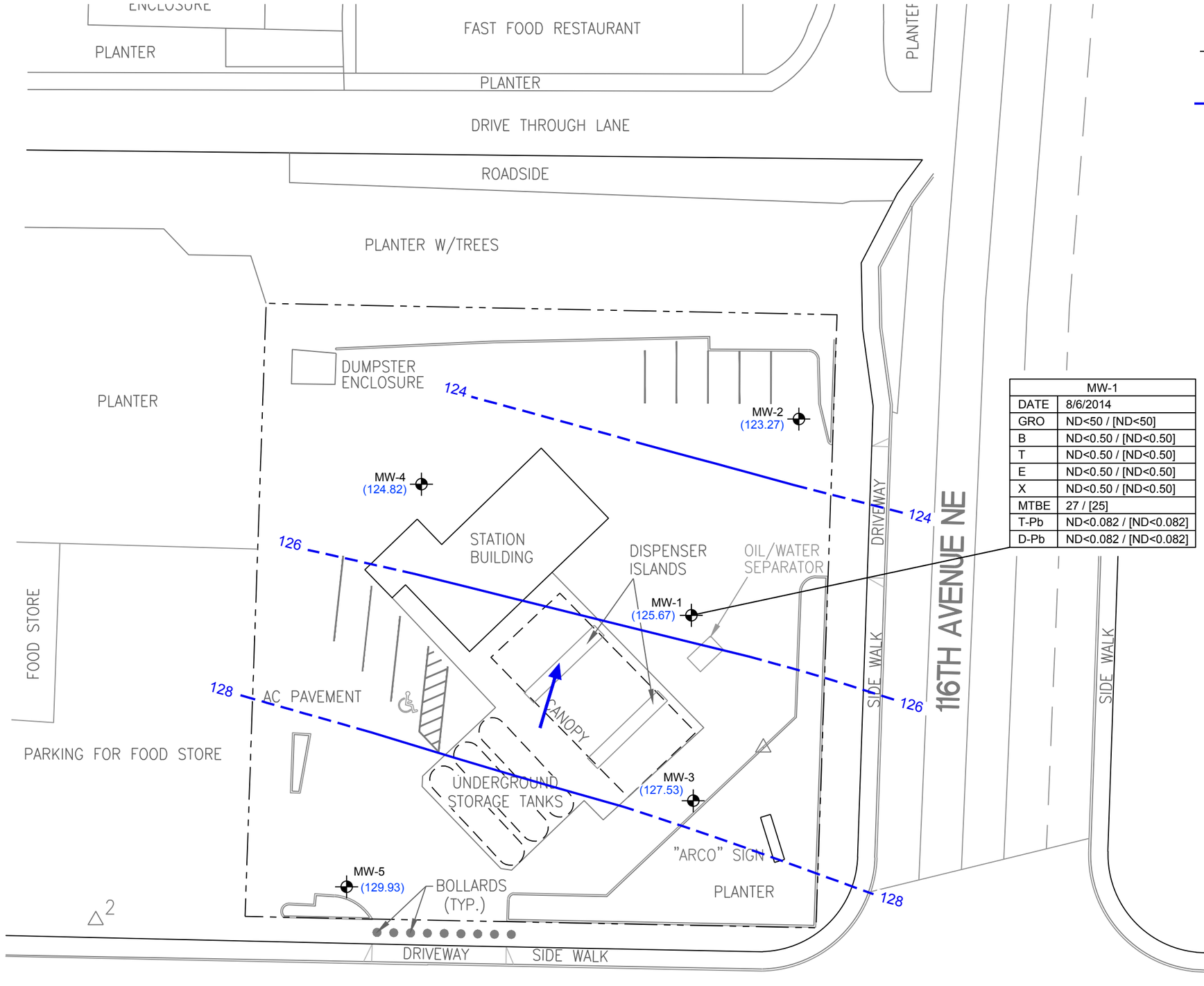
BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON
2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

GROUNDWATER CONTOUR MAP WITH ANALYTICAL RESULTS MAY 14, 2014

ARCADIS

FIGURE **6c**



LEGEND

	PROPERTY LINE
MW-1	MONITORING WELL LOCATION
	GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FEET ABOVE MSL)
(123.27)	GROUNDWATER ELEVATION (FEET ABOVE MSL)
	GROUNDWATER FLOW DIRECTION
MSL	MEAN SEA LEVEL
ND	NOT DETECTED, VALUE SHOWN IS DETECTION LIMIT
(µg/L)	MICROGRAMS PER LITER
NS/NM	NOT SAMPLED / NOT MEASURED
J	ESTIMATED VALUE - THE RESULT IS ≥ THE METHOD DETECTION LIMIT (MDL) AND < THE LIMIT OF QUANTITATION (LOQ).

MW-1	
DATE	8/6/2014
GRO	ND<50 / [ND<50]
B	ND<0.50 / [ND<0.50]
T	ND<0.50 / [ND<0.50]
E	ND<0.50 / [ND<0.50]
X	ND<0.50 / [ND<0.50]
MTBE	27 / [25]
T-Pb	ND<0.082 / [ND<0.082]
D-Pb	ND<0.082 / [ND<0.082]

LOCATION ID	
GRO	Gasoline Range Organics (µg/L) / [Duplicate (µg/L)]
DRO	Diesel Range Organics (µg/L) / [Duplicate (µg/L)]
HO	Heavy Range Organics (µg/L) / [Duplicate (µg/L)]
B	Benzene (µg/L) / [Duplicate (µg/L)]
T	Toluene (µg/L) / [Duplicate (µg/L)]
E	Ethylbenzene (µg/L) / [Duplicate (µg/L)]
X	Total Xylenes (µg/L) / [Duplicate (µg/L)]
MTBE	Methyl Tertiary Butyl Ether (µg/L) / [Duplicate (µg/L)]
T-Pb	Total Lead (µg/L) / [Duplicate (µg/L)]
D-Pb	Dissolved Lead (µg/L) / [Duplicate (µg/L)]

N

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

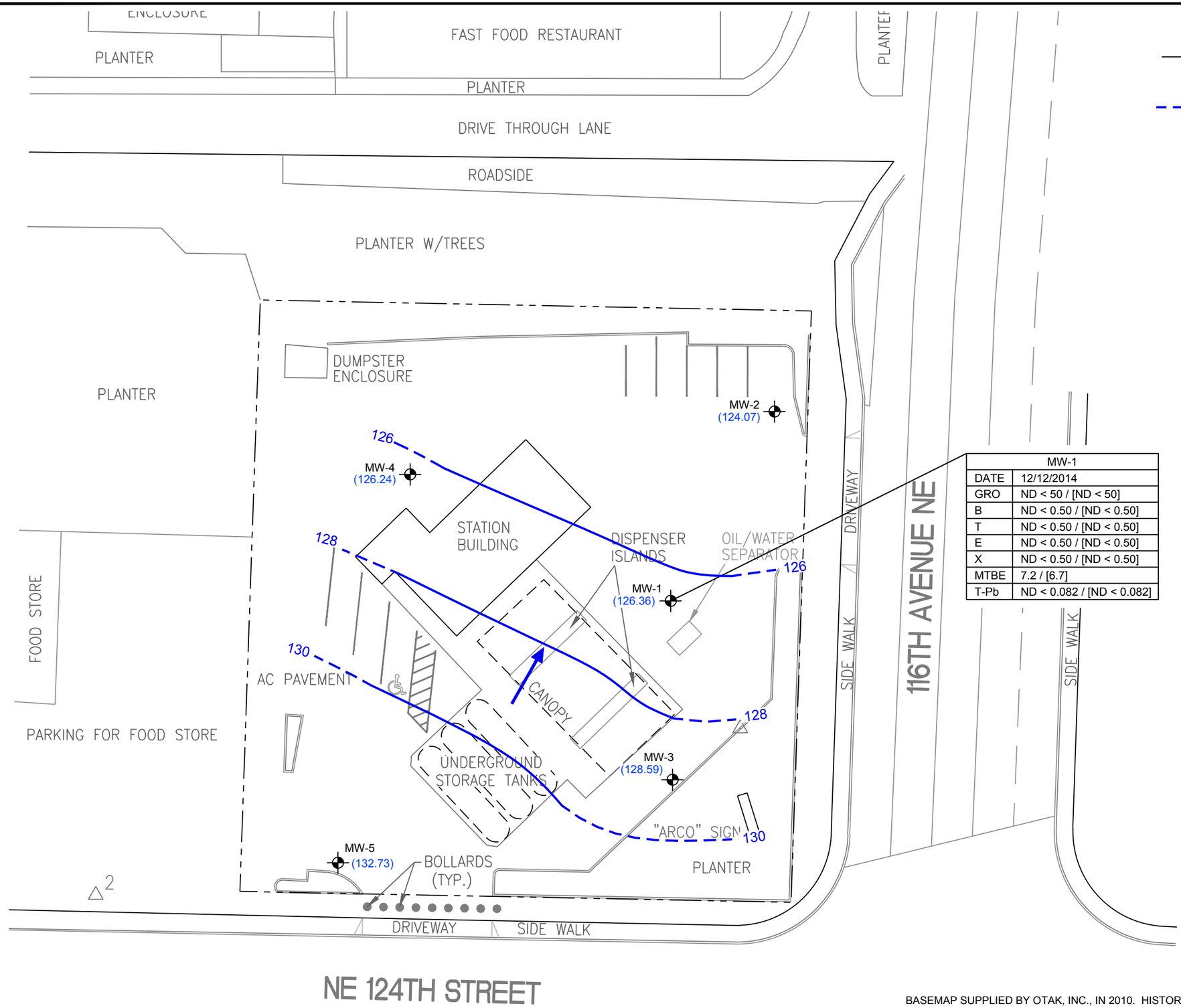
BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON
2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

GROUNDWATER CONTOUR MAP WITH ANALYTICAL RESULTS AUGUST 6, 2014

ARCADIS

FIGURE **6d**



LEGEND

	PROPERTY LINE
MW-1	MONITORING WELL LOCATION
	GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FEET ABOVE MSL)
(123.27)	GROUNDWATER ELEVATION (FEET ABOVE MSL)
	GROUNDWATER FLOW DIRECTION
MSL	MEAN SEA LEVEL
ND	NOT DETECTED, VALUE SHOWN IS DETECTION LIMIT
(µg/L)	MICROGRAMS PER LITER
NS/NM	NOT SAMPLED / NOT MEASURED
J	ESTIMATED VALUE - THE RESULT IS ≥ THE METHOD DETECTION LIMIT (MDL) AND < THE LIMIT OF QUANTITATION (LOQ).

MW-1	
DATE	12/12/2014
GRO	ND < 50 / [ND < 50]
B	ND < 0.50 / [ND < 0.50]
T	ND < 0.50 / [ND < 0.50]
E	ND < 0.50 / [ND < 0.50]
X	ND < 0.50 / [ND < 0.50]
MTBE	7.2 / [6.7]
T-Pb	ND < 0.082 / [ND < 0.082]

LOCATION ID	
GRO	Gasoline Range Organics (µg/L) / [Duplicate (µg/L)]
DRO	Diesel Range Organics (µg/L) / [Duplicate (µg/L)]
HO	Heavy Range Organics (µg/L) / [Duplicate (µg/L)]
B	Benzene (µg/L) / [Duplicate (µg/L)]
T	Toluene (µg/L) / [Duplicate (µg/L)]
E	Ethylbenzene (µg/L) / [Duplicate (µg/L)]
X	Total Xylenes (µg/L) / [Duplicate (µg/L)]
MTBE	Methyl Tertiary Butyl Ether (µg/L) / [Duplicate (µg/L)]
T-Pb	Total Lead (µg/L) / [Duplicate (µg/L)]
D-Pb	Dissolved Lead (µg/L) / [Duplicate (µg/L)]

N

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

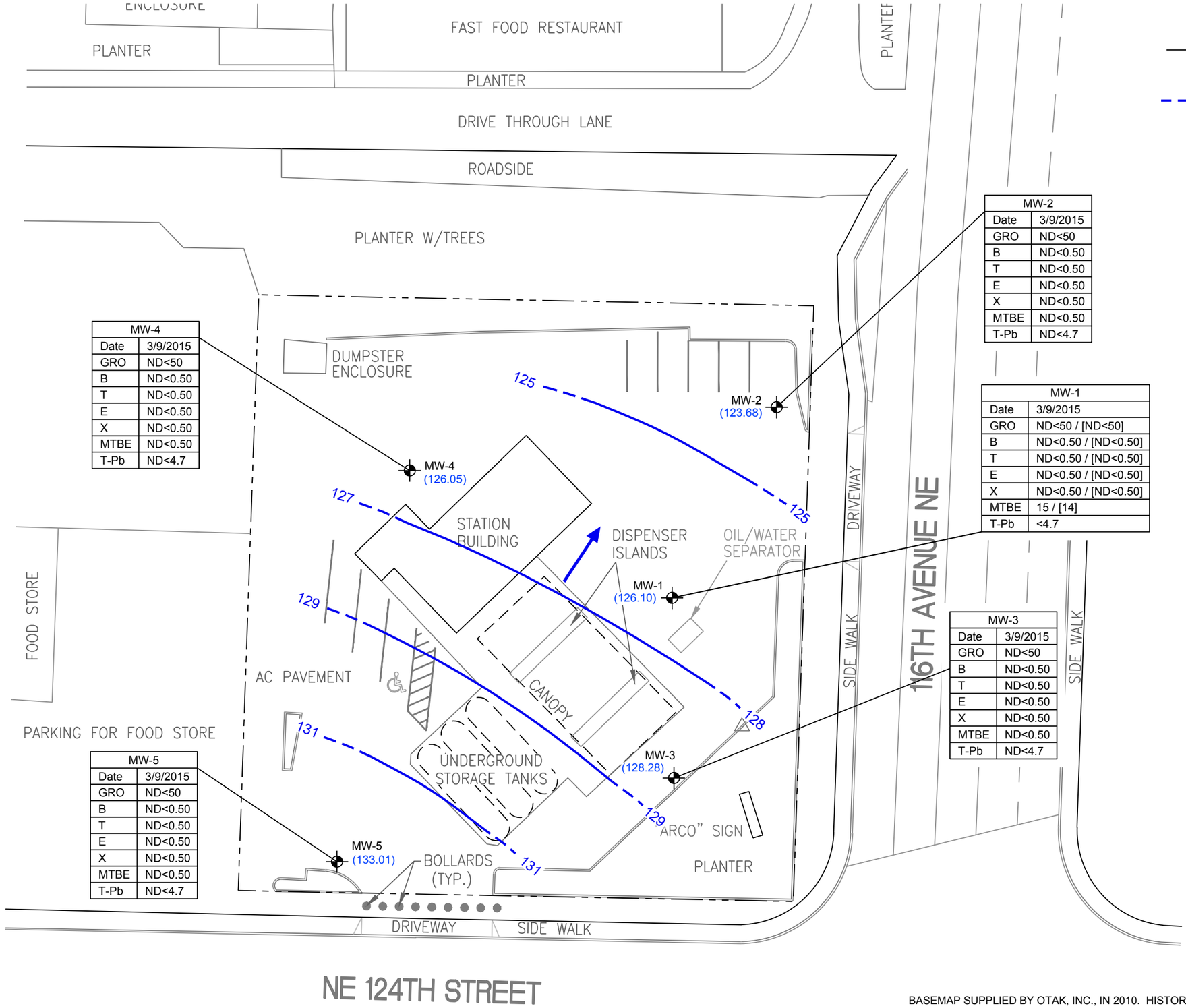
BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON
2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

GROUNDWATER CONTOUR MAP WITH ANALYTICAL RESULTS DECEMBER 22, 2014

ARCADIS

FIGURE **6e**



MW-4	
Date	3/9/2015
GRO	ND<50
B	ND<0.50
T	ND<0.50
E	ND<0.50
X	ND<0.50
MTBE	ND<0.50
T-Pb	ND<4.7

MW-2	
Date	3/9/2015
GRO	ND<50
B	ND<0.50
T	ND<0.50
E	ND<0.50
X	ND<0.50
MTBE	ND<0.50
T-Pb	ND<4.7

MW-1	
Date	3/9/2015
GRO	ND<50 / [ND<50]
B	ND<0.50 / [ND<0.50]
T	ND<0.50 / [ND<0.50]
E	ND<0.50 / [ND<0.50]
X	ND<0.50 / [ND<0.50]
MTBE	15 / [14]
T-Pb	<4.7

MW-3	
Date	3/9/2015
GRO	ND<50
B	ND<0.50
T	ND<0.50
E	ND<0.50
X	ND<0.50
MTBE	ND<0.50
T-Pb	ND<4.7

MW-5	
Date	3/9/2015
GRO	ND<50
B	ND<0.50
T	ND<0.50
E	ND<0.50
X	ND<0.50
MTBE	ND<0.50
T-Pb	ND<4.7

LEGEND

- PROPERTY LINE
- MW-1 — MONITORING WELL LOCATION
- GROUNDWATER ELEVATION CONTOUR - DASHED WHERE INFERRED (FEET ABOVE MSL)
- (123.68) — GROUNDWATER ELEVATION (FEET ABOVE MSL)
- GROUNDWATER FLOW DIRECTION
- MSL — MEAN SEA LEVEL
- ND — NOT DETECTED, VALUE SHOWN IS DETECTION LIMIT
- (µg/L) — MICROGRAMS PER LITER
- ND — NOT DETECTED, VALUE SHOWN IS DETECTION LIMIT

LOCATION ID	
GRO	Total Petroleum Hydrocarbons as Gasoline Range Organics (µg/L) / [Duplicate (µg/L)]
B	Benzene (µg/L) / [Duplicate (µg/L)]
T	Toluene (µg/L) / [Duplicate (µg/L)]
E	Ethylbenzene (µg/L) / [Duplicate (µg/L)]
X	Total Xylenes (µg/L) / [Duplicate (µg/L)]
MTBE	Methyl Tertiary Butyl Ether (µg/L) / [Duplicate (µg/L)]
T-Pb	Total Lead (µg/L) / [Duplicate (µg/L)]

N

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
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2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

GROUNDWATER CONTOUR MAP WITH ANALYTICAL RESULTS MARCH 9, 2015

ARCADIS

FIGURE 6f

Year Drilled	2003	2003
Well #	B-4/MW-4	B-4/MW-4
Depth	15	5
Sample #	B-4-15	B-4-5
B	<0.0300	<0.0300
T	<0.0500	<0.0500
E	<0.0500	<0.0500
X	<0.100	<0.100
MTBE	<0.100	<0.100
GRO	<5.00	<5.00
Lead	7.54	4.45
DRO	NA	NA
HO	NA	NA

Year Drilled	2002
Well #	--
Depth	5
Sample #	6031-1/2-X6-5
B	0.0892
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<0.100
GRO	<5.00
Lead	2.94
DRO	NA
HO	NA

Year Drilled	2002
Well #	--
Depth	5
Sample #	6031-1/26-TR2.5
B	5.73
T	17.8
E	72.6
X	400
MTBE	<4.00
GRO	4,220
Lead	3.99
DRO	NA
HO	NA

Year Drilled	2002
Well #	--
Depth	3
Sample #	6031-1/25-TR1-3
B	<0.0300
T	<0.0500
E	<0.0500
X	0.405
MTBE	<0.100
GRO	<5.00
Lead	6.11
DRO	NA
HO	NA

Year Drilled	2014	2014	2014
Well #	SB-101	SB-101	SB-101
Depth	5	6.5-8.0	9-10
Sample #	SB-101 5.0	SB-101 6.5-8.0	SB-101 9-10
B	0.0020 J / [0.0020 J]	0.0035 J	ND<0.00049
T	ND<0.0012 / [ND<0.0013]	ND<0.0011	ND<0.00098
E	0.044 / [0.062]	0.10	ND<0.00098
X	0.014 / [0.016]	0.061	ND<0.00098
MTBE	ND<0.00060 / [ND<0.00065]	ND<0.00055	ND<0.00049
GRO	15 / [38]	8.6	ND<1.4
Lead	5.76 / [6.00]	5.80	6.48
DRO	ND<3.9 / [ND<4.0]	ND<3.9	ND<3.9
HO	ND<13 / [ND<13]	15 J	ND<13

Year Drilled	2003
Well #	B-2/MW-2
Depth	5
Sample #	B-2-5
B	<0.0300
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<0.100
GRO	<5.00
Lead	4.77
DRO	NA
HO	NA

Year Drilled	2002
Well #	--
Depth	4
Sample #	6031-1/26-TR3-4
B	0.087
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<0.100
GRO	<5.00
Lead	4.32
DRO	NA
HO	NA

Year Drilled	2003
Well #	B-1/MW-1
Depth	5
Sample #	B-1-5
B	2.17
T	<0.0300
E	<0.0500
X	0.485
MTBE	0.523/<0.100
GRO	5.9
Lead	24.4
DRO	NA
HO	NA

Year Drilled	2001
Well #	--
Depth	4.00
Sample #	6031-12/28-SUMPE-4
B	<0.0300
T	<0.0500
E	0.0548
X	1.12
MTBE	<0.100
GRO	5.18
Lead	3.1
DRO	NA
HO	NA

Year Drilled	2014	2014	2014
Well #	SB-100	SB-100	SB-100
Depth	5.0	7-8.5	8.5-10
Sample #	SB-100 5.0	SB-100 7-8.5	SB-100 8.5-10
B	0.0042 J	0.032	ND<0.00060
T	ND<0.00091	ND<0.0014	ND<0.0012
E	ND<0.00091	ND<0.0014	ND<0.0012
X	0.0086	0.0022 J	ND<0.0012
MTBE	0.00062 J	0.027	0.0039 J
GRO	1.7 J	ND<1.8	ND<1.4
Lead	4.16	21.2	7.22
DRO	ND<3.4	ND<4.4	ND<4.2
HO	20 J	26 J	ND<14

Year Drilled	2002
Well #	–
Depth	5
Sample #	6031-1/2-X3-5
B	0.0696
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<0.100
GRO	<5.00
Lead	3.05
DRO	NA
HO	NA

Year Drilled	2003
Well #	B-5/MW-5
Depth	5
Sample #	B-5-5
B	<0.0300
T	0.0557
E	<0.0500
X	<0.100
MTBE	<0.100
GRO	<5.00
Lead	4.9
DRO	NA
HO	NA

Year Drilled	2002
Well #	–
Depth	9
Sample #	6031-1/3-X13-9
B	<0.0300
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<0.100
GRO	<5.00
Lead	9.08
DRO	NA
HO	NA

Year Drilled	2003
Well #	B-3/MW-3
Depth	5
Sample #	B-3-5
B	<0.0300
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<0.100
GRO	<5.00
Lead	3.67
DRO	NA
HO	NA

Year Drilled	2001
Well #	--
Depth	4
Sample #	6031-12/28-SUMPW-4
B	0.115
T	0.087
E	0.152
X	0.0954
MTBE	<1.00
GRO	<5.00
Lead	1.9
DRO	NA
HO	NA

Year Drilled	2001
Well #	--
Depth	7.5
Sample #	6031-12/28-SUMPB-7.5
B	2.16
T	0.806
E	0.908
X	13.20
MTBE	<1.00
GRO	57.7
Lead	5.15
DRO	NA
HO	NA

LEGEND

- PROPERTY LINE
- MW-1 — MONITORING WELL LOCATION
- SB-100 — SOIL BORING LOCATION
- 1 — HISTORICAL SOIL SAMPLE LOCATION
- 4 — OVER EXCAVATED SOIL SAMPLE
- LIMITS OF EXCAVATION
- NA — NOT ANALYZED
- mg/kg — MILLIGRAMS PER KILOGRAM

Year Drilled	Sample Collection Year
Depth	Sample Collection Depth (feet below ground surface)
Sample #	Sample ID
B	Benzene (mg/kg) / [Duplicate (mg/kg)]
T	Toluene (mg/kg) / [Duplicate (mg/kg)]
E	Ethyl Benzene (mg/kg) / [Duplicate (mg/kg)]
X	Xylenes (mg/kg) / [Duplicate (mg/kg)]
MTBE	Methyl Tertiary Butyl Ether (mg/kg) / [Duplicate (mg/kg)]
GRO	Gasoline Range Organics (mg/kg) / [Duplicate (mg/kg)]
Lead	Total Lead (mg/kg) / [Duplicate (mg/kg)]
DRO	Diesel Range Organics (mg/kg) / [Duplicate (mg/kg)]
HO	Heavy Range Organics (mg/kg) / [Duplicate (mg/kg)]

SAMPLE NO.	SAMPLE ID
1	6031-1/2-X1-8.5
2	6031-1/2-X2-8.5
3	6031-1/2-X3-5
4	6031-1/2-X4-5
5	6031-1/2-X5-5
6	6031-1/2-X6-5
7	6031-1/2-X7-5
8	6031-1/3-X8-5
9	6031-1/3-X9-8.5
10	6031-1/3-X10-8.4
11	6031-1/3-X11-8.5
12	6031-1/3-X12-6.0
13	6031-1/3-X13-9
14	6031-1/3-X14.6
15	6031-1/3-X15-8.0
16	6031-1/3-X16-8.0
17	6031-1/3-X17-8.5
18	6031-1/3-X18-5.0
19	6031-1/3-X19-8.0
20	6031-1/3-X20-5.0

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

DUMPSTER ENCLOSURE
PLANTER
STATION BUILDING
DISPENSER ISLANDS
SEE FIGURE 7b FOR DETAIL
OIL/WATER SEPARATOR
CANOPY
UNDERGROUND STORAGE TANKS
AC PAVEMENT
PARKING FOR FOOD STORE
FOOD STORE
"ARCO" SIGN
PLANTER
BOLLARDS (TYP.)
DRIVEWAY
SIDE WALK
116TH AVENUE NE
NE 124TH STREET
6031-1/250TR1-3
SB-101
6031-1/26-TR2-5
MW-2
MW-4
6031-1/26-TR3-4
MW-1
SB-100
6031-12/28-SUMPE-4
6031-12/28-SUMPB-7.5
6031-12/28-SUMPW-4
MW-3
MW-5

BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

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2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

HISTORICAL SOIL ANALYTICAL RESULTS MAP

ARCADIS

FIGURE **7a**

Year Drilled	2002
Depth	8.5
Sample #	6031-1/3-X11-8.5
B	1.79
T	<0.0500
E	0.53
X	2.48
MTBE	<1.00
GRO	11.4
Lead	34
DRO	NA
HO	NA

Year Drilled	2002
Depth	5
Sample #	6031-1/3-X18-5.0
B	0.371
T	<0.0500
E	0.0989
X	0.426
MTBE	<0.100
GRO	<5.00
Lead	2.81
DRO	NA
HO	NA

Year Drilled	2002
Depth	8.5
Sample #	6031-1/3-X17-8.5
B	35.8
T	<0.107
E	0.271
X	4.44
MTBE	<2.14
GRO	69
Lead	18.3
DRO	NA
HO	NA

Year Drilled	2002
Depth	5
Sample #	6031-1/2-X5-5
B	0.258
T	<0.0500
E	<0.0500
X	0.617
MTBE	<0.100
GRO	<5.00
Lead	3.55
DRO	NA
HO	NA

Year Drilled	2002
Depth	8.5
Sample #	6031-1/2-X2-8.5
B	0.55
T	<0.0500
E	<0.0500
X	<0.100
MTBE	0.159
GRO	<5.00
Lead	20.6
DRO	NA
HO	NA

Year Drilled	2002
Depth	5
Sample #	6031-1/2-X7-5
B	0.18
T	<0.0500
E	<0.0500
X	<0.100
MTBE	0.147
GRO	<5.00
Lead	2.66
DRO	NA
HO	NA

Year Drilled	2002
Depth	5
Sample #	6031-1/3-X20-5.0
B	<0.0300
T	<0.0500
E	<0.0500
X	0.888
MTBE	<0.100
GRO	<5.00
Lead	3.34
DRO	NA
HO	NA

Year Drilled	2002
Depth	8.5
Sample #	6031-1/3-X10-8.5
B	0.548
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<1.00
GRO	<5.00
Lead	30.1
DRO	NA
HO	NA

Year Drilled	2002
Depth	8
Sample #	6031-1/3-X19-8.0
B	1.14
T	<.104
E	<.104
X	0.358
MTBE	<2.08
GRO	22.60
Lead	58.40
DRO	NA
HO	NA

Year Drilled	2002
Depth	8
Sample #	6031-1/3-X15-8.0
B	0.243
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<1.00
GRO	<5.00
Lead	2.98
DRO	NA
HO	NA

Year Drilled	2002
Depth	5
Sample #	6031-1/2-X4-5
B	0.635
T	<0.0500
E	<0.0500
X	0.873
MTBE	0.458
GRO	<5.00
Lead	2.89
DRO	NA
HO	NA

Year Drilled	2002
Depth	8.5
Sample #	6031-1/2-X1-8.5
B	<0.0300
T	<0.0500
E	<0.0500
X	<0.100
MTBE	0.113
GRO	<5.00
Lead	12.1
DRO	NA
HO	NA

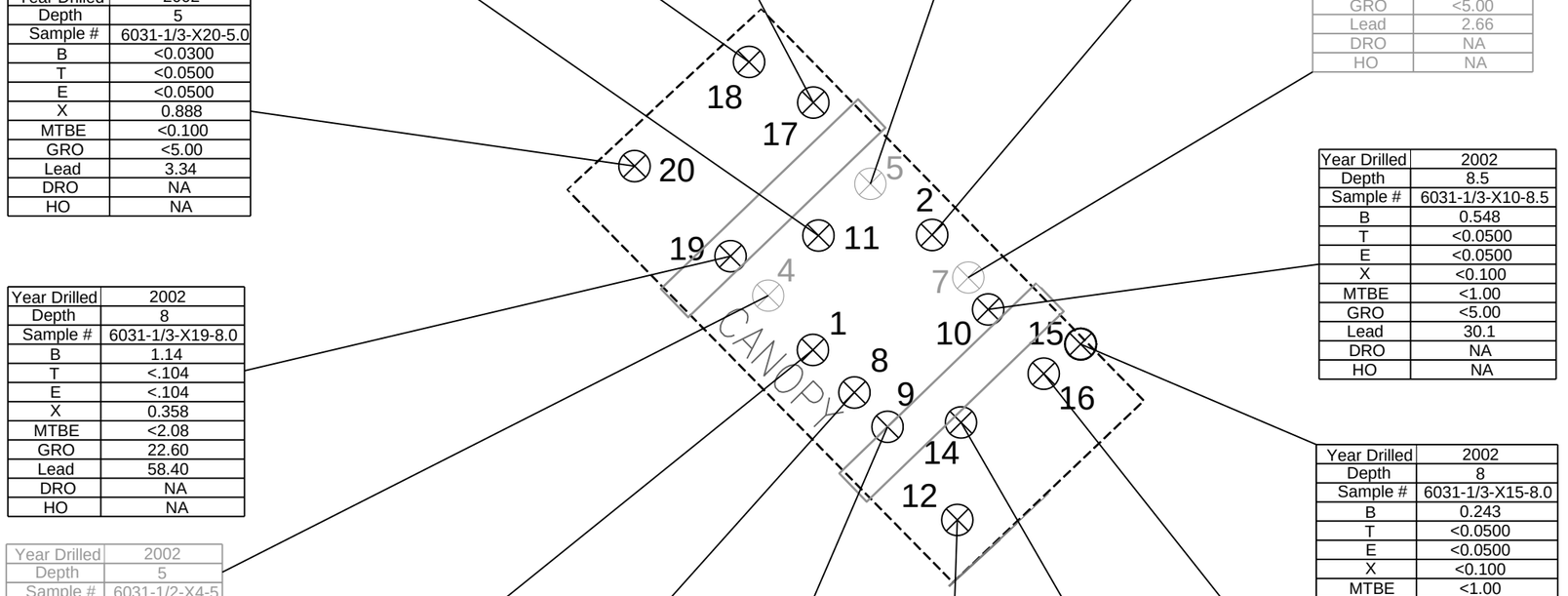
Year Drilled	2002
Depth	8.5
Sample #	6031-1/3-X8-5
B	0.252
T	<0.0500
E	<0.0500
X	0.186
MTBE	<1.00
GRO	<5.00
Lead	2.89
DRO	NA
HO	NA

Year Drilled	2002
Depth	8.5
Sample #	6031-1/3-X9-8.5
B	0.625
T	<0.0500
E	0.302
X	0.764
MTBE	<1.00
GRO	<5.00
Lead	17.1
DRO	NA
HO	NA

Year Drilled	2002
Depth	6
Sample #	6031-1/3-X12-6.0
B	<0.0300
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<0.100
GRO	<5.00
Lead	3.82
DRO	NA
HO	NA

Year Drilled	2002
Depth	6
Sample #	6031-1/3-X14-6
B	0.107
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<0.100
GRO	<5.00
Lead	3.34
DRO	NA
HO	NA

Year Drilled	2002
Depth	8
Sample #	6031-1/3-X16-8.0
B	0.119
T	<0.0500
E	<0.0500
X	<0.100
MTBE	<1.00
GRO	<5.00
Lead	11.3
DRO	NA
HO	NA



LEGEND

MW-1 ⊕ MONITORING WELL LOCATION

1 ⊗ SOIL SAMPLE LOCATION

PROPERTY LINE

<0.0500 VALUE SHOWN IS DETECTION LIMIT

(mg/Kg) MILLIGRAMS PER KILOGRAM

NA NOT ANALYZED

4 ⊗ OVER EXCAVATED SOIL SAMPLE

N

Year Drilled	Sample Collection Year
Depth	Sample Collection Depth (feet below ground surface)
Sample #	Sample ID
B	Benzene (mg/kg) / [Duplicate (mg/kg)]
T	Toluene (mg/kg) / [Duplicate (mg/kg)]
E	Ethyl Benzene (mg/kg) / [Duplicate (mg/kg)]
X	Xylenes (mg/kg) / [Duplicate (mg/kg)]
MTBE	Methyl Tertiary Butyl Ether (mg/kg) / [Duplicate (mg/kg)]
GRO	Gasoline Range Organics (mg/kg) / [Duplicate (mg/kg)]
Lead	Total Lead (mg/kg) / [Duplicate (mg/kg)]
DRO	Diesel Range Organics (mg/kg) / [Duplicate (mg/kg)]
HO	Heavy Range Organics (mg/kg) / [Duplicate (mg/kg)]

SAMPLE NO.	SAMPLE ID
1	6031-1/2-X1-8.5
2	6031-1/2-X2-8.5
3	6031-1/2-X3-5
4	6031-1/2-X4-5
5	6031-1/2-X5-5
6	6031-1/2-X6-5
7	6031-1/2-X7-5
8	6031-1/3-X8-5
9	6031-1/3-X9-8.5
10	6031-1/3-X10-8.4
11	6031-1/3-X11-8.5
12	6031-1/3-X12-6.0
13	6031-1/3-X13-9
14	6031-1/3-X14.6
15	6031-1/3-X15-8.0
16	6031-1/3-X16-8.0
17	6031-1/3-X17-8.5
18	6031-1/3-X18-5.0
19	6031-1/3-X19-8.0
20	6031-1/3-X20-5.0

0 15' 30'

Approximate Scale: 1 in. = 15 ft.

BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

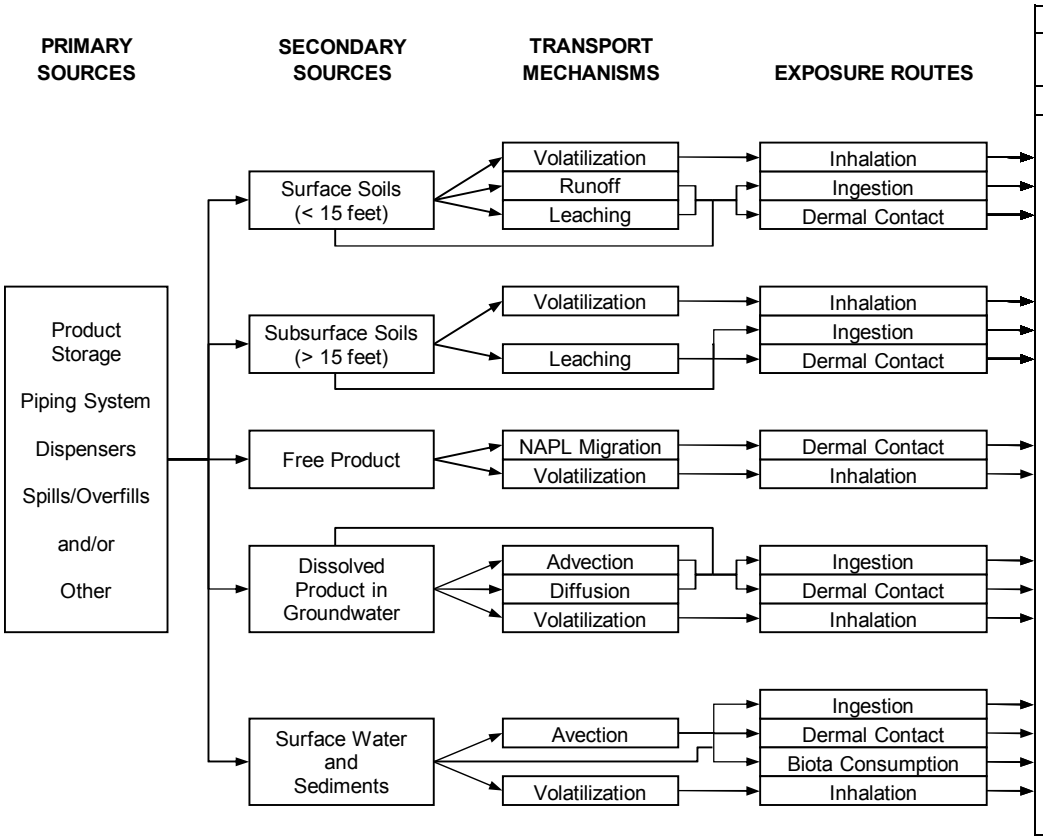
BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON

2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

HISTORIC SOIL ANALYTICAL RESULTS MAP

ARCADIS

FIGURE
7b



POTENTIAL RECEPTORS					
Residential		Commercial		Construction & Excavation	
Current	Future	Current	Future	Current	Future
-	-	-	P	-	P
-	-	-	P	-	P
-	-	-	P	-	P
-	-	-	-	-	P
-	-	-	-	-	P
-	-	-	-	-	P
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	P
-	-	-	P	-	P
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

Notes:

- = There is no exposure by this route
P = This route is a potential source of exposure

BP WEST COAST PRODUCTS LLC
ARCO FACILITY No. 6031
11450 Northeast 124th street, Kirkland, WA
2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

CONCEPTUAL SITE MODEL
HUMAN EXPOSURE PATHWAYS

ARCADIS

FIGURE
8

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

October 26, 2015

Mr. Scott Zorn
Arcadis U.S. Inc.
2000 Powell Street, #700
Emeryville, CA 94608

Re: Opinion Pursuant to WAC 173-340-515(5) on Completed Remedial Action for the Following Hazardous Waste Site:

- **Name:** Arco 6031
- **Address:** 11450 NE 124th Street, Kirkland, WA 98033
- **Facility/Site No.:** 79226415
- **VCP No.:** NW2462
- **Cleanup Site ID No.:** 10551

Dear Mr. Zorn:

Thank you for submitting documents regarding your completed remedial action for the Arco 6031 facility (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following release(s) at the Site:

- Total petroleum hydrocarbons in the gasoline range (TPH-G), benzene, ethylbenzene, toluene and xylenes (BTEX) in soil;

- TPH-G, BTEX, and methyl tertiary butyl ether (MTBE) in ground water.

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does

not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding your proposed remedial actions:

1. Arcadis, *Site Status and Closure Request Report*, July 27, 2015.

The report listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Appointments can be made by calling the NWRO resource contact at (425) 649-7235 or sending an email to: nwro_public_request@ecy.wa.gov.

The Site is defined by the extent of contamination caused by the following releases:

- TPH-G and BTEX in soil;
- TPH-G, BTEX, and MTBE in ground water.

The Site is more particularly described in Enclosure A to this letter, which includes a detailed Site diagram. The description of the Site is based solely on the information contained in the document listed above.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following release(s) at the Site, Ecology has determined:**

Soil confirmation samples were not collected in the contaminated areas post-excavation (2001-2002) to verify that contamination above MTCA cleanup levels had been removed. Additional sampling completed in 2014 did not address the dispenser's area. Also, the number of ground water monitoring wells downgradient of the source areas is not sufficient to characterize the potential extent of the ground water impacts. Soil confirmation samples and additional ground water monitoring wells are needed to capture all potential soil and ground water impacts. In addition, Ecology has the following comments:

- Selection of conditional points of compliance is premature at this time as the Site is not adequately characterized.
- The use of a conditional point of compliance does not preclude the requirement for the contaminated soil at the Site to meet soil cleanup levels that are protective of the leaching

pathway. Therefore, the proposed Method B cleanup levels for soil are not applicable to this Site.

- Ingestion of ground water is a potential exposure pathway, therefore the ground water cleanup levels must be protective of that pathway and must be met at the points of compliance. The soil cleanup levels must also be protective of the leaching pathway.

- Monitoring well MW-2 has a well screen at an interval of 3 to 10 feet below ground surface (bgs). Historical ground water depths ranged from 2.15 to 6.83 feet bgs in this well. Additional monitoring wells with screens that are across (not below) the water table must be installed downgradient of areas of contamination.

- A disproportionate cost analysis (DCA) was included in Appendix O, however, it appears to be a generic DCA that is not specific for the Site. The disproportionate cost analysis should be Site-specific and include an actual cost comparison, a graph for cost versus environmental benefit and detailed descriptions of the remedial alternatives and restoration time frames that can be used at the Site.

- An empirical demonstration was used to demonstrate that soil concentrations will not cause an exceedance of ground water cleanup levels. However, the current monitoring well network is not sufficient to capture contamination downgradient of all impacted areas, such as the area near sample 6031-1/26-TR2-5. Therefore, the empirical demonstration as presented is not acceptable.

- Multiple sections included in the report appear to be part of a template and do not appear to be applicable to the Site. These extraneous sections (for example 10.4, 10.5 and 10.8) should be eliminated from the report.

This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action. To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

If you have any questions regarding this opinion, please contact me at (425) 649-7058 or email at taca461@ecy.wa.gov.

Sincerely,

T. Cardona

Tamara Cardona, PhD
Toxics Cleanup Program

Enclosures: Site Description and Diagrams

cc: Sonia Fernandez, VCP Coordinator, Ecology

ecc: Richard Rodriguez, Arcadis

Enclosure:

Site Description and Diagrams

Site Description

This section provides Ecology's understanding and interpretation of Site conditions, and is the basis for the opinions expressed in the body of the letter.

Site: The Site is defined as total petroleum hydrocarbons in the gasoline range (TPH-G), benzene, ethylbenzene, toluene and xylenes (BTEX) in soil and TPH-G, BTEX, and methyl tertiary butyl ether (MTBE) in the ground water at 11450 Northeast 124th Street in Kirkland, WA (Property). The Property corresponds to King County tax parcel number 292605-9171 and is 0.65 acres in size.

Area and Property Description: The Property is located in an area that has been developed primarily for commercial uses and is bounded on all sides by commercial properties. A fast food restaurant is located to the north, a retail gas station is located to the east across 116th Avenue Northeast, a fast food restaurant is located to the south across from NE 124th Street and a food store is located to the west. A gas station building is located on the Property.

Property History and Current Use: The Property was first developed as a gas station in 1968. However, the known gasoline tanks history only dates back to 1987 when three 12,000-gallon underground storage tanks (UST) were installed. The UST's, which contained leaded and unleaded gasoline were upgraded in 1998. During equipment upgrade activities conducted between 2001 and 2002 contamination was detected in the dispenser islands area and over-excavation was performed to a maximum depth of nine feet bgs. No confirmation samples were collected after excavation. The location of the upgraded structures did not change. The Property is currently closed and fenced and no longer operates as a service station and retail store, however, all existing structures are still intact.

Sources of Contamination: The likely sources of TPH-G, MTBE, and BTEX contamination throughout the Property are the fueling equipment including the conveyance piping and the dispenser islands. The petroleum impacts on the Site cannot be tied to any specific known event or release.

Physiographic Setting: The Property is located in the Puget Sound Lowland Physiographic Province, a north-south trending structural and topographic depression that is bordered on its west side by the Olympic Mountains, and to the east by the Cascade Mountain foothills. The Puget Sound Lowland is underlain by Tertiary volcanic and sedimentary bedrock, and has been filled to the present day land surface with Pleistocene glacial and non-glacial sediments. Kirkland is located on the Interbay Drift Upland on the northeast side of Lake Washington. The Site is located at an elevation between 130 and 140 feet above mean sea level. The surface of the Site is covered with asphalt and slopes to the east.

Surface/Storm Water System: The surface water body closest to the Site is an unnamed creek located approximately 600 feet north of the Property. Surface water runoff in the area is captured in municipal storm drains and transported to the nearest surface water drainage.

Ecological Setting: The surface of the Property is covered by a building, concrete and asphalt. The Property is located in Kirkland, immediately west of Interstate 405 and a heavily developed area.

Geology: Surficial soils at the Site consist of sand and silty sands to depths of four to eight feet below ground surface (bgs). These shallow soils are underlain by silty-clay and clay to the maximum depth explored of 31.5 feet bgs.

Ground Water: Ground water on the Site occurs in a sandy layer above the clay and silty-clay layer found at depths of four to eight feet bgs. Depth to ground water measured in monitoring wells at the Property has ranged from 2.15 to 9.43 feet bgs. The ground water flow direction is generally to the north/ northeast.

Water Supply: The City of Kirkland purchases drinking water from Seattle Public Utilities through the Cascade Water Alliance (its main source is the Tolt River). No drinking water wells were found within a mile radius of the Site in Ecology's well log database.

Release and Extent of Soil and Ground Water Contamination: Soil impacts were first encountered during dispenser island and turbine upgrade activities in February 2001. Soil samples from beneath the dispenser islands had concentrations of TPH-G and BTEX above MTCA Method A cleanup levels. This area was over excavated for upgrade and trenching activities and approximately 17 tons of soil were removed from the Site and disposed of. However, no post excavation confirmation soil samples were collected as the excavation was part of upgrade activities.

Between December 2001 and January 2002, additional dispenser line upgrades and over-excavation activities were conducted at the Site. Activities included the replacement of dispenser lines in the same location, installation of secondary containment for the dispensers and UST fill and turbine ports, installation of an oil/water separator, and sewer line trenching. Soil samples collected from beneath the dispensers had detections of TPH-G, benzene and methyl tertiary butyl ether (MTBE) above MTCA Method A cleanup levels. Soil samples collected at depths of 3 to 5 feet bgs from beneath a sewer line trench located in the northeast portion of the Property had detections above MTCA Method A cleanup levels for TPH-G and BTEX.

Based on analytical results from the upgrade activities, soils in the vicinity of the dispenser islands and lines were over-excavated to a maximum depth of nine feet bgs and replaced with clean imported fill. The open sewer line trench ran to the northeast corner of the Site and was excavated to depths between three and five feet bgs. A total of 893.15 tons of soil containing hydrocarbon constituents was removed from the Site and disposed of but no confirmation samples were collected.

In April 2003, additional characterization was completed. Five soil borings were advanced and monitoring wells were installed in each boring (MW-1 through MW-5). The borings were advanced to depths up to 31.5 feet bgs; ground water was encountered at depths between 2.5 and 8.5 feet bgs. During these activities, one soil sample from MW-1 collected at a depth of five feet bgs had a concentration of benzene above the MTCA Method A cleanup level.

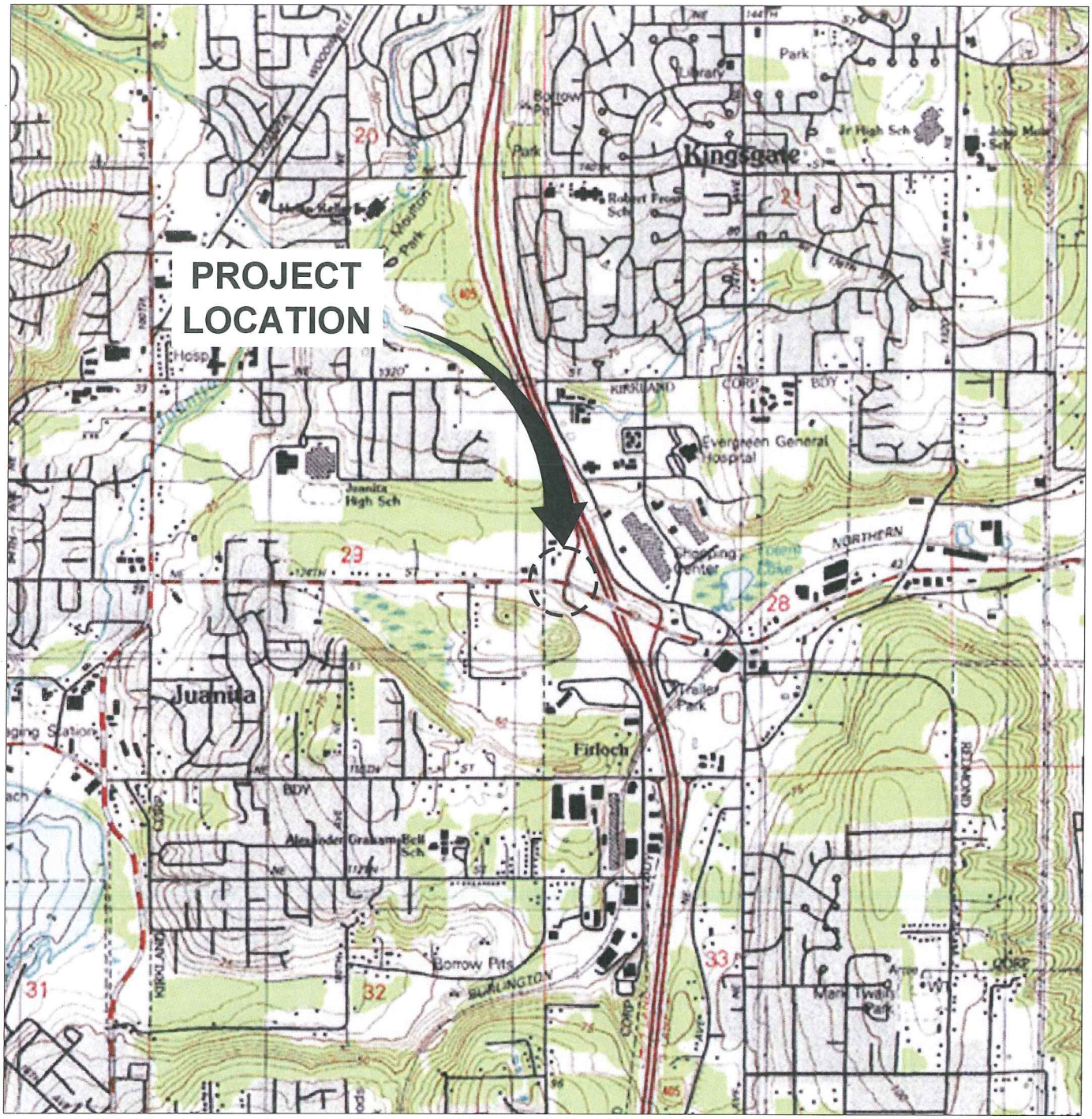
Ground water monitoring started at the Site in April 2003 after installation of monitoring wells MW-1 to MW-5, and has occurred quarterly, semiannually or annually through 2015.

Contaminants monitored in ground water included TPH-G, BTEX, MTBE, ethylene dibromide (EDB) and 1,2-dichloroethane (EDC). Total lead and dissolved lead were added in August 2003. EDB and EDC were analyzed for twice but never detected. Total lead was detected above MTCA Method A cleanup levels in samples collected from wells MW-1, MW-3, and MW-5 but dissolved lead was not observed at concentrations above the cleanup level. Toluene was not observed at concentrations above the Method A cleanup level. Ethylbenzene and xylenes were observed at concentrations above the Method A cleanup level in one well in one monitoring event (MW-2 in 2003). TPH-G and benzene have been observed at concentrations above their Method A cleanup levels in samples collected from wells MW-1 and MW-2 until 2005. MTBE was observed at concentrations above the Method A cleanup levels in samples collected from wells MW-1, MW-3, and MW-4. Concentrations for all contaminants analyzed have been below the MTCA Method A cleanup levels in the last two monitoring events that occurred in 12/2014 and 3/2015.

During over-excavation activities in 2002, underground remediation system piping for an air sparge/soil vapor extraction system (AS/SVE) was installed in the dispenser island trench prior to backfilling. The piping runs parallel to the northeastern border of the canopy, perpendicular to the dispenser islands. The locations of the AS/SVE well monuments were still in place in April 2010. However, for undisclosed reasons, the AS/SVE wells have not been installed in these monuments.

In 2014, a limited subsurface investigation was completed. Two soil borings, SB-100 and SB-101, were advanced in order to delineate and confirm historic soil impacts near the trench and dispenser islands. A detection of benzene slightly above the Method A cleanup level was observed in SB-100 at a depth of seven to 8.5 feet bgs. A detection of TPH-G was above the Method A cleanup level at a depth of five feet bgs. SB-100 is located near the oil/water separator and SB-101 is in the northeast corner of the Property near the sewer trench. Because of their locations, neither boring serves as confirmation for the over-excavated soil near the dispenser islands.

Site Diagrams



REFERENCE: BASE MAP USGS 7.5. X 15 MIN. TOPO. QUAD., BELLEVUE NORTH , WA, 1982.

0 2000

SCALE FEET

North

BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON

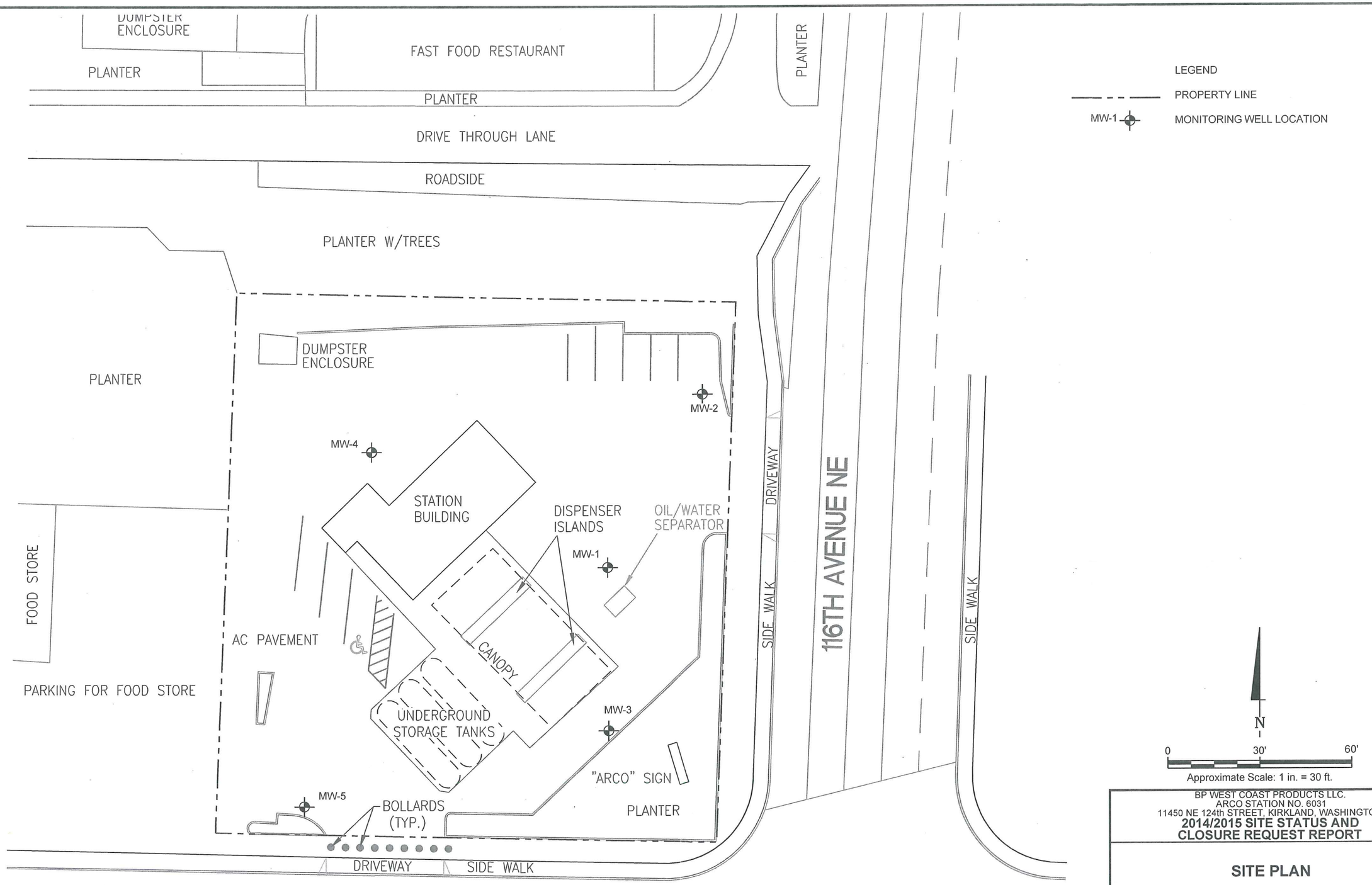
2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

SITE LOCATION MAP

ARCADIS

FIGURE 1

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Emeryville\ACT\GP09BPNA\WA10\Q0000\ClosReq_AnnualSS 2015\DWG\GP09BPNAWA10 N01.dwg LAYOUT: 1 SAVED: 7/8/2015 3:20 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: — PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 7/8/2015 3:27 PM BY: REYES, ALEC
XREFS: IMAGES: PROJECTNAME: —
USGS TOPO 6031.jpg



BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

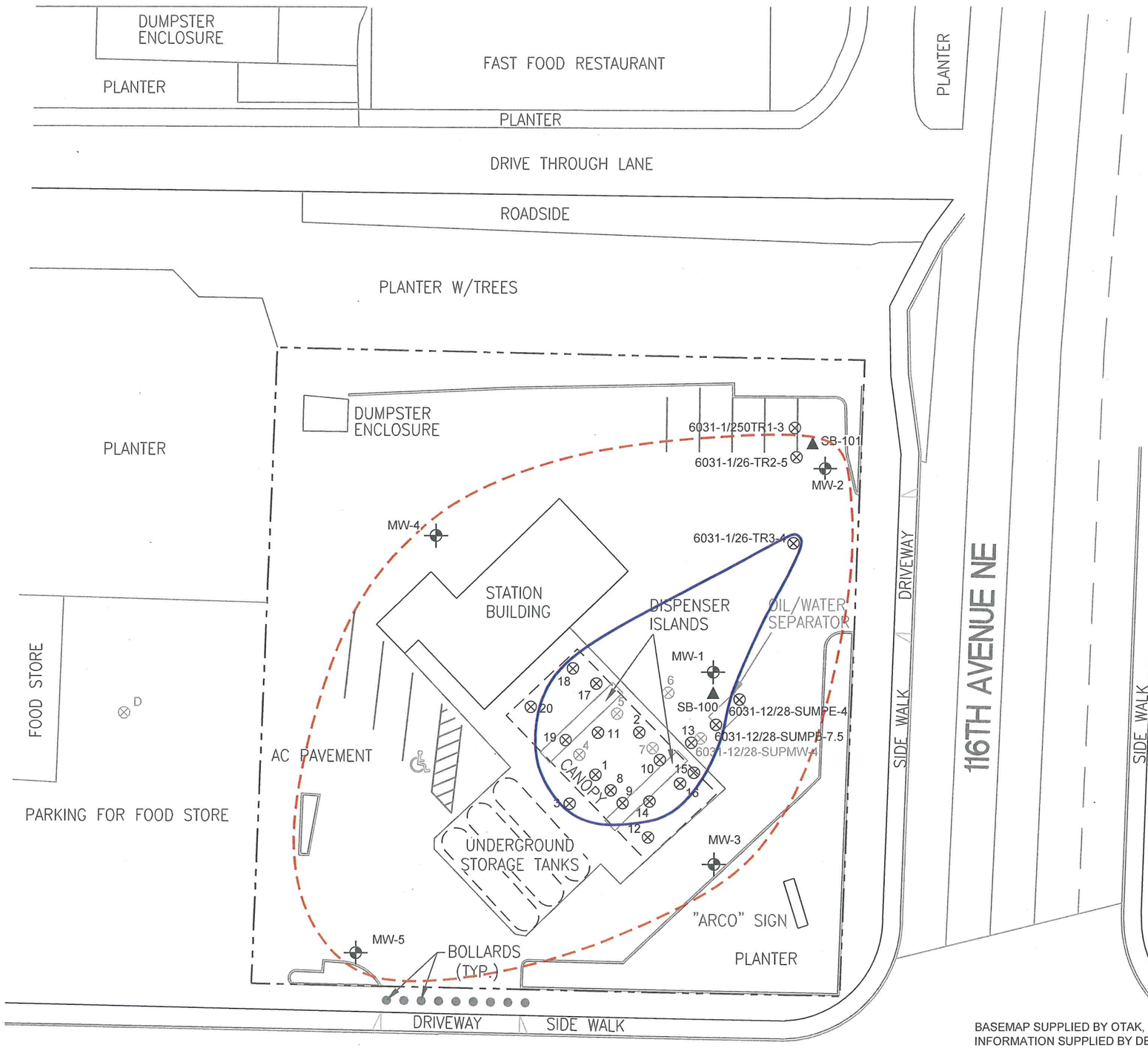
BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON

2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

SITE PLAN

ARCADIS

FIGURE 2



LEGEND

- PROPERTY LINE
- MW-1 — MONITORING WELL LOCATION
- SB-100 — SOIL BORING LOCATION
- 1 — HISTORICAL SOIL SAMPLE LOCATION
- 4 — OVER EXCAVATED SOIL SAMPLE
- MTCA SITE BOUNDARY
- AREA CURRENTLY EXCEEDING MTCA METHOD A CLEANUP LEVELS
- MTCA — MODEL TOXICS CONTROL ACT

SAMPLE NO.	SAMPLE ID
1	6031-1/2-X1-8.5
2	6031-1/2-X2-8.5
3	6031-1/2-X3-5
4	6031-1/2-X4-5
5	6031-1/2-X5-5
6	6031-1/2-X6-5
7	6031-1/2-X7-5
8	6031-1/3-X8-5
9	6031-1/3-X9-8.5
10	6031-1/3-X10-8.4
11	6031-1/3-X11-8.5
12	6031-1/3-X12-6.0
13	6031-1/3-X13-9
14	6031-1/3-X14.6
15	6031-1/3-X15-8.0
16	6031-1/3-X16-8.0
17	6031-1/3-X17-8.5
18	6031-1/3-X18-5.0
19	6031-1/3-X19-8.0
20	6031-1/3-X20-5.0

N

0 30' 60'

Approximate Scale: 1 in. = 30 ft.

BASEMAP SUPPLIED BY OTAK, INC., IN 2010. HISTORICAL INFORMATION SUPPLIED BY DELTA ENVIRONMENTAL CONSULTANTS, INC.

BP WEST COAST PRODUCTS LLC.
ARCO STATION NO. 6031
11450 NE 124th STREET, KIRKLAND, WASHINGTON
2014/2015 SITE STATUS AND CLOSURE REQUEST REPORT

MODEL TOXICS CONTROL ACT SITE BOUNDARY MAP

ARCADIS

FIGURE 3

APPENDIX B

Exploration Logs

Coarse-Grained Soils - More than 50% [1] Retained on No. 200 Sieve	Gravels - More than 50% [1] of Coarse Fraction Retained on No. 4 Sieve	≤5% Fines [5]	GW	Well-graded gravel and gravel with sand, little to no fines
			GP	Poorly-graded gravel and gravel with sand, little to no fines
		≥12% Fines [5]	GM	Silty gravel and silty gravel with sand
			GC	Clayey gravel and clayey gravel with sand
	Sands - 50% [1] or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines [5]	SW	Well-graded sand and sand with gravel, little to no fines
			SP	Poorly-graded sand and sand with gravel, little to no fines
		≥12% Fines [5]	SM	Silty sand and silty sand with gravel
			SC	Clayey sand and clayey sand with gravel
Fine-Grained Soils - 50% [1] or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel
			CL	Clay of low to medium plasticity; silty, sandy, or gravelly clay, lean clay
			OL	Organic clay or silt of low plasticity
	Silts and Clays Liquid Limit 50 or More		MH	Elastic silt, clayey silt, silt with micaceous or diatomaceous fine sand or silt
			CH	Clay of high plasticity, sandy or gravelly clay, fat clay with sand or gravel
			OH	Organic clay or silt of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

Terms Describing Relative Density and Consistency

	Density	SPT [2] blows/foot
Coarse-Grained Soils	Very Loose	0 to 4
	Loose	4 to 10
	Medium Dense	10 to 30
	Dense	30 to 50
	Very Dense	>50
	Consistency	**SPT [2] blows/foot**
Fine-Grained Soils	Very Soft	0 to 2
	Soft	2 to 4
	Medium Stiff	4 to 8
	Stiff	8 to 15
	Very Stiff	15 to 30
	Hard	>30

Test Symbols

G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Chemical
DD = Dry Density
K = Permeability

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

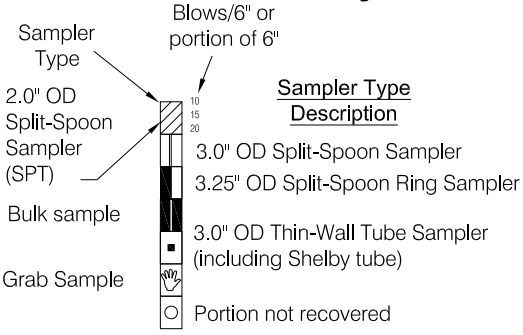
[3] Estimated Percentage

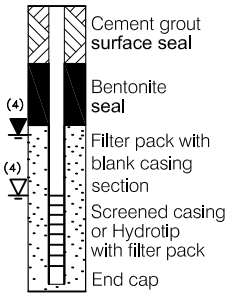
Component	Percentage by Weight
Trace	<5
Some	5 to <12
Modifier (silty, sandy, gravelly)	12 to <30
Very *modifier* (silty, sandy, gravelly)	30 to <50

Moisture Content

Dry - Absence of moisture, dusty, dry to the touch
Slightly Moist - Perceptible moisture
Moist - Damp but no visible water
Very Moist - Water visible but not free draining
Wet - Visible free water, usually from below water table

Symbols





(1) Percentage by dry weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of ground water
▼ ATD = At time of drilling
▽ Static water level (date)
(5) Combined USCS symbols used for fines between 5% and 12%

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.

associated earth sciences incorporated

Exploration Boring

Project Number	Exploration Number	Sheet
20190348V001	GP1	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~127
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Cascade Drilling / 7822DT Track Rig	Date Start/Finish	1/15/20,1/15/20
Hammer Weight/Drop	N/A	Hole Diameter (in)	2

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 3 inches					
				Vashon Recessional Outwash Slightly moist, brown, fine to medium SAND, trace gravel; faintly stratified? (SP).					
		S-1		Becomes moist. **GP1 - 3 (0.2 ppm)**		▼			X
				Pre-Fraser Fine-Grained Deposits Slightly moist to moist, brown to reddish brown, SILT, some coarse sand (ML). Slightly moist, greenish gray, SILT (ML).					
5						▽			
				Slightly moist to dry, greenish gray to light brown (oxidation?), SILT; massive; petroleum odor (ML). **GP1 - 6 (246.7 ppm)**					X
				GP1 - GW					X
		S-2		**(151.2 ppm)** Becomes brown and stratified with no odor. Slightly moist, dark gray, SILT to clayey, SILT; massive; no odor (ML/CL).					
10				**GP1 - 10 (0.4 ppm)**					
		S-3		**GP1 - 15 (0.1 ppm)**					
15				Bottom of exploration boring at 15 feet Temporary PVC well screen placed 0 to 10 feet; blank PVC placed 10 to 15 feet. Groundwater measured at 4.79 feet below top of casing with water level indicator prior to collecting groundwater sample. Bold = Environmental sample ID (### ppm) = Photoionization detector measurement in parts per million X = Environmental sample submitted for chemical analysis					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- ▽ Water Level ()
- ▼ Water Level at time of drilling (ATD)

Logged by: KMA
Approved by: TSB

AESIBOR 20190348V001.GPJ April 22, 2020

associated earth sciences incorporated

Exploration Boring

Project Number	Exploration Number	Sheet
20190348V001	GP2	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~128
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Cascade Drilling / 7822DT Track Rig	Date Start/Finish	1/15/20,1/15/20
Hammer Weight/Drop	N/A	Hole Diameter (in)	2

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 4 inches					
				Vashon Recessional Outwash Slightly moist to moist, dark gray, fine to medium SAND, trace silt, trace gravel; faintly stratified (SP).					
		S-1		Sight odor?					
				GP2 - 5 (11.3 ppm)					X
5				**Pre-Fraser Fine-Grained Deposits** Slightly moist, greenish gray, SILT; massive; slight odor (ML).					
				GP2 - 7 (20.4 ppm)					X
		S-2		**(4.6 ppm)** As above; light brown.					
				(0.9 ppm)					
				GP2 - 10 (20.4 ppm)					X
10						▽			X
				GP2 - GW					
		S-3		Slightly moist, dark gray, SILT to clayey, SILT; massive (ML-CL/ML).					
				GP2 - 15 (0.0 ppm)					
15				Bottom of exploration boring at 15 feet Temporary PVC well screen placed 0 to 10 feet; blank PVC placed 10 to 15 feet. Groundwater measured at 10.24 feet below top of casing with water level indicator prior to collecting groundwater sample. Bold = Environmental sample ID (### ppm) = Photoionization detector measurement in parts per million X = Environmental sample submitted for chemical analysis					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- ▽ Water Level ()
- ▼ Water Level at time of drilling (ATD)

Logged by: KMA
Approved by: TSB

AESIBOR 20190348V001.GPJ April 22, 2020

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Exploration Boring

Project Number	Exploration Number	Sheet
20190348V001	GP3	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~130
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Cascade Drilling / 7822DT Track Rig	Date Start/Finish	1/15/20,1/15/20
Hammer Weight/Drop	N/A	Hole Diameter (in)	2

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 4 inches					
				Vashon Recessional Outwash Slightly moist to moist, dark gray, fine to medium SAND, trace to no silt; occasional gravel; faintly stratified (SP).					
		S-1		**GP3 - 5 (0.4 ppm)**					
5				**Pre-Fraser Fine-Grained Deposits** Slightly moist, greenish gray to gray, SILT, trace organic debris; massive (ML). **GP3 - 6 (0.5 ppm)**					X
		S-2		Slightly moist, light brown, SILT to clayey, SILT; massive (ML/CL). **GP3 - 8 (0.1 ppm)**					
10				As above; dark gray.					
		S-3		**GP3 - GW** **(0.1 ppm)**		▽			X
15				Bottom of exploration boring at 15 feet Temporary PVC well screen placed 0 to 10 feet; blank PVC placed 10 to 15 feet. Groundwater measured at 13.78 feet below top of casing with water level indicator prior to collecting groundwater sample. Bold = Environmental sample ID (### ppm) = Photoionization detector measurement in parts per million X = Environmental sample submitted for chemical analysis					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- ▽ Water Level ()
- ▼ Water Level at time of drilling (ATD)

Logged by: KMA
Approved by: TSB

AESIBOR 20190348V001.GPJ April 22, 2020

associated earth sciences incorporated

Exploration Boring

Project Number	Exploration Number	Sheet
20190348V001	GP4	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~131
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Cascade Drilling / 7822DT Track Rig	Date Start/Finish	1/15/20,1/15/20
Hammer Weight/Drop	N/A	Hole Diameter (in)	2

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Vashon Recessional Outwash					
				Wet, brown to gray brown, fine to medium SAND, trace silt (SP).		▼			
						▽			
		S-1		**GP4 - GW**					X
				GP4 - 5 (0.4 ppm)					X
5				**Vashon Recessional Lake Bed Deposits**					
				Slightly moist, light brown with pockets of gray, SILT; massive (ML).					
		S-2		Becomes light brown.					
				GP4 - 10 (0.1 ppm)					
10									
		S-3		Slightly moist, dark gray, SILT to clayey, SILT; massive (ML/CL).					
				GP4 - 15 (0.2 ppm)					
15				Bottom of exploration boring at 15 feet					

Temporary PVC well screen placed 0 to 10 feet; blank PVC placed 10 to 15 feet.
Groundwater measured at 2 feet below top of casing with water level indicator prior to collecting groundwater sample.
Bold = Environmental sample ID
(### ppm) = Photoionization detector measurement in parts per million
X = Environmental sample submitted for chemical analysis

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- ▽ Water Level ()
- ▼ Water Level at time of drilling (ATD)

Logged by: KMA
Approved by: TSB

AESIBOR 20190348V001.GPJ April 22, 2020

APPENDIX C

Laboratory Reports and Chain of Custody Forms

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 23, 2020

Kellie Andrews, Project Manager
Associated Earth Sciences, Inc.
911 5th Avenue, Suite 100
Kirkland, WA 98033

Dear Ms Andrews:

Included are the results from the testing of material submitted on January 16, 2020 from the 116th Ave NE and NE 124th Street Intersection, F&BI 001200 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Beau Johnson
AE10123R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 16, 2020 by Friedman & Bruya, Inc. from the Associated Earth Sciences 116th Ave NE and NE 124th Street Intersection, F&BI 001200 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Associated Earth Sciences
001200 -01	Drum-01-S

A 6020B internal standard failed the acceptance criteria for sample Drum-01-S. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported.

All other quality control requirements were acceptable.

Analysis For Total Metals By EPA Method 6020B

Client ID:	Drum-01-S	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Street
Date Extracted:	01/21/20	Lab ID:	001200-01
Date Analyzed:	01/21/20	Data File:	001200-01.050
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.91
Barium	94.2
Cadmium	<1
Chromium	29.7 J
Lead	4.57
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Drum-01-S	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Street
Date Extracted:	01/21/20	Lab ID:	001200-01 x5
Date Analyzed:	01/21/20	Data File:	001200-01 x5.059
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	35.3

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Associated Earth Sciences
Date Received:	Not Applicable	Project:	116th Ave NE and NE 124th Street
Date Extracted:	01/21/20	Lab ID:	I0-043 mb
Date Analyzed:	01/21/20	Data File:	I0-043 mb.040
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Date of Report: 01/23/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Street Intersection, F&BI 001200

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 001257-08 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	90	93	75-125	3
Barium	mg/kg (ppm)	50	33.6	96	106	75-125	10
Cadmium	mg/kg (ppm)	5	<5	91	94	75-125	3
Chromium	mg/kg (ppm)	20	10.1	102	111	75-125	8
Lead	mg/kg (ppm)	10	5.11	89	91	75-125	2
Mercury	mg/kg (ppm	5	<5	92	87	75-125	6
Selenium	mg/kg (ppm)	5	<5	96	97	75-125	1
Silver	mg/kg (ppm)	5	<5	84	91	75-125	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	106	80-120
Barium	mg/kg (ppm)	50	105	80-120
Cadmium	mg/kg (ppm)	5	102	80-120
Chromium	mg/kg (ppm)	20	107	80-120
Lead	mg/kg (ppm)	10	100	80-120
Mercury	mg/kg (ppm)	5	102	80-120
Selenium	mg/kg (ppm)	5	106	80-120
Silver	mg/kg (ppm)	5	101	80-120

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

001200

SAMPLE CHAIN OF CUSTODY

ME 01-16-20

BEI

Page # 1 of 1

Send Report To: Kellie Andrews / Beau Johnson

Company: AESI

Address: 911 5th Ave

City, State, ZIP: Kirkland WA

Phone #: 425 827 7701 Fax #:

Email Address:

SAMPLERS (signature): Kellie An

PROJECT NAME/NO.: 116th Ave NE and NE 124th Street Intersection

PO #:

PROJECT ADDRESS: per KA 1/22/20 ME

• ELECTRONIC DATA REQUESTED

TURNAROUND TIME
- ✓ Standard Turnaround
- • RUSH

Rush charges authorized by:

SAMPLE DISPOSAL
- • Dispose after 30 days
- • Return samples
- • Will call with instructions

Samples Received at ____ °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	RCRA 8				Notes
DRUM-01-S	01	1/15/20	1425	Soil	1							X				

ANALYSES REQUESTED

Kellie An

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kellie An	Kellie Andrews	AESI	1530	1/15/20
Received by:	Mihan Phan	Mihan Phan	FEBI	1/16/2	1030
Relinquished by:				(NP) 01/16/20	
Received by:					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

Samples received at 4 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 23, 2020

Kellie Andrews, Project Manager
Associated Earth Sciences, Inc.
911 5th Avenue, Suite 100
Kirkland, WA 98033

Dear Ms Andrews:

Included are the results from the testing of material submitted on January 16, 2020 from the 116th Ave NE and NE 124th Ave 190348V001, F&BI 001202 project. There are 18 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Beau Johnson
AE10123R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 16, 2020 by Friedman & Bruya, Inc. from the Associated Earth Sciences 116th Ave NE and NE 124th Ave 190348V001, F&BI 001202 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Associated Earth Sciences
001202 -01	GP1-3
001202 -02	GP1-6
001202 -03	GP1-10
001202 -04	GP1-15
001202 -05	GP2-5
001202 -06	GP2-7
001202 -07	GP2-10
001202 -08	GP2-15
001202 -09	GP3-5
001202 -10	GP3-6
001202 -11	GP3-8
001202 -12	GP4-5
001202 -13	GP4-10
001202 -14	GP4-15

All quality control requirements were acceptable.

Date of Report: 01/23/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001202
Date Extracted: 01/20/20
Date Analyzed: 01/20/20

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
GP1-6 001202-02	<0.02	<0.02	<0.02	<0.06	<5	84
GP2-7 001202-06	0.051	<0.02	<0.02	<0.06	<5	84
GP3-6 001202-10	<0.02	<0.02	<0.02	<0.06	<5	84
GP4-5 001202-12	<0.02	<0.02	<0.02	<0.06	<5	84
Method Blank 00-39 MB	<0.02	<0.02	<0.02	<0.06	<5	88

Date of Report: 01/23/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001202
Date Extracted: 01/17/20
Date Analyzed: 01/17/20

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
GP1-6 001202-02	<50	<250	81
GP2-7 001202-06	<50	<250	80
GP3-6 001202-10	<50	<250	88
GP4-5 001202-12	<50	<250	86
Method Blank 00-165 MB2	<50	<250	78

Analysis For Total Metals By EPA Method 6020B

Client ID:	GP1-6	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/17/20	Lab ID:	001202-02
Date Analyzed:	01/17/20	Data File:	001202-02.097
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	4.72

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	GP2-7	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/17/20	Lab ID:	001202-06
Date Analyzed:	01/17/20	Data File:	001202-06.140
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	4.63

Analysis For Total Metals By EPA Method 6020B

Client ID:	GP3-6	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/17/20	Lab ID:	001202-10
Date Analyzed:	01/17/20	Data File:	001202-10.141
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	5.06

Analysis For Total Metals By EPA Method 6020B

Client ID:	GP4-5	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/17/20	Lab ID:	001202-12
Date Analyzed:	01/17/20	Data File:	001202-12.142
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	3.44

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Associated Earth Sciences
Date Received:	NA	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/17/20	Lab ID:	I0-036 mb
Date Analyzed:	01/17/20	Data File:	I0-036 mb.090
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	GP1-6	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	001202-02
Date Analyzed:	01/16/20	Data File:	011630.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	104	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	GP2-7	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	001202-06
Date Analyzed:	01/16/20	Data File:	011631.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	145
Toluene-d8	105	55	145
4-Bromofluorobenzene	102	65	139

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	GP3-6	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	001202-10
Date Analyzed:	01/16/20	Data File:	011632.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	145
Toluene-d8	106	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	GP4-5	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	001202-12
Date Analyzed:	01/16/20	Data File:	011633.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	93	65	139

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Associated Earth Sciences
Date Received:	Not Applicable	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	00-132 mb2
Date Analyzed:	01/16/20	Data File:	011612.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	103	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.05

Date of Report: 01/23/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001202

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 001188-11 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	90	69-120
Toluene	mg/kg (ppm)	0.5	86	70-117
Ethylbenzene	mg/kg (ppm)	0.5	84	65-123
Xylenes	mg/kg (ppm)	1.5	87	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

Date of Report: 01/23/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001202

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 001203-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<250	111	101	64-133	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	106	58-147

Date of Report: 01/23/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001202

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 001202-02 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	<5	92	103	75-125	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	98	80-120

Date of Report: 01/23/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001202

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 001188-08 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	86	84	21-145	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	97	60-123

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

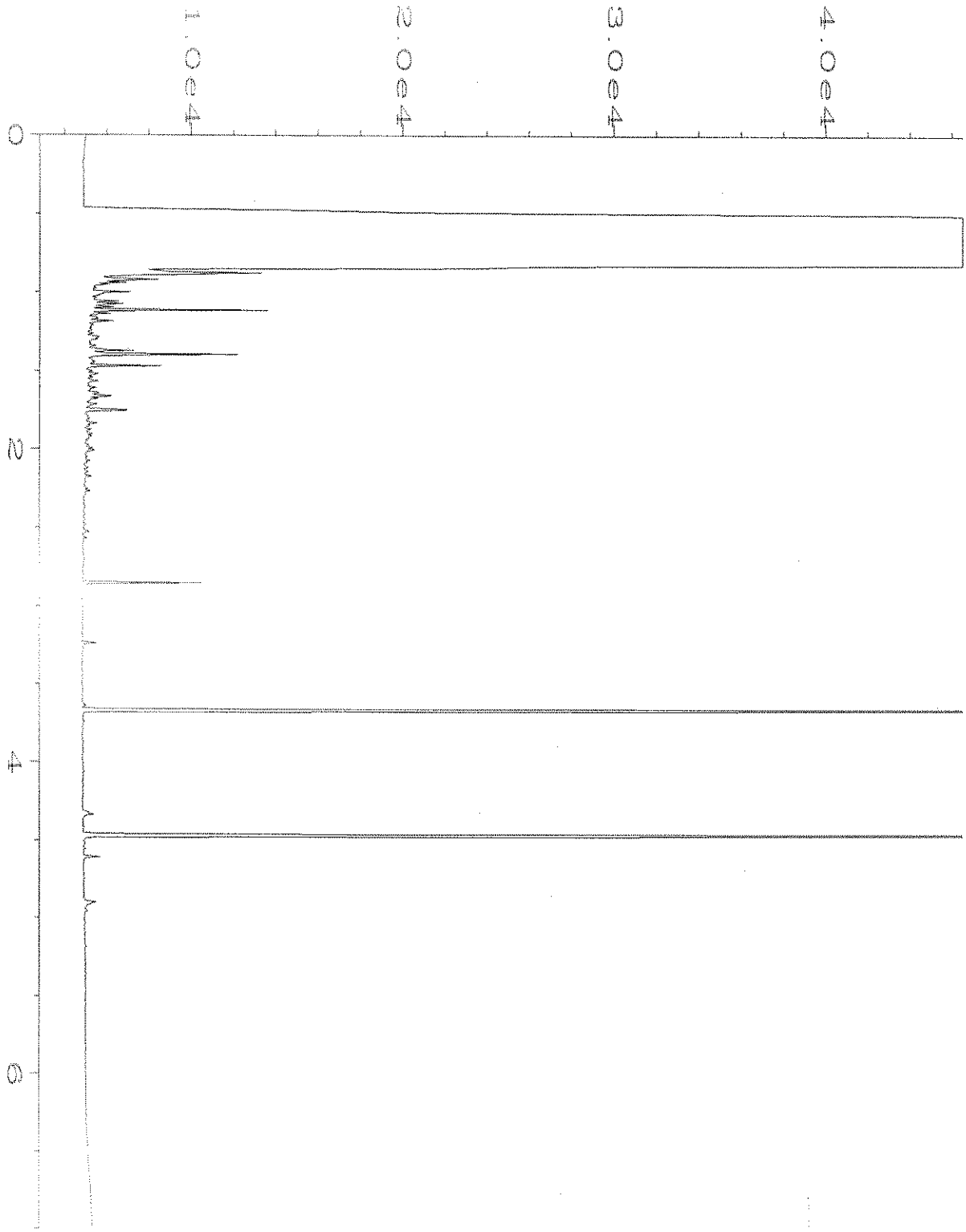
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

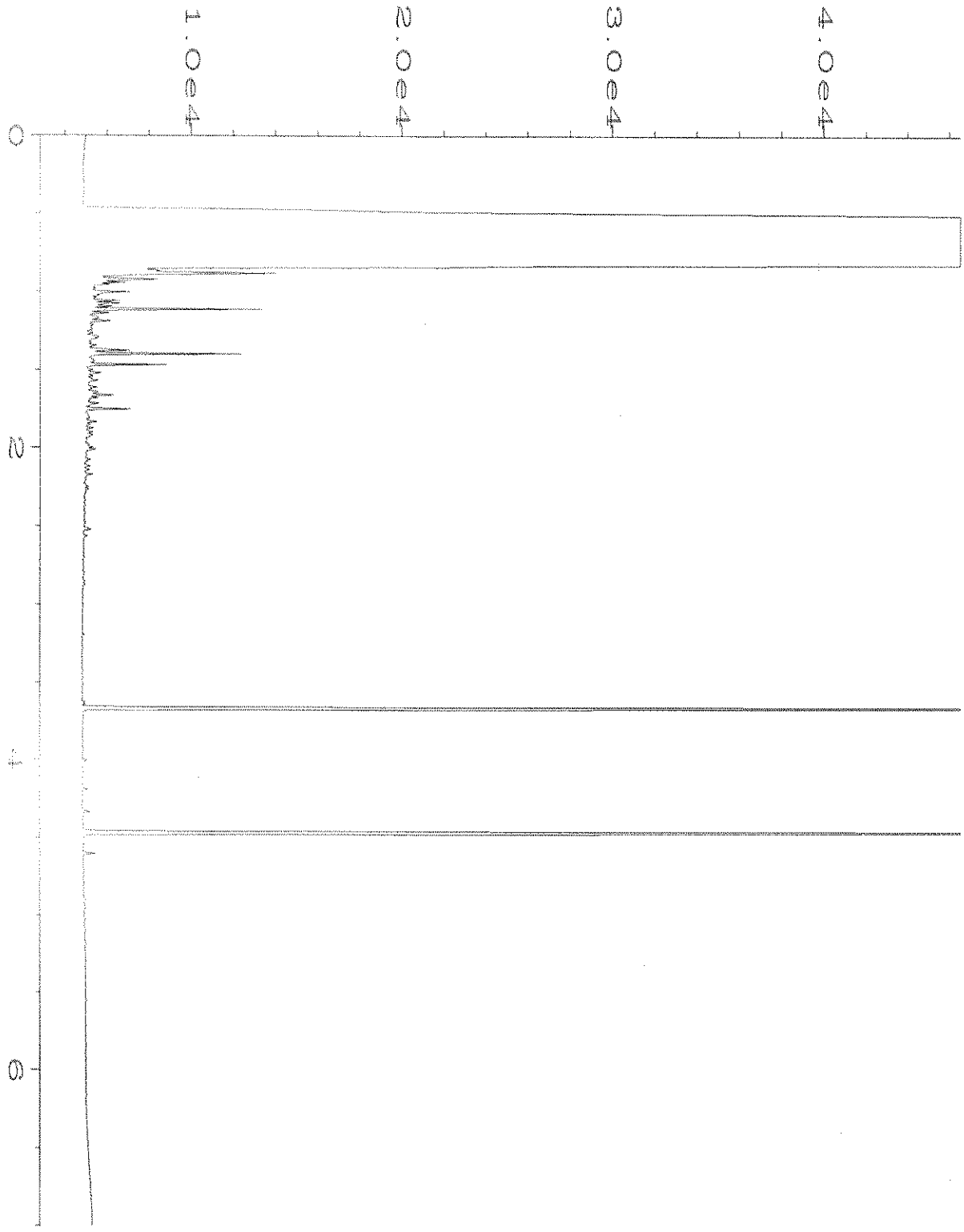
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

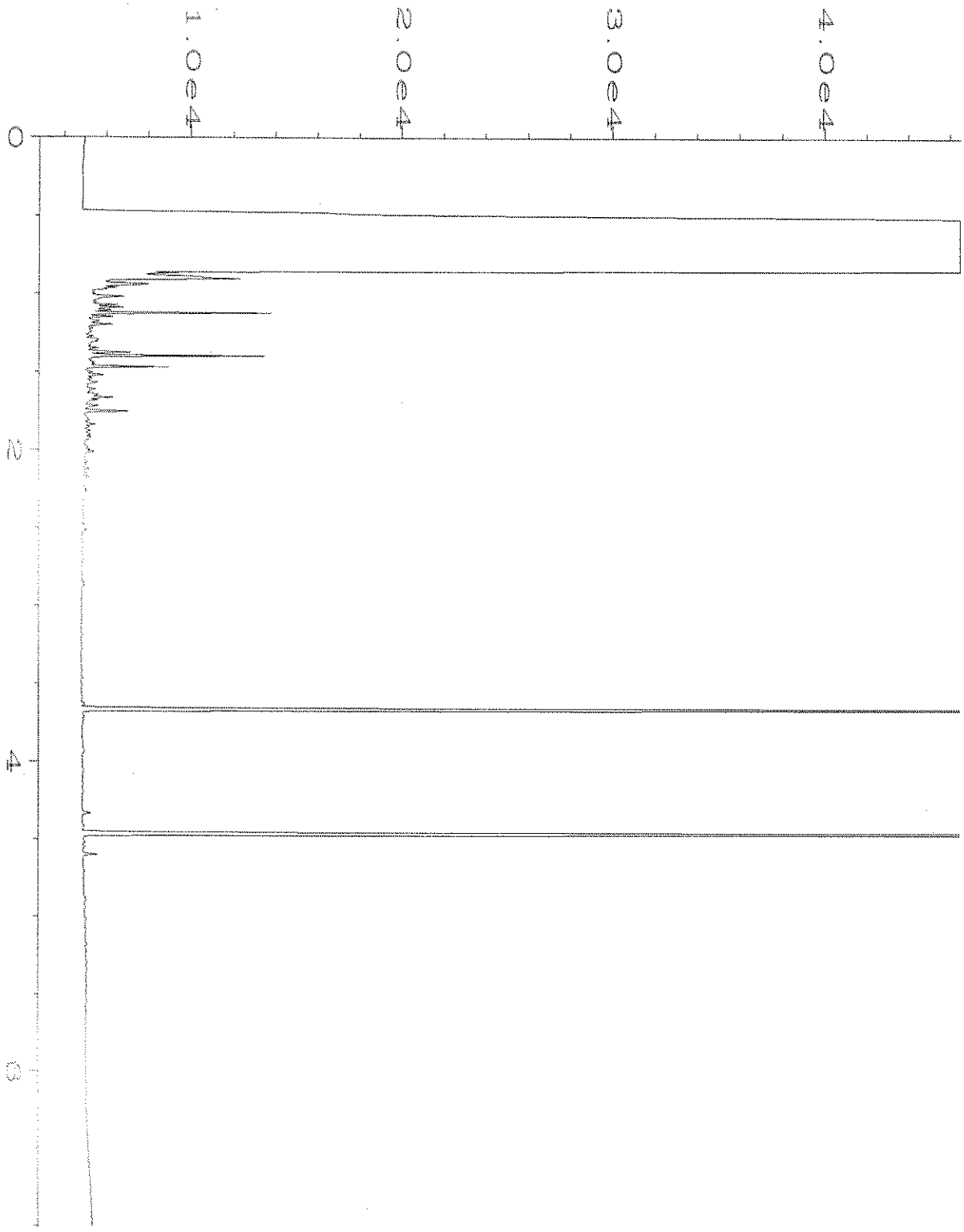
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



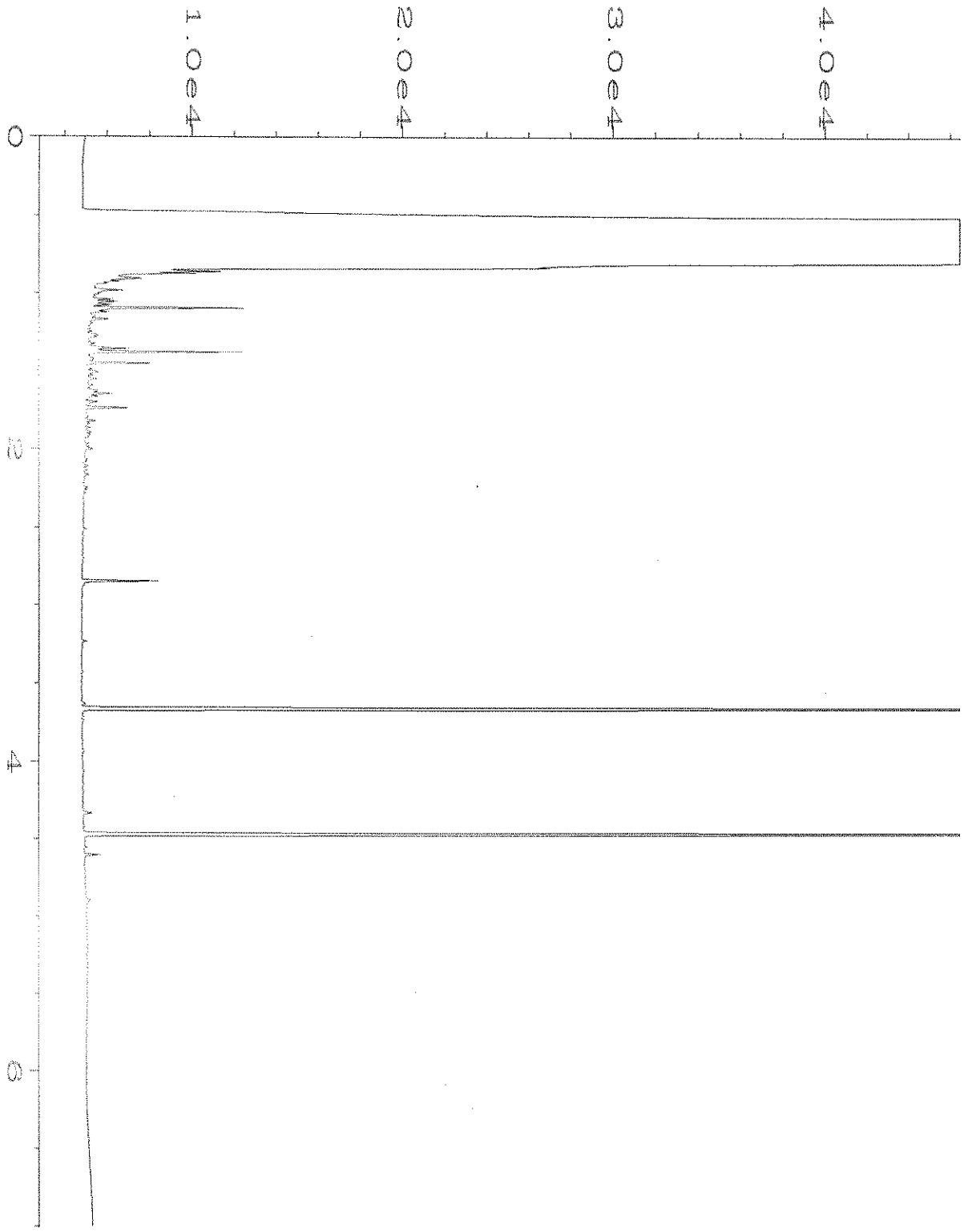
Data File Name	: C:\HPCHEM\6\DATA\01-17-20\010F0301.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 10
Sample Name	: 001202-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 17 Jan 20 09:22 AM	Instrument Method	: DX.MTH
Report Created on	: 20 Jan 20 08:45 AM	Analysis Method	: DX.MTH



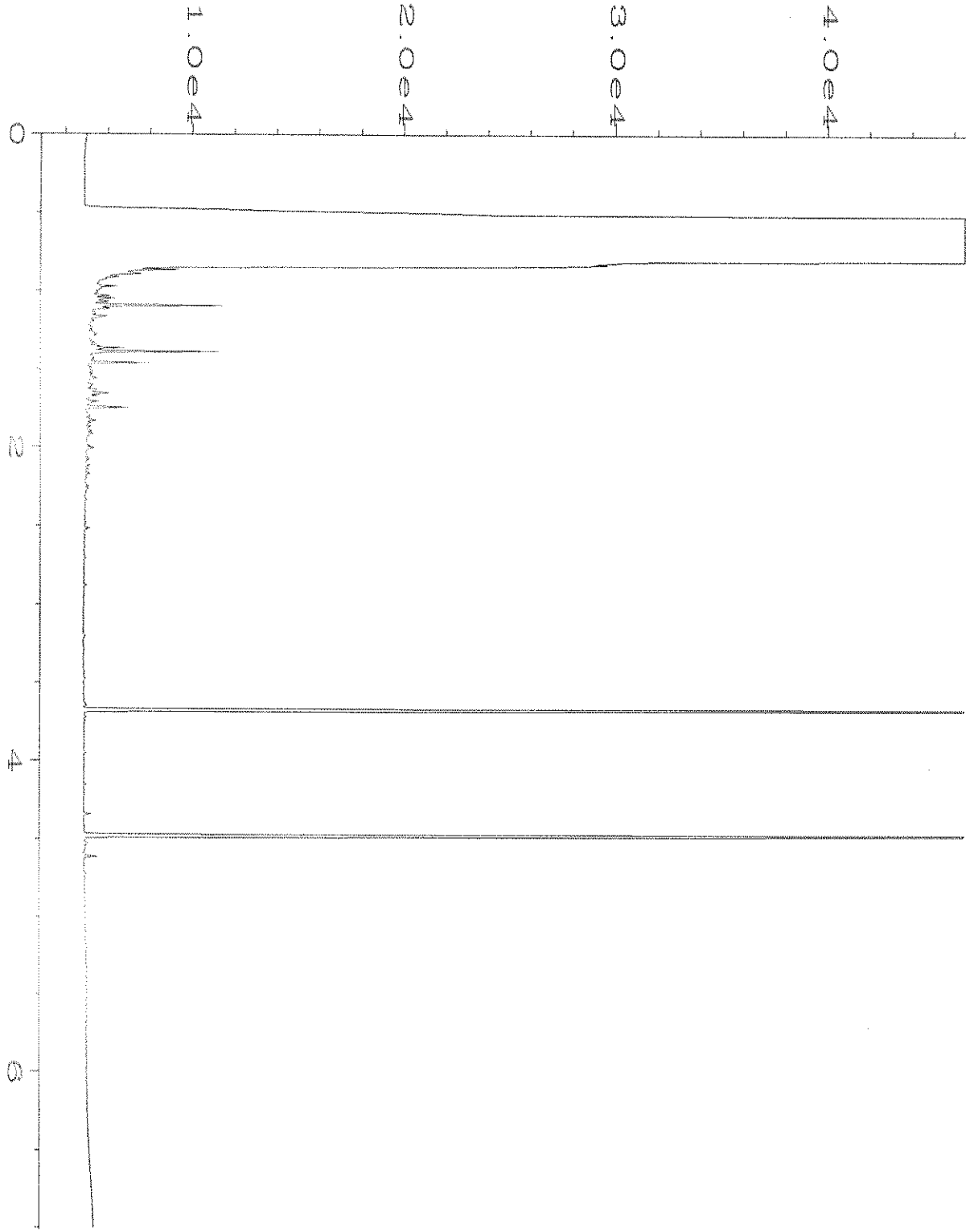
Data File Name	: C:\HPCHEM\6\DATA\01-17-20\011F0301.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 11
Sample Name	: 001202-06	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 17 Jan 20 09:32 AM	Instrument Method	: DX.MTH
Report Created on	: 20 Jan 20 08:45 AM	Analysis Method	: DX.MTH



Data File Name	: C:\HPCHEM\6\DATA\01-17-20\012F0301.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 12
Sample Name	: 001202-10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 17 Jan 20 09:43 AM	Instrument Method	: DX.MTH
Report Created on	: 20 Jan 20 08:46 AM	Analysis Method	: DX.MTH

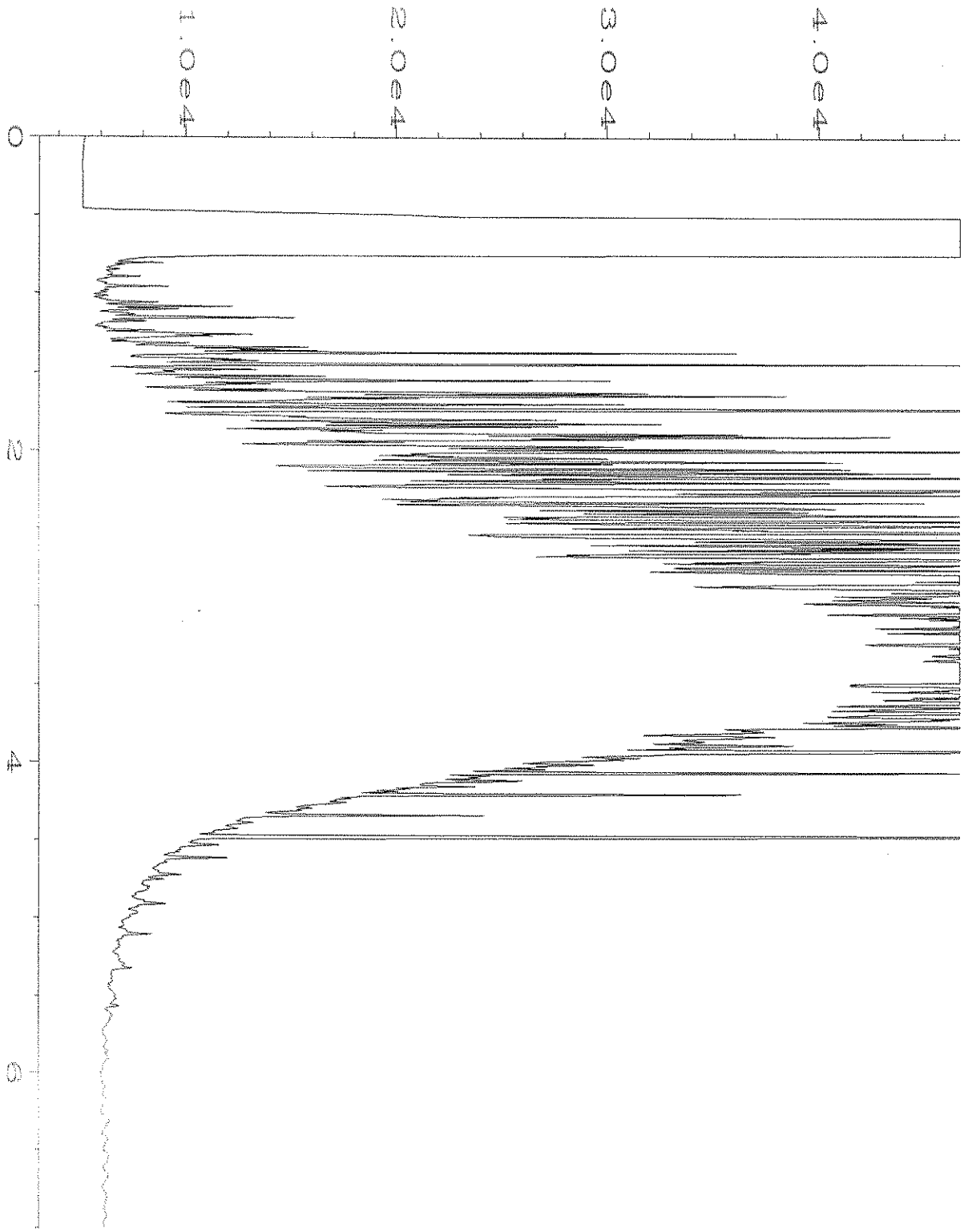


Data File Name	: C:\HPCHEM\6\DATA\01-17-20\013F0301.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 13
Sample Name	: 001202-12	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 17 Jan 20 09:54 AM	Instrument Method	: DX.MTH
Report Created on	: 20 Jan 20 08:46 AM	Analysis Method	: DX.MTH



Data File Name : C:\HPCHEM\6\DATA\01-17-20\009F0301.D
Operator : TL
Instrument : GC6
Sample Name : 00-165 mb2
Run Time Bar Code:
Acquired on : 17 Jan 20 09:13 AM
Report Created on: 20 Jan 20 08:45 AM

Page Number : 1
Vial Number : 9
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DX.MTH



Data File Name	: C:\HPCHEM\6\DATA\01-17-20\003F0201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 3
Sample Name	: 500 Dx 58-146B	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 17 Jan 20 06:01 AM	Instrument Method	: DX.MTH
Report Created on	: 20 Jan 20 08:45 AM	Analysis Method	: DX.MTH

SAMPLE CHAIN OF CUSTODY

001202

ME 01-16-20

VS3 / BT3

Page # 1 of 2

Report To Kellie Andrews / Beau Johnson

Company AESI

Address 9115th Ave

City, State, ZIP Kirkland WA 98033

Phone 425 827 7701 Email

SAMPLERS (*signature*) Kellie

PROJECT NAME: 114th Ave NE + NE 124th Ave

PO #: 190348V001

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- XX Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTBE	Lead			Notes
GP1-3	01 AE	1/15/20	0828	Soil	5												HOLD
GP1-6	02		0832			X	X	X					X	X			
GP1-10	03		0845														HOLD
GP1-15	04		0850														HOLD
GP2-5	05		1105														HOLD
GP2-7	06		1110			X	X	X					X	X			
GP2-10	07		1115														HOLD
GP2-15	08		1125														HOLD
GP3-5	09		1142														HOLD
GP3-6	10	↓	1150	↓	↓	X	X	X					X	X			

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Kellie Andrews	Kellie Andrews	AESI	1530	1/15
Received by: Nhan Phan	Nhan Phan	FC BI	1/16/20	1030
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

001202

BD3/US3

SAMPLE CHAIN OF CUSTODY ME 01-16-20

Page # 2 of 2

Report To Kellie Andrews/Beau Johnson

Company AESI

Address 911 5th Ave

City, State, ZIP Kirkland WA 98033

Phone 4258277701 Email

SAMPLERS (*signature*)	
PROJECT NAME: 110th Ave NE & NE 124th Ave	PO #: 190348V001
REMARKS: Project specific RLs? - Yes / No	INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTBE	Lead			Notes
GP3-8	11 A-E	1/15/20	1155	Soil	5												HOLD
GP4-5	12		1210			X	X	X					X	X			
GP4-10	13		1215														HOLD
GP4-15	14		1220														HOLD

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kellie Andrews	AESI	1530	1/15
Received by:	Nhan Phan	FEBI	1/16/20	1030
Relinquished by:				
Received by:		Samples received at		4 °C

Friedman & Bruya, Inc.
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Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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www.friedmanandbruya.com

January 31, 2020

Kellie Andrews, Project Manager
Associated Earth Sciences, Inc.
911 5th Avenue, Suite 100
Kirkland, WA 98033

Dear Ms Andrews:

Included are the additional results from the testing of material submitted on January 16, 2020 from the 116th Ave NE + NE 124th Ave 190348V001, F&BI 001202 project. There are 6 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Beau Johnson
AE10131R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 16, 2020 by Friedman & Bruya, Inc. from the Associated Earth Sciences 116th Ave NE + NE 124th Ave 190348V001, F&BI 001202 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Associated Earth Sciences
001202 -01	GP1-3
001202 -02	GP1-6
001202 -03	GP1-10
001202 -04	GP1-15
001202 -05	GP2-5
001202 -06	GP2-7
001202 -07	GP2-10
001202 -08	GP2-15
001202 -09	GP3-5
001202 -10	GP3-6
001202 -11	GP3-8
001202 -12	GP4-5
001202 -13	GP4-10
001202 -14	GP4-15

All quality control requirements were acceptable.

Date of Report: 01/31/20
Date Received: 01/16/20
Project: 116th Ave NE + NE 124th Ave 190348V001, F&BI 001202
Date Extracted: 01/28/20
Date Analyzed: 01/29/20

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
GP1-3 001202-01	<0.02	<0.02	<0.02	<0.06	<5	85
GP2-5 001202-05	<0.02	<0.02	<0.02	<0.06	<5	82
GP2-10 001202-07	<0.02	<0.02	<0.02	<0.06	<5	80
Method Blank 00-237 MB	<0.02	<0.02	<0.02	<0.06	<5	85

Date of Report: 01/31/20
Date Received: 01/16/20
Project: 116th Ave NE + NE 124th Ave 190348V001, F&BI 001202
Date Extracted: 01/28/20
Date Analyzed: 01/28/20

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
GP1-3 001202-01	<50	<250	82
GP2-5 001202-05	<50	<250	81
GP2-10 001202-07	<50	<250	81
Method Blank 00-268 MB	<50	<250	81

Date of Report: 01/31/20
Date Received: 01/16/20
Project: 116th Ave NE + NE 124th Ave 190348V001, F&BI 001202

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 001202-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	96	69-120
Toluene	mg/kg (ppm)	0.5	96	70-117
Ethylbenzene	mg/kg (ppm)	0.5	99	65-123
Xylenes	mg/kg (ppm)	1.5	96	66-120
Gasoline	mg/kg (ppm)	20	105	71-131

Date of Report: 01/31/20
Date Received: 01/16/20
Project: 116th Ave NE + NE 124th Ave 190348V001, F&BI 001202

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 001388-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	130	85	87	63-146	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	86	79-144

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

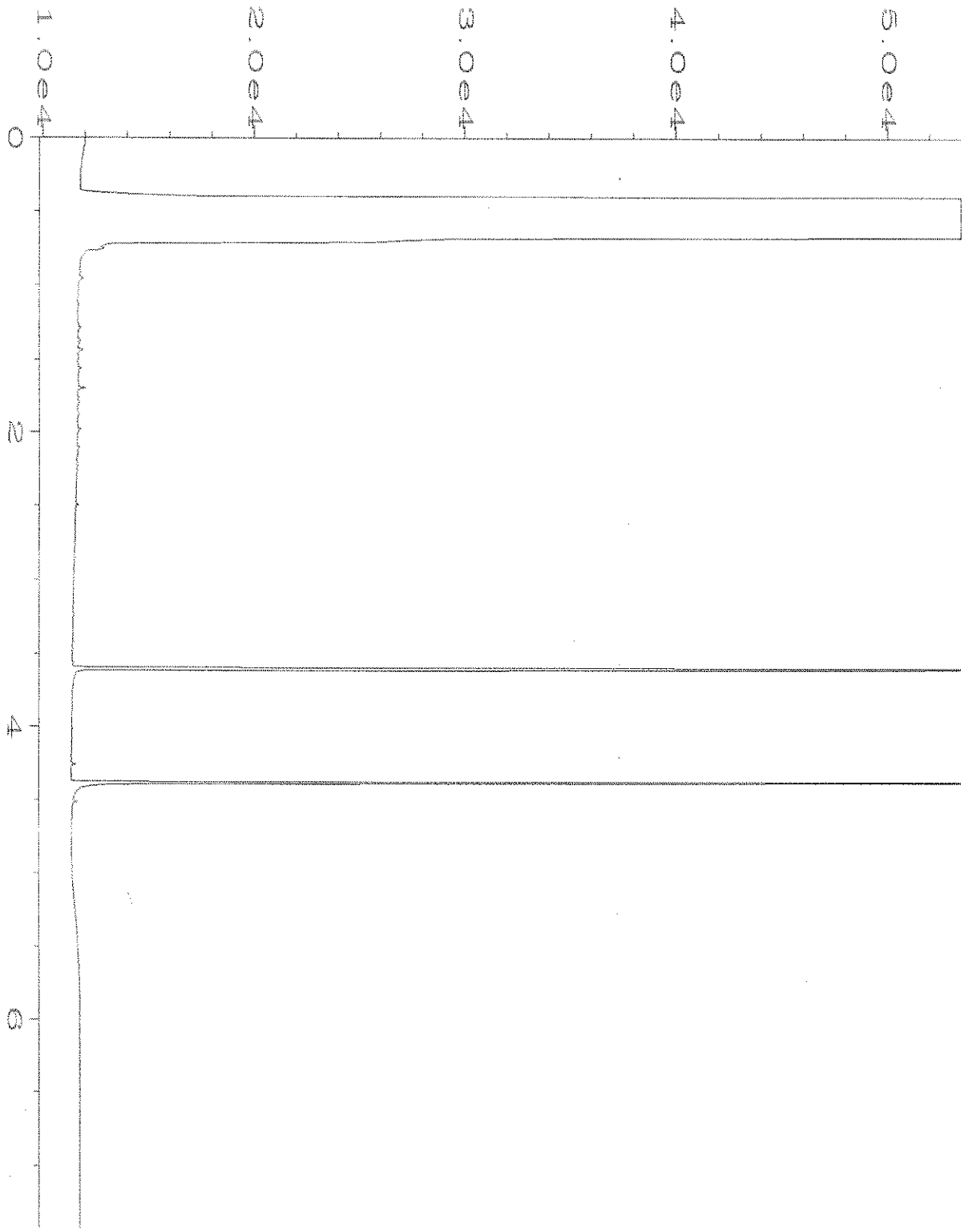
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

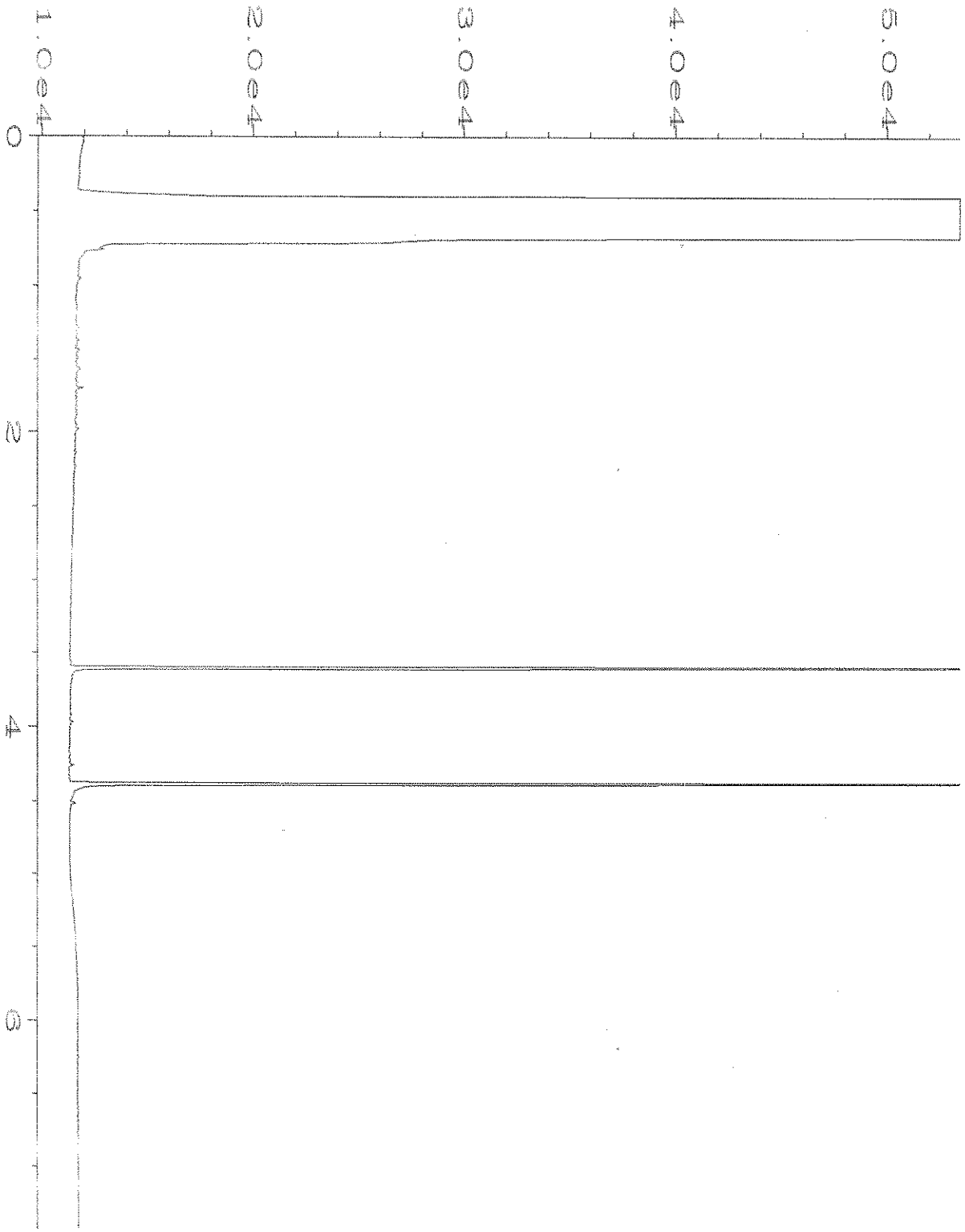
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

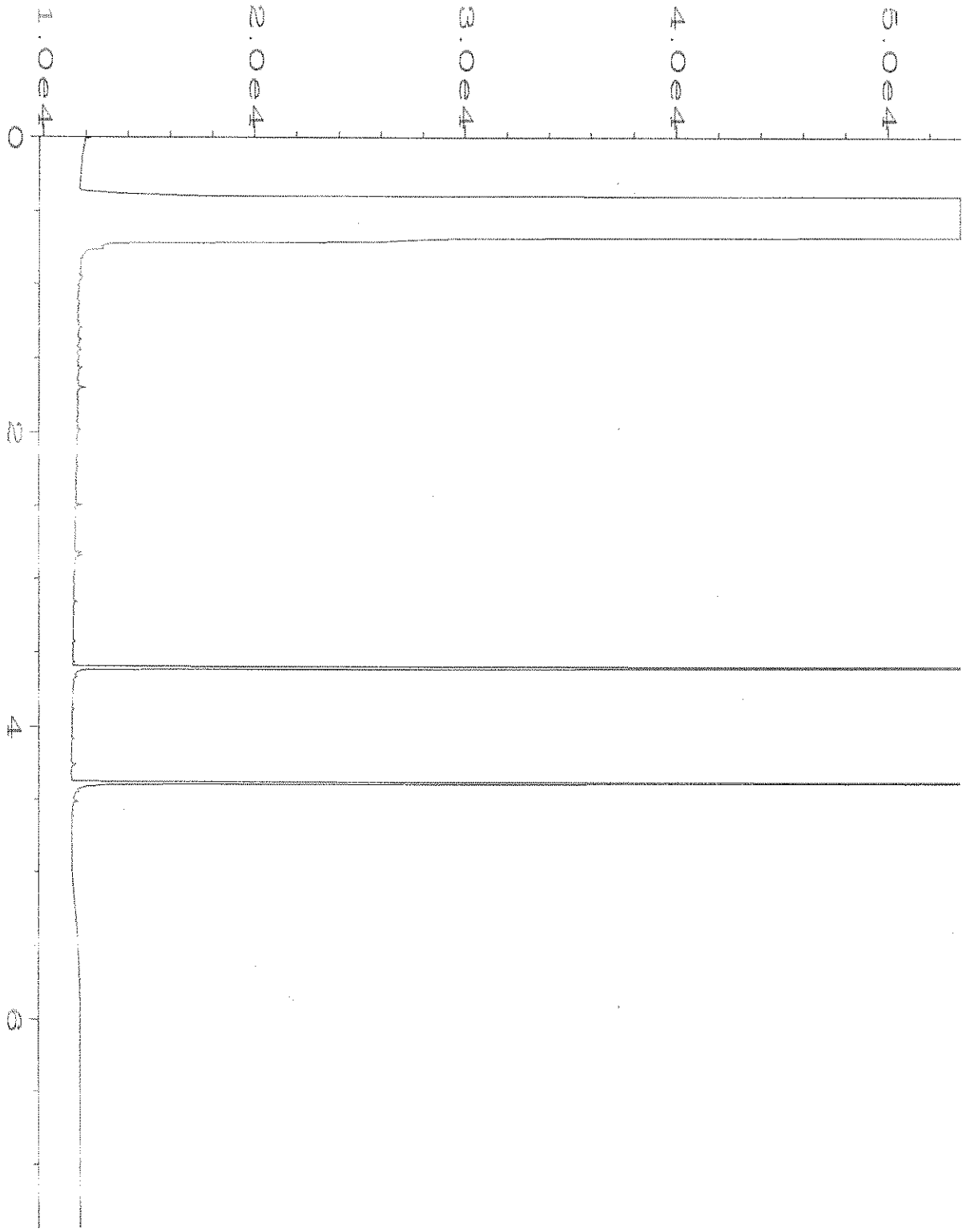
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



Data File Name	: C:\HPCHEM\1\DATA\01-28-20\037F1001.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 37
Sample Name	: 001202-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 28 Jan 20 07:23 PM	Instrument Method	: DX.MTH
Report Created on	: 29 Jan 20 08:46 AM	Analysis Method	: DX.MTH

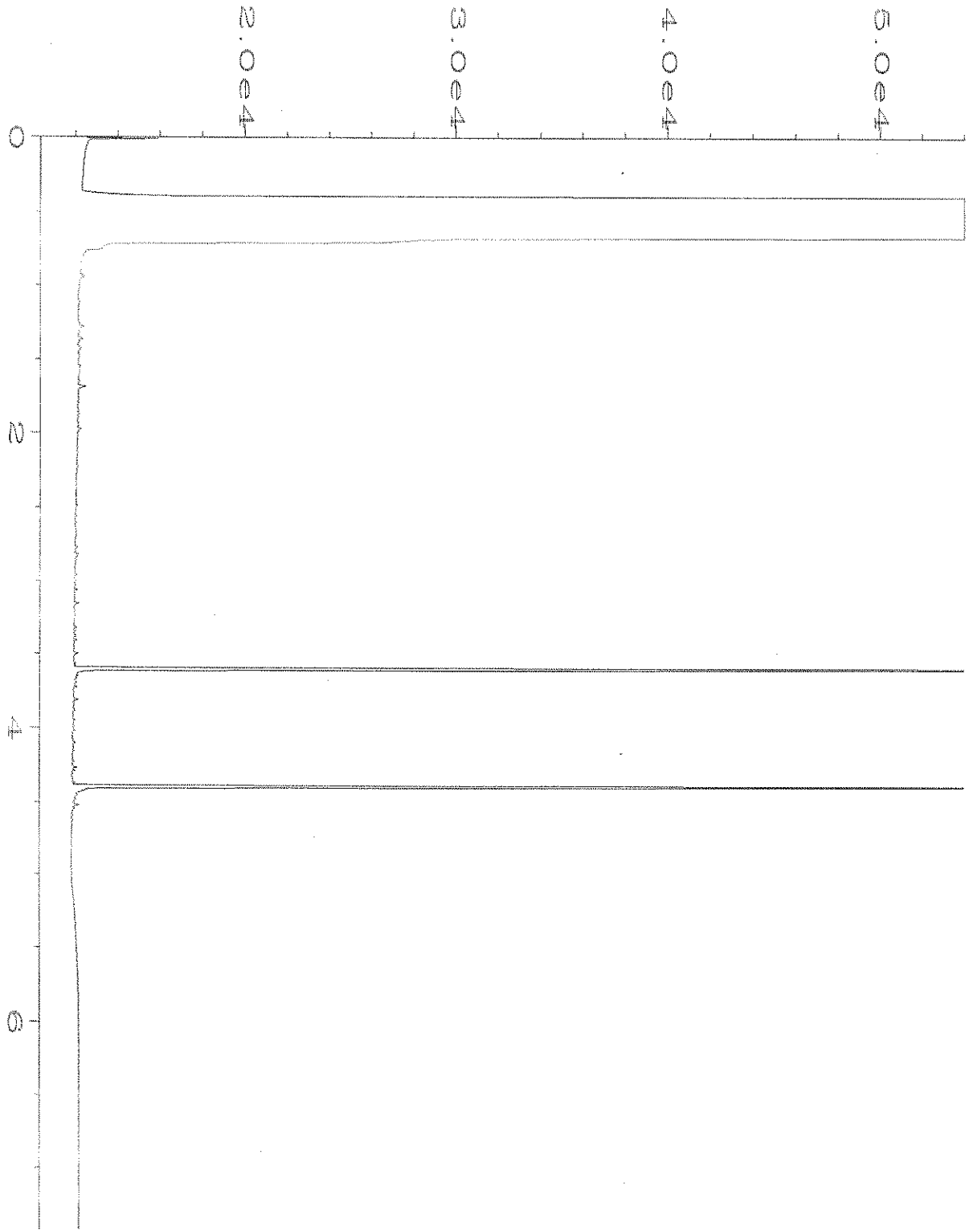


Data File Name	: C:\HPCHEM\1\DATA\01-28-20\038F1001.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 38
Sample Name	: 001202-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 28 Jan 20 07:35 PM	Instrument Method	: DX.MTH
Report Created on	: 29 Jan 20 08:46 AM	Analysis Method	: DX.MTH



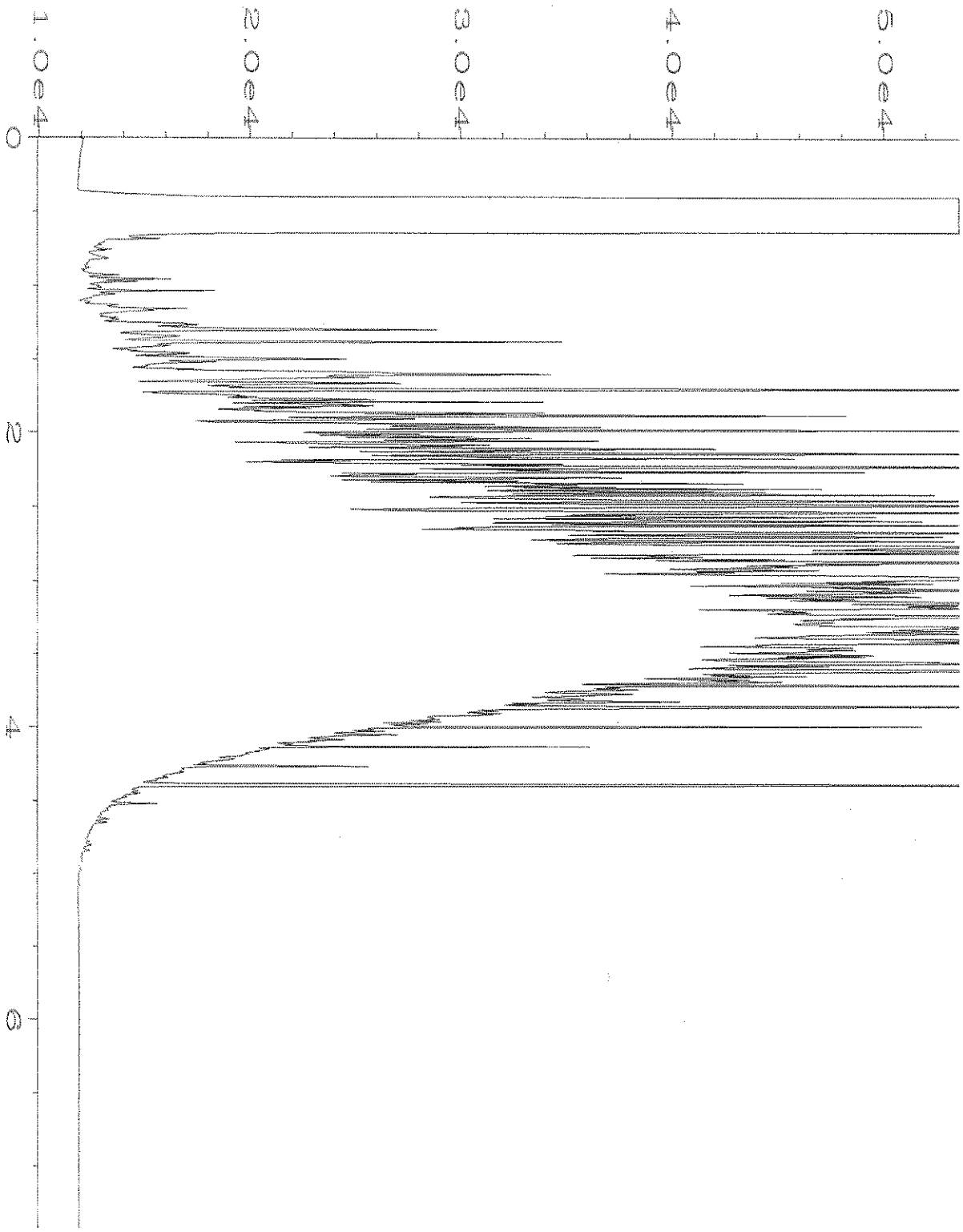
Data File Name : C:\HPCHEM\1\DATA\01-28-20\039F1001.D
Operator : TL
Instrument : GC1
Sample Name : 001202-03
Run Time Bar Code:
Acquired on : 28 Jan 20 07:46 PM
Report Created on: 29 Jan 20 08:46 AM

Page Number : 1
Vial Number : 39
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DX.MTH



Data File Name : C:\HPCHEM\1\DATA\01-28-20\016F0801.D
Operator : TL
Instrument : GC1
Sample Name : 00-268 mb
Run Time Bar Code:
Acquired on : 28 Jan 20 03:04 PM
Report Created on: 29 Jan 20 08:46 AM

Page Number : 1
Vial Number : 16
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DX.MTH



Data File Name : C:\HPCHEM\1\DATA\01-28-20\003F0901.D
Operator : TL
Instrument : GC1
Sample Name : 500 Dx 58-146B
Run Time Bar Code:
Acquired on : 28 Jan 20 05:41 PM
Report Created on: 29 Jan 20 08:46 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX.MTH

SAMPLE CHAIN OF CUSTODY ME 01-16-20

001202

VS3 / BZ13 Page # 1 of 2

Report To Kellie Andrews / Beaudoheaser
Company AESI
Address 9115th Ave
City, State, ZIP Kirkland WA 98033
Phone 425 827 7701 Email

SAMPLERS (signature) Kellie

PROJECT NAME: 111th Ave NE + NE 124th Ave
PO #: 190348V001

REMARKS
Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTBE	Lead			Notes
						ANALYSES REQUESTED											
GP1-3	01	1/15/20	0828	Soil	5	⊗	⊗	⊗									HOLD
GP1-6	02		0832			X	X	X					X	X			
GP1-10	03		0845														HOLD
GP1-15	04		0850														HOLD
GP2-5	05		1105			⊗	⊗	⊗									HOLD
GP2-7	06		1110			X	X	X					X	X			
GP2-10	07		1115			⊗	⊗	⊗									HOLD
GP2-15	08		1125														HOLD
GP3-5	09		1142														HOLD
GP3-6	10	↓	1150	↓	↓	X	X	X					X	X			

⊗ = Run on Standard TAT - KMA

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Kellie	Kellie Andrews	AESI	1530	1/15
Received by:	Nhan Phan	FCBI	1/16/20	1030
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

001202

SAMPLE CHAIN OF CUSTODY

ME 01-16-20

BD3/US3

Page # 2 of 2

Report To Kellie Andrews/Beau Johnson

Company AESI

Address 911 5th Ave

City, State, ZIP Kirkland WA 98033

Phone 4258277701 Email

SAMPLERS (*signature*) Kevin Anh

PROJECT NAME: 116th Ave NE & NE 124th Ave

PO #: 190348V001

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTBE	Lead			Notes
						ANALYSES REQUESTED											
GP3-8	11 A-E	1/15/20	1155	soil	5												HOLD
GP4-5	12	"	1210	"	"	X	X	X					X	X			
GP4-10	13	"	1215	"	"												HOLD
GP4-15	14	"	1220	"	"												HOLD

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Kevin Anh	Kellie Andrews	AESI	1530	1/15
Received by: Nhan Phan	Nhan Phan	FEBI	1/16/20	1030
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 27, 2020

Kellie Andrews, Project Manager
Associated Earth Sciences, Inc.
911 5th Avenue, Suite 100
Kirkland, WA 98033

Dear Ms Andrews:

Included are the results from the testing of material submitted on January 16, 2020 from the 116th Ave NE and NE 124th Ave 190348V001, F&BI 001201 project. There are 18 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Beau Johnson
AE10127R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 16, 2020 by Friedman & Bruya, Inc. from the Associated Earth Sciences 116th Ave NE and NE 124th Ave 190348V001, F&BI 001201 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Associated Earth Sciences
001201 -01	GP1-GW
001201 -02	GP2-GW
001201 -03	GP3-GW
001201 -04	GP4-GW

All quality control requirements were acceptable.

Date of Report: 01/27/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001201
Date Extracted: 01/16/20
Date Analyzed: 01/17/20

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
GP1-GW 001201-01	1.5	<1	26	<3	1,900	89
GP2-GW 001201-02	140	2.0	94	150	2,700	112
GP3-GW 001201-03	<1	<1	<1	<3	<100	100
GP4-GW 001201-04	<1	<1	<1	<3	<100	99
Method Blank 00-034 MB	<1	<1	<1	<3	<100	98

Date of Report: 01/27/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001201
Date Extracted: 01/16/20
Date Analyzed: 01/16/20

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
GP1-GW 001201-01	940 x	<250	89
GP2-GW 001201-02	990 x	720	100
GP3-GW 001201-03 1/1.8	1,500 x	4,400	89
GP4-GW 001201-04	58 x	<250	62
Method Blank 00-154 MB2	<50	<250	108

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	GP1-GW	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	001201-01
Date Analyzed:	01/16/20	Data File:	001201-01.096
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	GP4-GW	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	001201-04
Date Analyzed:	01/16/20	Data File:	001201-04.097
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Associated Earth Sciences
Date Received:	NA	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	I0-031 mb2
Date Analyzed:	01/16/20	Data File:	I0-031 mb2.038
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	GP1-GW	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	001201-01
Date Analyzed:	01/16/20	Data File:	001201-01.099
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	7.78

Analysis For Total Metals By EPA Method 6020B

Client ID:	GP4-GW	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	001201-04
Date Analyzed:	01/16/20	Data File:	001201-04.100
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	53.6

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Associated Earth Sciences
Date Received:	NA	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/16/20	Lab ID:	I0-033 mb
Date Analyzed:	01/16/20	Data File:	I0-033 mb.040
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	GP1-GW	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/17/20	Lab ID:	001201-01
Date Analyzed:	01/17/20	Data File:	011728.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	GP4-GW	Client:	Associated Earth Sciences
Date Received:	01/16/20	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/17/20	Lab ID:	001201-04
Date Analyzed:	01/20/20	Data File:	012020.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	57	121
Toluene-d8	109	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Associated Earth Sciences
Date Received:	Not Applicable	Project:	116th Ave NE and NE 124th Ave
Date Extracted:	01/17/20	Lab ID:	00-0146 mb
Date Analyzed:	01/17/20	Data File:	011714.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1

Date of Report: 01/27/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001201

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 001196-06 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	110	160	34 a

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	90	65-118
Toluene	ug/L (ppb)	50	88	72-122
Ethylbenzene	ug/L (ppb)	50	92	73-126
Xylenes	ug/L (ppb)	150	86	74-118
Gasoline	ug/L (ppb)	1,000	99	69-134

Date of Report: 01/27/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001201

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	96	108	63-142	12

Date of Report: 01/27/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001201

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 6020B

Laboratory Code: 001113-04 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	23.5	98	116	75-125	17

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	95	80-120

Date of Report: 01/27/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001201

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 001037-28 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<10	82	80	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	89	80-120

Date of Report: 01/27/20
Date Received: 01/16/20
Project: 116th Ave NE and NE 124th Ave 190348V001, F&BI 001201

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	112	107	70-122	5

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

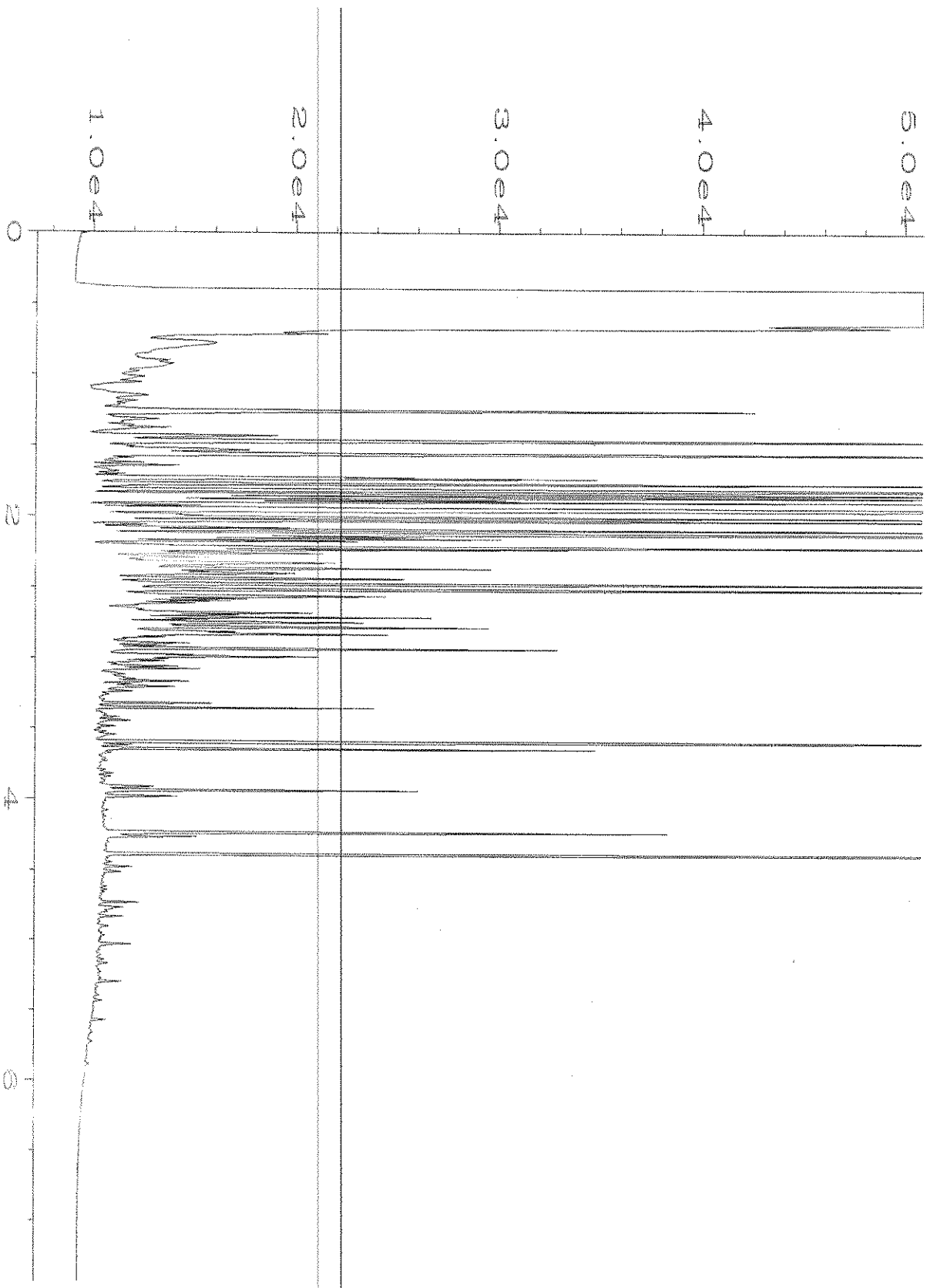
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

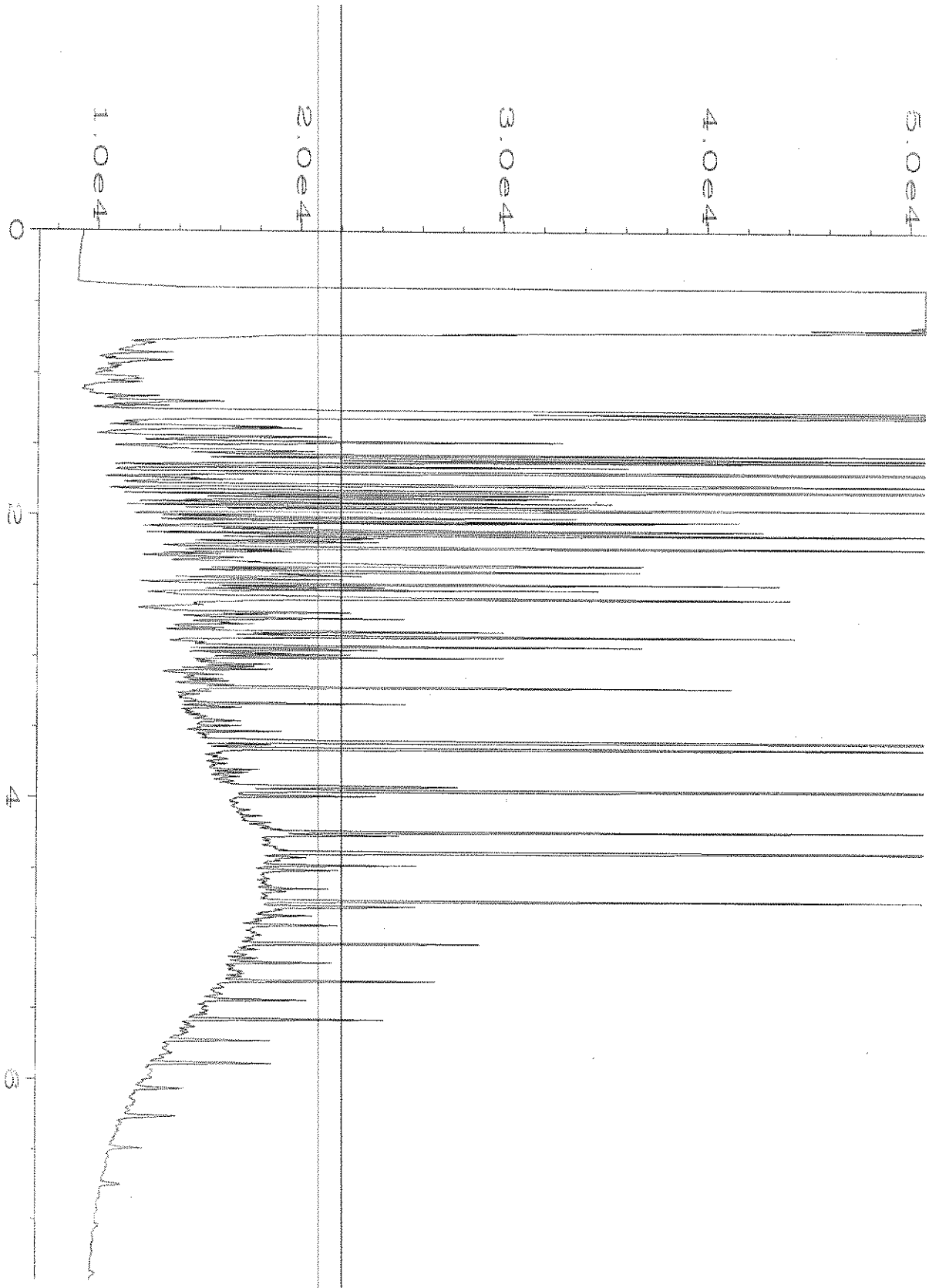
vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



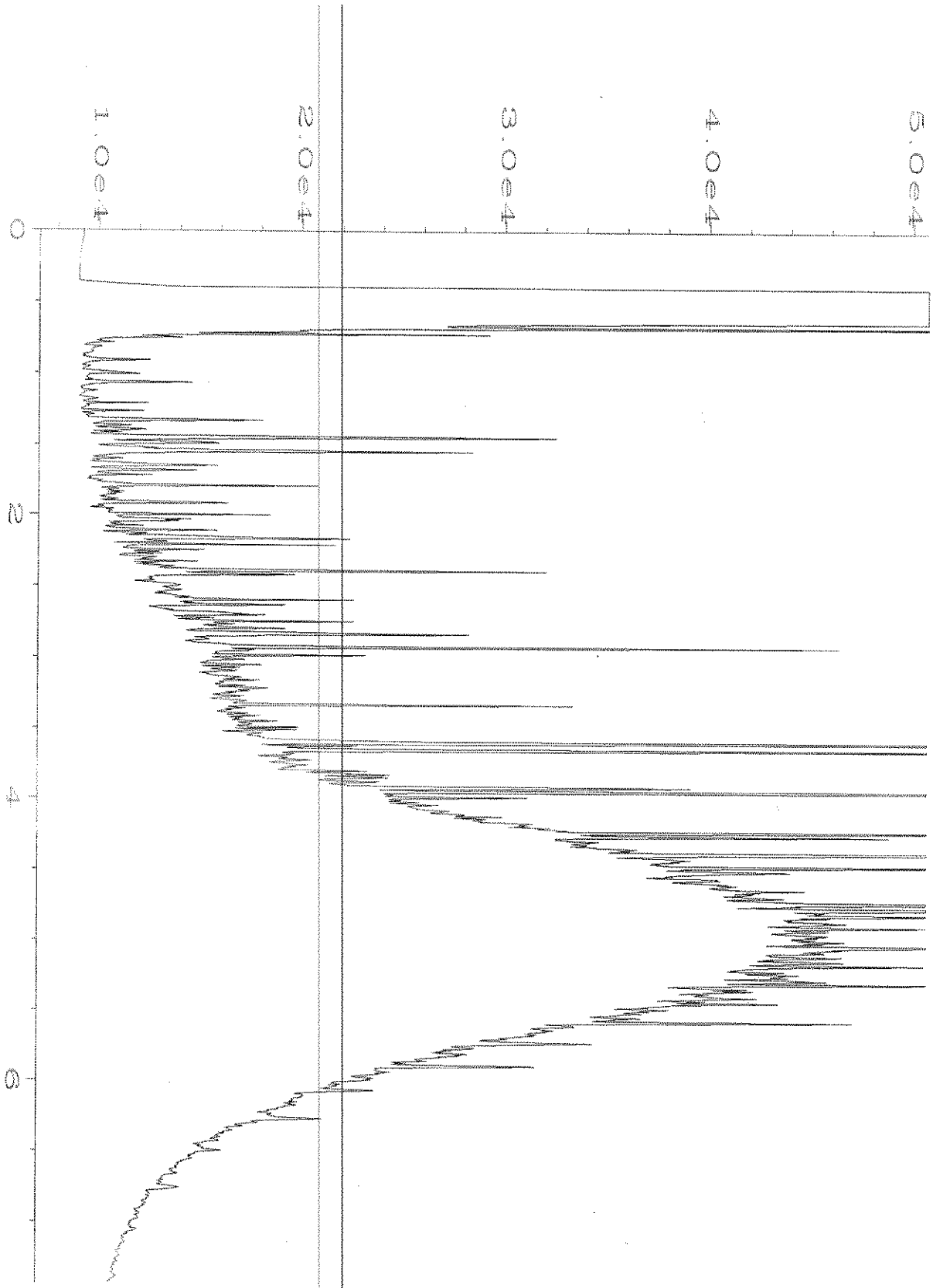
Data File Name : C:\HPCHEM\1\DATA\01-16-20\013F0301.D
Operator : TL
Instrument : GC1
Sample Name : 001201-01
Run Time Bar Code:
Acquired on : 16 Jan 20 01:34 PM
Report Created on: 17 Jan 20 07:57 AM

Page Number : 1
Vial Number : 13
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



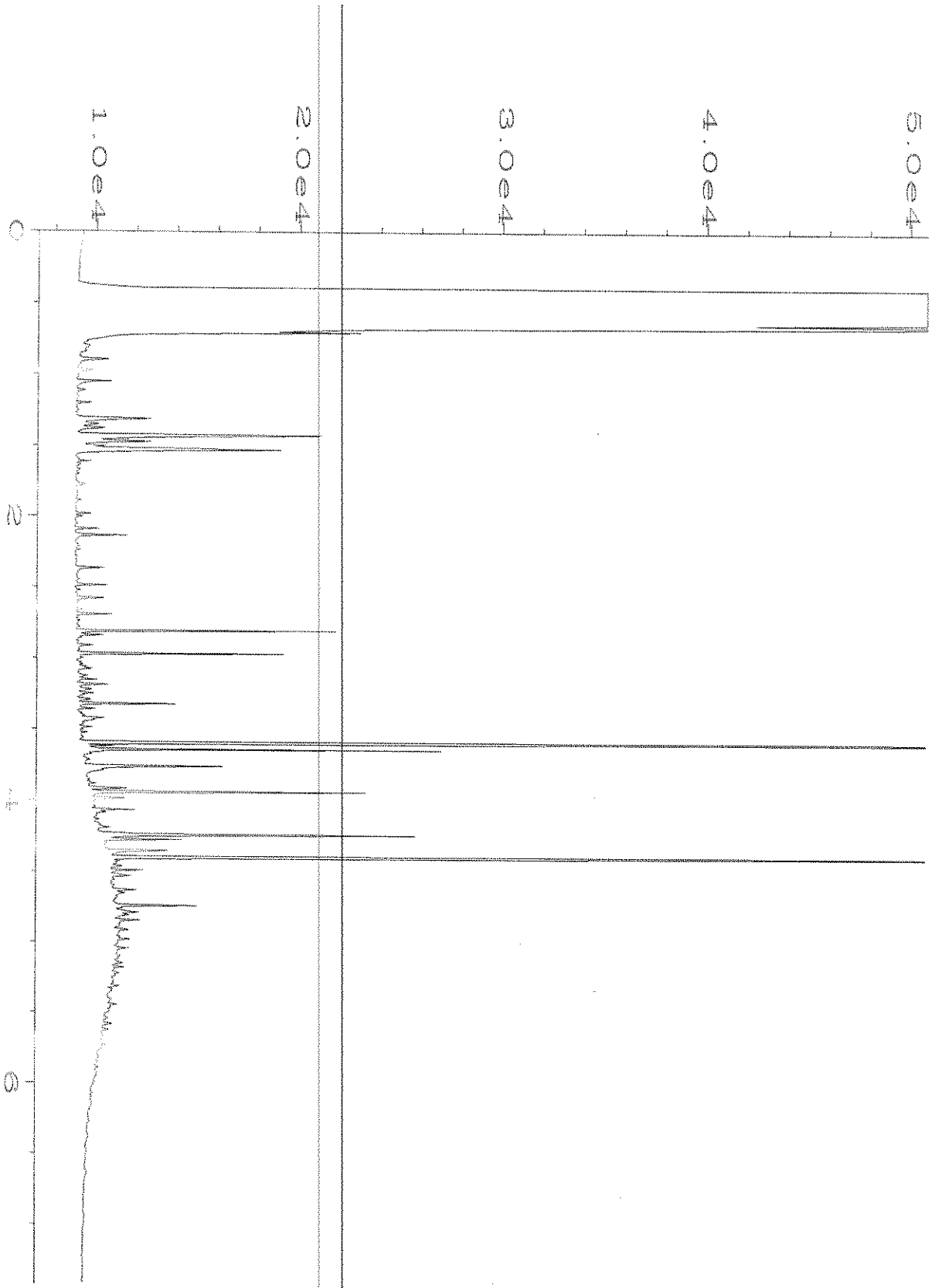
Data File Name : C:\HPCHEM\1\DATA\01-16-20\014F0301.D
Operator : TL
Instrument : GC1
Sample Name : 001201-02
Run Time Bar Code:
Acquired on : 16 Jan 20 01:43 PM
Report Created on: 17 Jan 20 07:57 AM

Page Number : 1
Vial Number : 14
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



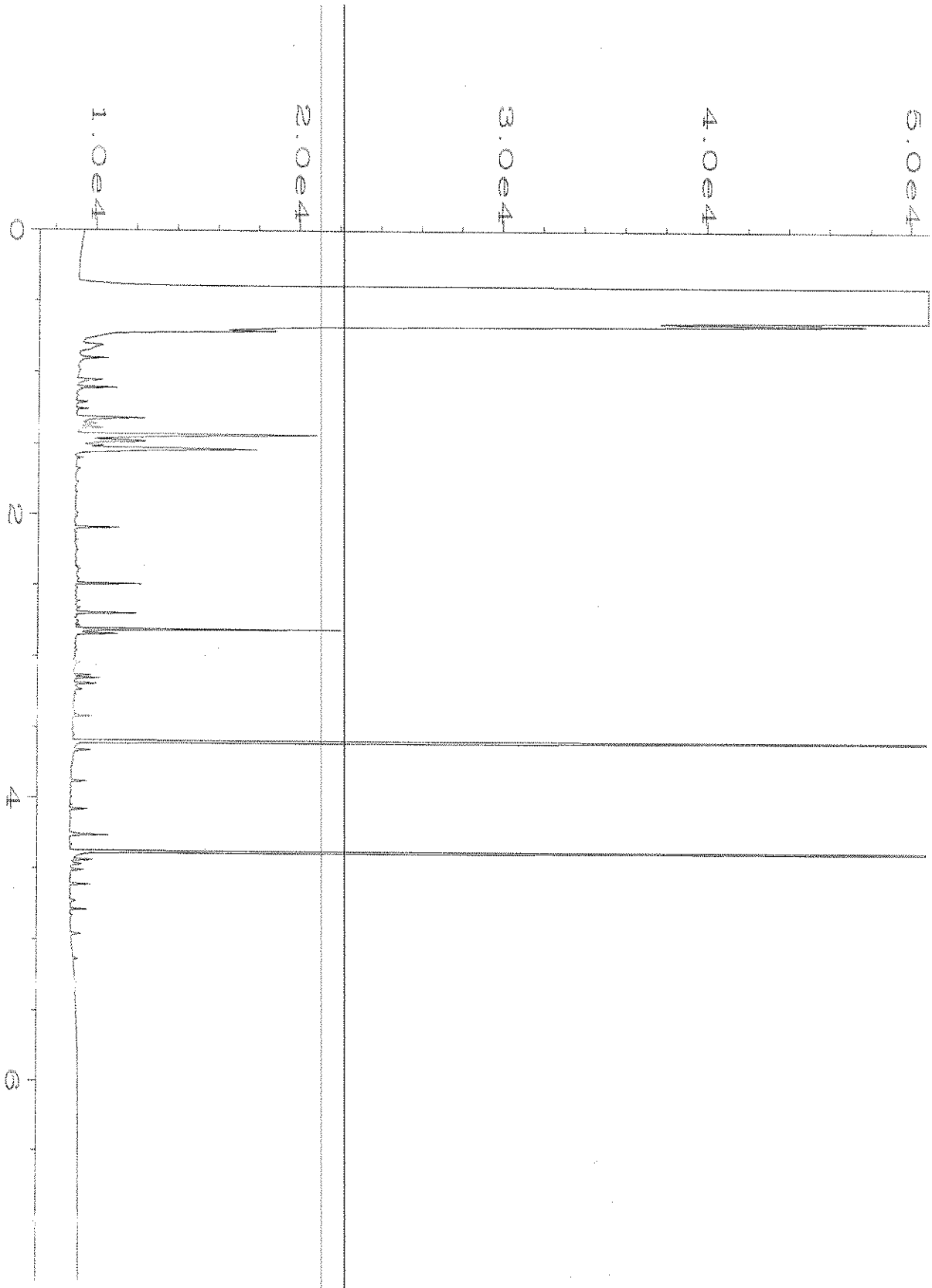
Data File Name : C:\HPCHEM\1\DATA\01-16-20\015F0301.D
Operator : TL
Instrument : GC1
Sample Name : 001201-03
Run Time Bar Code:
Acquired on : 16 Jan 20 01:55 PM
Report Created on: 17 Jan 20 07:57 AM

Page Number : 1
Vial Number : 15
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



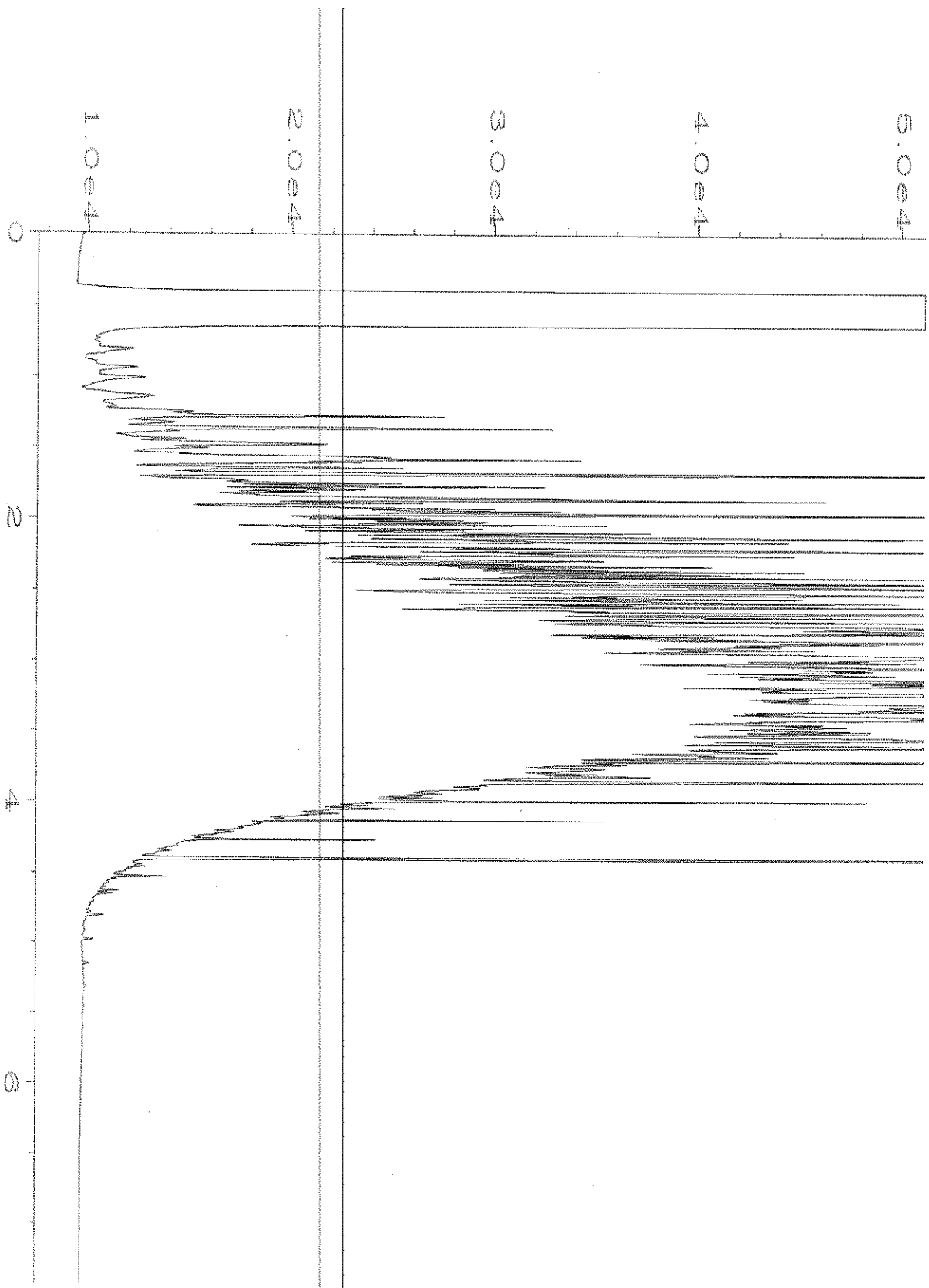
Data File Name : C:\HPCHEM\1\DATA\01-16-20\016F0301.D
Operator : TL
Instrument : GC1
Sample Name : 001201-04
Run Time Bar Code:
Acquired on : 16 Jan 20 02:06 PM
Report Created on: 17 Jan 20 07:57 AM

Page Number : 1
Vial Number : 16
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\01-16-20\011F0301.D
Operator : TL
Instrument : GC1
Sample Name : 00-154 mb2
Run Time Bar Code:
Acquired on : 16 Jan 20 12:52 PM
Report Created on: 17 Jan 20 07:54 AM

Page Number : 1
Vial Number : 11
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\01-16-20\003F0201.D
Operator : TL
Instrument : GC1
Sample Name : 500 Dx 58-146B
Run Time Bar Code:
Acquired on : 16 Jan 20 05:33 AM
Report Created on: 17 Jan 20 07:54 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

001201

SAMPLE CHAIN OF CUSTODY ME 01-16-20

VW2/AI2/B05

Page # ____ of ____

Report To Kellie Andrews/Beau Johnson

Company AESI

Address 911 5th Ave

City, State, ZIP Kirkland WA

Phone 4258277701 Email

SAMPLERS (*signature*)

PROJECT NAME: 116th Ave NE & NE 124th Ave

PO #: 190348V001

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTBE	Lead (total)	Lead (dissolved)		Notes
GP1-GW	01A-F	1/15/20	1315	g.w	6	X	X	X					X	X	X		
GP2-GW	02A-D	↓	1405	↓	4	X	X	X									
GP3-GW	03A-B	↓	1345	↓	2	X	X	X									LOW VOLUME! 1/2 vials
GP4-GW	04A-F	↓	1245	↓	6	X	X	X					X	X	X		

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kellie Andrews	AESI	1/15/20	1530
Received by:	Nhan Phan	FEBI	1/16/20	1030
Relinquished by:				
Received by:		Samples received at		4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

associated
earth sciences
incorporated

Subsurface Exploration, Geologic Hazard,
and Geotechnical Engineering Report

116TH AVENUE NE & NE 124TH STREET INTERSECTION IMPROVEMENTS

Kirkland, Washington

Prepare For:

PARAMETRIX

Project No. 20190348E001
March 20, 2020

Associated Earth Sciences, Inc.
911 5th Avenue
Kirkland, WA 98033
P (425) 827 7701

associated earth sciences incorporated

March 20, 2020
Project No. 20190348E001

Parametrix
1019 39th Avenue SE, Suite 100
Puyallup, Washington 98033

Attention: Ms. Cindy Clark, P.E.

Subject: Subsurface Exploration, Geologic Hazard,
and Geotechnical Engineering Report
116th Avenue NE & NE 124th Street Intersection Improvements
Kirkland, Washington

Dear Ms. Clark:

We are pleased to present the enclosed copy of the above-referenced report. This report summarizes the results of our current subsurface explorations program and provides geotechnical engineering recommendations for the design and development of the proposed project.

We have enjoyed working with you on this study and are confident the recommendations presented in this report will aid in the successful completion of your project. If you should have any questions, or if we can be of additional help to you, please do not hesitate to call.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Anthony W. Romanick, P.E.
Senior Project Engineer

AWR/ms - 20190348E001-2

SUBSURFACE EXPLORATION, GEOLOGIC HAZARD, AND GEOTECHNICAL ENGINEERING REPORT

116TH AVENUE NE & NE 124TH STREET INTERSECTION IMPROVEMENTS

Kirkland, Washington

Prepared for:
Parametrix
1019 39th Avenue SE, Suite 100
Puyallup, Washington 98033

Prepared by:
Associated Earth Sciences, Inc.
911 5th Avenue
Kirkland, Washington 98033
425-827-7701

March 20, 2020
Project No. 20190348E001

SUMMARY

The proposed project is feasible given the subsurface conditions encountered at the site. A brief summary of the key geotechnical issues associated with the project is provided below.

- The subject site consists of the west portion of right-of-way (ROW) along 116th Avenue NE (116th) in Kirkland, WA, from the intersection with NE 124th Street and extending north 270 feet. Project plans consist of constructing a new southbound right-turn lane and will include new sidewalks, signal/sign poles, utilities, and other features.

- Subsurface explorations completed by Associated Earth Sciences, Inc. (AESI) in the existing western southbound lane of 116th encountered sediments generally consisting of a thin layer of exiting fill soils overlying fine-grained, medium stiff, Vashon recessional lacustrine sediments. The lacustrine sediments were overlying glacially consolidated, pre-Fraser sediments except in EB-1 where pre-Fraser sediments were directly under the thin layer of existing fill. Shallow groundwater was encountered at depths ranging from 2.5 to 5 feet below the surface in our borings and represent a perched aquifer.

- If utility excavations extend below the perched water table dewatering measures may be necessary for trench excavation and utility installation.

- Excavated shallow subsurface sediments (existing fill or Vashon recessional lacustrine) are moisture sensitive and maybe difficult or impossible to reuse as structural fill.

- Our explorations along 116th encountered existing pavement sections consisting of 10 to 12 inches of asphalt overlying 10 to 12 inches of crushed rock subbase layer. Asphalt surfacing along the project portion of 116th exhibited moderate block cracking along the west curb line and rutted asphalt along the wheel travel paths. Otherwise, pavement has performed well.

- This report provides recommendations for new pavement sections that generally match existing pavement sections.

- Full infiltration of shallow stormwater is considered infeasible along the project alignment due to shallow groundwater and presence of existing fill soils and fine-grained sediments.

This summary is intended for introductory purposes only and should be used in conjunction with the full text of this report. The project description, site conditions, an assessment of geologic hazards, and geotechnical design recommendations for the project are presented in the following sections of this report.

I. PROJECT AND SITE CONDITIONS

1.0 INTRODUCTION

This report presents the results of Associated Earth Sciences, Inc.'s (AESI) subsurface exploration, geologic hazard, and geotechnical engineering study for the proposed improvements to the intersection at 116th Avenue NE and NE 124th Street in Kirkland, Washington (Figure 1). The approximate locations of the exploration borings completed for this study are shown on Figure 2, "Existing Site and Exploration Plan." At the time of our study, the project was near the 30-percent design milestone, no project plans were provided for preparation of this report. In the event that any changes in the nature, design, or other project elements are planned, the conclusions and recommendations contained in this report should be reviewed and modified, or verified, as necessary.

1.1 Purpose and Scope

The purpose of this study was to provide subsurface data to be utilized in the design of the proposed project. Our study included reviewing available geologic data, reviewing environmental explorations (Geoprobes) completed by AESI at the project site, drilling three exploration borings, and performing geologic studies to assess the type, thickness, distribution, and physical properties of the subsurface sediments and shallow groundwater conditions. Geotechnical engineering studies were also conducted to provide preliminary recommendations for site preparation, structural fill placement, pavement and sidewalk subgrades, new pavement sections, signal pole foundation recommendations, drainage considerations, and shallow infiltration feasibility. This report summarizes our current fieldwork and offers design and construction recommendations based on our present understanding of the project. AESI is concurrently preparing a forthcoming environmental report.

1.2 Authorization

This report has been prepared for the exclusive use of Parametrix, the City of Kirkland, and their agents for specific application to this project. Our services were authorized via a Subconsultant Agreement with Parametrix on October 22, 2019. Within the limitations of scope, schedule, and budget, our services have been performed in accordance with generally accepted geotechnical engineering and engineering geology practices in effect in this area at the time our report was prepared. No other warranty, express or implied, is made.

2.0 PROJECT AND SITE DESCRIPTION

The project site consists of the intersection of 116th Avenue NE and NE 124th Street and includes the western strip of right-of-way (ROW) along 116th Avenue NE that stretches from the intersection to approximately 270 feet north. The surrounding land use is primarily commercial, and the adjacent parcels consist of a gas station and fast food restaurants. The project site exhibits relatively flat topography with vertical relief estimated at 10 feet and sloping downward toward the north and northeast. Historic wetlands associated with the Totem Lake basin and Juanita Creek are present just north of the project area; as a result, soft, organic rich, wetland deposits are mapped in close proximity to the project area.

The project proposes a new 270-foot-long southbound (SB) right turn lane along 116th Avenue NE. Final grade of the new turn lane will generally match existing grades for 116th Avenue NE and no cuts or fills over 5 feet are anticipated. Project improvements will include new pavement, traffic signals and sign poles, sidewalk, and utilities. Several existing utilities are located within the project area and include gas, sanitary sewer, storm drains, power, and a large fiber optic duct bank. We understand, as part of design, the project team is interested in stormwater infiltration feasibility. The project intersection is located near the on- and off-ramps to Southbound Interstate 405. Due to its proximity to the Interstate 405 ramp system, we understand the Washington State Department of Transportation (WSDOT) will have influence on the project design.

3.0 SUBSURFACE EXPLORATION

Geotechnical subsurface explorations were conducted on January 22, 2020 and consisted of three exploration borings to gain information about the subsurface conditions at the project site. The various types of materials and sediments encountered in the explorations, as well as the depths where characteristics of these materials changed, are indicated on the exploration boring logs presented in Appendix A. The depths indicated on the logs where conditions changed may represent gradational variations between sediment types in the field. If changes occurred between sample intervals in our borings, they were interpreted.

The conclusions and recommendations presented in this report are based on the explorations completed for this study, the site reconnaissance, and review of available published geologic literature. The number, locations, and depth of AESI's explorations were completed within site and budgetary constraints. Because of the nature of exploratory work below ground, interpolation of subsurface conditions between the field explorations is necessary. It should be noted that differing subsurface conditions may sometimes be present due to the random nature of deposition and the alteration of topography by past grading and/or filling. The nature and extent of any variations beyond the field explorations may not become fully evident until

construction. If variations are observed at that time, it may be necessary to re-evaluate specific recommendations in this report and make appropriate changes.

3.1 Exploration Borings

The exploration borings (EB-1, EB-2, and EB-3) were completed by advancing hollow-stem auger tools with a track-mounted drill rig. The upper approximate 4 feet of the explorations were completed with a vacuum truck (Vactor) assisted excavation for the purpose of clearing utilities. During the hollow-stem auger drilling process, samples were obtained at generally 2½-foot- and 5-foot-depth intervals. The exploration borings were continuously observed and logged by a representative from our firm. The exploration logs presented in Appendix A are based on the field logs, drilling action, and observation of the samples secured.

Disturbed but representative samples were obtained by using the Standard Penetration Test (SPT) procedure in accordance with *ASTM International* (ASTM) D-1586. This test and sampling method consists of driving a standard 2-inch, outside-diameter, split-barrel sampler a distance of 18 inches into the soil with a 140-pound hammer free-falling a distance of 30 inches. The number of blows for each 6-inch interval is recorded, and the number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance ("N") or blow count. If a total of 50 is recorded within one 6-inch interval, the blow count is recorded as the number of blows for the corresponding number of inches of penetration. The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils; these values are plotted on the attached exploration boring logs.

The samples obtained from the split-barrel sampler were classified in the field and representative portions placed in watertight containers. The samples were then transported to our laboratory for further visual classification.

3.2 Geoprobe Borings

Geoprobe borings completed as part of a concurrent environmental study (AESI, forthcoming) are shown on Figure 2. Geoprobe logs are included in Appendix A.

4.0 SUBSURFACE CONDITIONS

Subsurface conditions on the project site were inferred from the geotechnical exploration borings conducted for this study, visual reconnaissance of the site, and review of Geoprobe borings completed for AESI's environmental study.

4.1 Regional Mapping

Geologic Map

We reviewed applicable, publicly available geologic literature including the *Surficial Geology of Kirkland*, GeomapNW, 2017. This publication indicates that the project area is underlain by peat deposits with recessional lake deposits mapped immediately to the north and west. Our explorations are not in agreement with the published map. None of our borings encountered peat. Two of our borings encountered recessional lacustrine (lake deposits) underlying surficial fill. Exploration EB-1 encountered pre-Fraser fine-grained deposits underlying existing fill.

Regional Soils Map

Review of the regional soils map *Soil Survey of King County Area, Washington* (U.S. Department of Agriculture [USDA], Soils Conservation Service [SCS] now referred to as Natural Resources Conservation Service [NRCS]) indicates that the project alignment is underlain by "Kitsap silt loam, 2 to 8 percent slopes (KpB)." KpB soils have a parent material consisting of lacustrine deposits which generally consists of fine-grained sediments deposited in a lake environment. KpB soils are consistent with the Vashon recessional lacustrine encountered under the existing fill in EB-2 and EB-3. The following section presents more detailed subsurface information beginning from the youngest (shallowest) to oldest (deepest) sediment types.

4.2 Stratigraphy

Surface Treatment

At each exploration location, we encountered asphalt ranging in thickness from 10 to 12 inches in thickness. The three boring locations also encountered a crushed rock subbase layer underlying the asphalt that ranged from 10 to 12 inches in thickness.

Existing Fill

Underlying the crushed rock subbase layer, existing fill was encountered in our three exploration borings ranging in thickness from 1.5 feet to 2 feet. Our borings were completed within close proximity to existing buried utilities. Therefore, at each boring location, soil was removed within the upper 4 feet with a Vactor truck. The fill generally consisted of moist to wet, brown to gray, silty sand to sandy silt, with varying amounts of gravel and organics.

Vashon Recessional Lacustrine

Sediments encountered below the fill in EB-2 and EB-3 generally consisted of moist to very moist, medium stiff, sandy silt, with occasional organics. We interpret these sediments to be

representative of lacustrine (lake) sediments deposited during or subsequent to the most recent deglaciation of the region approximately 12,500 years ago. The most recent glacial period in the area of the site is known as the Vashon Stade of the Fraser Glaciation.

Vashon Recessional Outwash

Vashon recessional outwash deposits were encountered below the asphalt in the Geoprobe borings completed for our environmental study. Recessional outwash generally consisted of faintly stratified fine to medium sand, with trace silt and gravel an extended to depths of approximately 3 to 5.5 feet below ground surface. Recessional outwash was deposited during or subsequent to the most recent deglaciation of the region approximately 12,500 years ago.

Pre-Fraser Fine-Grained Deposits

Sediments interpreted as pre-Fraser non-glacial sediments were encountered beneath the fill in EB-1 and beneath the Vashon recessional lacustrine deposits in EB-2 and EB-3. These deposits were also encountered in Geoprobes GP1 through GP4. Where encountered, these sediments extended beyond the depths explored. The pre-Fraser fine-grained deposits generally consist of dense or stiff to very stiff, moist, silty sandy to sandy silt. These deposits have been overridden by glacial ice during the last (Vashon Stade) and possibly previous southward glacial advances into the Puget Sound region.

4.3 Hydrology

Groundwater seepage was encountered in our geotechnical exploration borings at depths ranging from 2.5 to 5 feet below existing grades at the time of drilling. Groundwater was also encountered in the nearby Geoprobe explorations. The groundwater encountered beneath the site is interpreted to be part of a perched aquifer. Perched groundwater commonly occurs when surface water infiltrates down through relatively permeable soils, such as the existing fill, and becomes trapped or “perched” atop a comparatively less permeable sediment, such as the silty recessional lacustrine sediments. It should be noted that fluctuations in the level of the groundwater may occur due to the time of the year, on- and off-site land use, and variations in the amount of rainfall. The quantity and duration of flow from an excavation that encounters groundwater depends on topography, soil grain size, and season.

II. GEOLOGIC HAZARDS AND MITIGATIONS

No Geologically Hazardous Areas have been identified at the project site. Further discussion regarding landslide, seismic and erosion hazards are provided below.

5.0 LANDSLIDE HAZARDS

Reconnaissance of the project site and review the 2020 *Kirkland Landslide Susceptibility Map* indicates that no landslide hazards areas or steep slopes are present on or adjacent to the project site. No further study is warranted in our opinion.

6.0 SEISMIC HAZARDS AND MITIGATION

Earthquakes occur in the Puget Lowland with great regularity. The vast majority of these events are small and are usually not felt by people. However, large earthquakes do occur, as evidenced by the 1949, 7.2-magnitude event; the 2001, 6.8-magnitude event; and the 1965, 6.5-magnitude event. The 1949 earthquake appears to have been the largest in this region during recorded history and was centered in the Olympia area. Evaluation of earthquake return rates indicates that an earthquake of the magnitude between 5.5 and 6.0 is likely within a given 20- to 40-year period.

Generally, there are four types of potential geologic hazards associated with large seismic events: 1) surficial ground rupture, 2) seismically induced landslides, 3) liquefaction, and 4) ground motion. The potential for each of these hazards to adversely impact the proposed project is discussed below.

6.1 Surficial Ground Rupture

The nearest known fault trace to the project site is the South Whidbey Island Fault Zone (SWIFZ), located approximately 2.5 miles to the north. A recent study by the U.S. Geological Survey (USGS) (Sherrod et al., 2005, *Holocene Fault Scarps and Shallow Magnetic Anomalies Along the Southern Whidbey Island Fault Zone near Woodinville, Washington*, Open-File Report 2005-1136, March 2005) indicates that "strong" evidence of prehistoric earthquake activity has been observed along two fault strands thought to be part of the southeastward extension of the SWIFZ. The study suggests as many as nine earthquake events along the SWIFZ may have occurred within the last 16,400 years. The recognition of this fault splay is relatively new, and data pertaining to it are limited with the studies still ongoing. The recurrence interval of movement along this fault system is still unknown, although it is hypothesized to be in excess of 1,000 years. Due to the suspected long recurrence interval, it is our opinion that the potential

for damage to the proposed improvements by surficial ground rupture along the SWIFZ is considered to be low.

6.2 Liquefaction

The encountered stratigraphy has a low potential for liquefaction due to the fine-grained content of the lacustrine sediments and consolidated nature of the pre-Fraser sediments. No mitigation of liquefaction hazards is warranted.

6.3 Ground Motion

If structures are proposed that require ground motion parameters, structural design of the structures should follow 2015 *International Building Code* (IBC) standards using Site Class "D" as defined in Table 20.3-1 of *American Society of Civil Engineers* (ASCE) *7 - Minimum Design Loads for Buildings and Other Structures*.

7.0 EROSION HAZARD AND MITIGATION

The following discussion addresses Washington State Department of Ecology (Ecology) erosion control regulations that will be applicable to the project. The project area is underlain by fill and native sediments with a high silt content. Therefore, the erosion potential of the site soils is moderate, especially if large areas of the alignment will be stripped and remain open for long periods of time.

Project planning and construction should follow local standards of practice with respect to temporary erosion and sediment control (TESC). Best management practices (BMPs) should include but not be limited to:

- Provide storm drain inlet protection;
- Route surface water away from work areas;
- Keep staging areas and travel areas clean and free of track-out;
- Cover work areas and stockpiled soils when not in use; and
- Complete earthwork during dry weather and site conditions, if possible.

It is our opinion that with the proper implementation of the TESC plans and by field-adjusting appropriate mitigation elements (best management practices) during construction, as recommended by the erosion control inspector, the potential adverse impacts from erosion hazards on the project may be mitigated.

III. DESIGN RECOMMENDATIONS

8.0 INTRODUCTION

Our explorations indicate that, from a geotechnical standpoint, the subject site is suitable for the proposed improvements provided the recommendations contained herein are properly followed. The recommendations are considered preliminary as adjustments and modification from what is presented in this report will likely be required to accommodate actual site soil and groundwater conditions encountered during construction.

Utility trenching along the project area will encounter loose to medium dense existing fill overlying silty native sediments. Groundwater seepage was encountered in all the explorations completed for this study. Explorations completed in the SB right-turn lane of 116th Avenue NE encountered water at depths of 2.5 to 5 feet below the surface. Excavations for utility installation that will extend into the perched aquifer will likely require temporary dewatering. An excavation dewatering plan was beyond the scope of this current study.

The shallow fill and lacustrine deposits generally range from loose to medium dense or medium stiff and can be prone to caving, particularly where loose. Suitable temporary shoring (e.g., trench boxes) will likely be needed to mitigate caving/collapsing conditions in these sediments. For these reasons, we recommend that construction occur during the dry season, typically between June and September, and that the contractor be prepared to mitigate saturated soils that may be prone to caving and groundwater flow conditions along new utility alignments. The pre-Fraser fine-grained deposits were generally in a stiff to very stiff condition and are not prone to caving in the absence of groundwater.

Based on our findings, full stormwater infiltration was found to be infeasible along the project alignment.

9.0 SITE PREPARATION

Site preparation of planned new ROW and street improvements, including sidewalk and pavement areas, should include removal of all existing pavement, concrete, grass, trees, brush, debris, and any other deleterious materials. Any depressions below planned final grades caused by demolition activities (such as existing pole foundations and utilities) should be backfilled with structural fill, as discussed under the "Structural Fill" section of this report.

Fill within the existing areas to receive new pavement or other surface treatments may be left in place provided it is inorganic and can be compacted to a firm, non-yielding condition. It should be understood that placing new fill over the existing fill may result in unacceptable

settlement of pavement or sidewalks and may requiring periodic maintenance. The actual observed in-place depth of fill at the exploration locations was approximately 1.5 to 2.5 feet. All soils disturbed by stripping and grubbing operations should be recompacted as described below for structural fill.

Once excavation to subgrade elevation is complete, the resulting surface should be proof-rolled with a loaded dump truck or other suitable equipment or systematically probed with a ½-inch-diameter steel probe under observation by the geotechnical engineer. Any soft, loose, or yielding areas should be excavated to expose suitable bearing soils. The subgrade should then be compacted to at least 95 percent of the modified Proctor maximum dry density as determined by the ASTM D-1557 test procedure and to a firm, non-yielding condition. Structural fill can then be placed to achieve desired grades, where needed and approved.

10.0 TEMPORARY CUT SLOPES

In our opinion, stable construction slopes should be the responsibility of the contractor and should be determined during construction. For estimating purposes, however, temporary, unsupported cut slopes can be planned at 1.5H:1V (Horizontal:Vertical) in unsaturated existing fill and native shallow sediments.

These slope angles are for areas where groundwater seepage is not present at the faces of the cut slopes, which may require temporary dewatering in the form of pumped sumps or other measures. If ground or surface water is present when the temporary excavation slopes are exposed, flatter slope angles or temporary shoring may be required. As is typical with earthwork operations, some sloughing and raveling may occur, and cut slopes may have to be adjusted in the field. In addition, WISHA/OSHA regulations should be followed at all times.

11.0 NEW UTILITY CONSIDERATION

Construction of new utilities will require excavation within loose to medium dense fill and possibly saturated recessional lacustrine or pre-Fraser fine-grained sediments. The shallow existing fill and recessional soils encountered in our borings were silty and, therefore, moisture and disturbance sensitive. The silty material, especially those that are currently in a very moist to wet condition, may not suitable for structural fill applications except under carefully controlled site and moisture conditions and if specifically allowed by the project specifications.

If excavations extend below the perched water table, excavation shoring and possibly dewatering may be necessary to keep excavations open. Once utility plans are prepared, we should be allowed to review them in order to provide area-specific excavation and dewatering recommendations, as appropriate.

In the event that soft, organic or disturbed soils, or loose existing fill soils are encountered at the bottom of the trench, these soils should be overexcavated, up to 1 foot where needed, and replaced with WSDOT standard specification 9-03.12(3) "Gravel Backfill for Pipe Zone Bedding." An AESI representative should be onsite to observe subgrade conditions and document backfill operations

12.0 DRAINAGE AND DEWATERING CONSIDERATIONS

Groundwater seepage was encountered in our exploration borings at the time of drilling, January 22, 2020. The depth of groundwater observed ranged from 2.5 to 5 feet and was interpreted as local perched aquifer. It should be noted that the depth or occurrence of groundwater seepage may vary in response to such factors as changes in season, precipitation, and site use.

For utility trench excavation that will extend into the perched aquifer, we expect that the majority of groundwater seepage can be managed by the installation of well points in advance of the trenching. The quantity and duration of flow from an excavation that encounters groundwater depends on a number of factors including topography, size and depth of the excavation, proximity to surface water features, soil grain size, lateral extent of the water-bearing zone or aquifer, and season. We recommend work proceed during the drier summer months. Prior to site work and construction, the contractor should be prepared to provide excavation drainage/dewatering and subgrade protection, as necessary, for utility trenches and, if planned, underground structure excavations. Water levels inside the excavations should be drawn down a minimum of 2 to 3 feet below the base of the excavation in order to avoid heaving or flowing sands during construction. It is reasonable to anticipate temporary construction dewatering will require a combination of well points and trench sump systems to control groundwater flow. However, an excavation dewatering plan is beyond the scope of this current study and is typically contractor-designed. AESI is available to provide review or consultation services in support of the proposed dewatering plan.

13.0 STRUCTURAL FILL

After stripping, the roadway section, and any required overexcavation have been performed to the satisfaction of the geotechnical engineer/engineering geologist, the surface of the exposed ground should be recompacted to a firm and unyielding condition. If the roadway subgrade is silty and contains too much moisture adequate recompaction may be difficult or impossible to obtain and should probably not be attempted. In lieu of recompaction, the area to receive fill should be blanketed with washed rock or quarry spalls to act as a capillary break between the new fill and the wet subgrade. Where the exposed ground remains soft and

further overexcavation is impractical, placement of an engineering stabilization fabric may be necessary to prevent contamination of the free-draining layer by silt migration from below.

After recompaction of the exposed ground is tested and approved, or a free-draining rock course is laid, structural fill may be placed to attain desired grades. Structural fill placed within the ROW should conform to one of the following WSDOT standard specifications:

- 9-03.14(1) Gravel Borrow
- 9-03.14(2) Select Borrow
- 9-03.14(3) Common Borrow
- 9-03.19 Bank Run Gravel for Trench Backfill

Backfill of buried utilities in right-of-ways, the backfill should be placed and compacted in accordance with City of Kirkland and WSDOT codes and standards.

The contractor should note that any proposed fill soils must be evaluated by AESI prior to their use in fills. This would require that we have a sample of the material at least 72 hours in advance to perform a Proctor test and determine its field compaction standard. Soils in which the amount of fine-grained material (smaller than the No. 200 sieve) is greater than approximately 5 percent (measured on the minus No. 4 sieve size) should be considered moisture-sensitive. At this site, we do not recommend using excavated fine-grained sediments in structural fill applications. Excavated coarse-grained soils could be used in structural fill applications if specifically allowed by project specifications and grading plans, and if the excavated soils are dried during favorable dry site and weather conditions or alternatively are cement treated.

If fill is placed during wet weather or if proper compaction cannot be obtained, a select, import material consisting of a clean, free-draining gravel and/or sand should be used, such as WSDOT standard specification 9.03.12(2) gravel backfill for walls, or other WSDOT-approved free-draining fill consisting of non-organic soil, with the amount of fine-grained material limited to 5 percent by weight when measured on the minus No. 4 sieve fraction, and at least 25 percent retained on the No. 4 sieve, and is approved by the geotechnical engineer.

14.0 SIGNAL POLE FOUNDATION

We recommend the signal and sign poles be supported by drilled shaft foundations with a sufficient embedment depth to provide the necessary lateral resistance at each pole site. Since the signal poles will be designed per the standard plan of Washington State Department of Transportation (WSDOT), the foundation design chart for cantilever signal support presented in the WSDOT Design Manual will be applicable.

In the WSDOT Design Manual, the depth and diameter of the foundations for Type II and Type III signals are a function of the total "XYZ" value of each mast arm. The "XYZ" value is a summation of the wind load areas of each signal on the mast arm multiplied by the offset distance from the centerline of the pole.

Based upon the anticipated soils, an allowable lateral bearing pressure of 1,000 pounds per square foot was assigned. This value was taken from the table provided in the WSDOT Design Manual and is based upon the N-Value (Standard Penetration Number) of the anticipated soil.

The following table indicates the recommended depth for the signal poles with a range of XYZ loads based on the assumptions made. Refer to Table 1 for the depth and diameter of the foundations when determining the signal pole foundation requirements. It should be noted that the conditions must be verified during construction.

Table 1
Foundation Depth Table

	XYZ Load (ft^3)[3] Type II, III and SD Mast Arm Standards				
Foundation Type	**900**	**1,200**	**1,500**	**1,900**	**2,300**
3-foot Round Depth (feet)[1][2]	10	11	11	13	15
3-foot Square Depth (feet)	8	8	9	10	11
4-foot Round Depth (feet)	8	8	9	10	11

[1] Assumed lateral resistance value equal to 1,000 pounds per square foot.
[2] Depths given should be measured from existing grade.
[3] ft^3 = cubic feet.

15.0 PAVEMENT SURVEY AND DESIGN

AESI performed a reconnaissance of the project corridor to observe and document the general site conditions and surface conditions of the existing pavement within the SB right-turn-lane of 116th Avenue NE, starting at the intersection with 124th Street NE and continue northward 270 feet.

We observed no indications of widespread, deep-seated subgrade deterioration below the existing turn lane and adjacent sidewalk. Light to moderate block-cracking was observed along portions of the western edge of pavement adjacent to the concrete curb. These block cracks are arranged in a generally rectangular pattern and extend from the concrete curb and into the turn lane 1 to 2 feet. A majority of the turn lane exhibits depressed (rutted) asphalt along wheel travel paths. It was estimated the wheel travel paths were depressed up to 3 inches from the adjacent pavement surface. No significant areas of cracking or settlement were observed along the adjacent concrete sidewalk.

Based on our reconnaissance observations, the condition of most of the existing pavement surfaces suggests the subgrade has performed well since they were constructed. Many of the areas of distressed pavements may be a result of limited drainage and poor subgrade conditions. Therefore, some limited subgrade remediation in these areas should be anticipated. The depressed asphalt (rutting) observed within the roadway areas may also be related to pavement thickness and/or a weak asphalt mixture. However, subgrade degradation should not be ruled out. In general, we propose matching the current section for the new sections of roadway.

AESI performed a check on the existing pavement section according to the American Association of State Highway and Transportation Officials (AASHTO) methodology for asphalt pavement design. The existing pavement section of 12 inches of hot mix asphalt (HMA) overlying 10 inches of crushed rock subbase encountered in our exploration borings exceed the required structural section for the traffic counts that were given for the current project.

16.0 INFILTRATION ASSESSMENT

Based on our findings, it is our opinion that full infiltration of stormwater is considered infeasible along the project alignment. Shallow subsurface conditions consisted of existing fill soil overlying native sediments primarily composed of silt or very silty sand. Shallow perched groundwater was also encountered in our borings at depths ranging from 2.5 to 5 feet below the surface. Existing fill is not considered a suitable receptor horizon for stormwater infiltration due to inherent variability and high fine-grained content. The native sediments are also not considered to be a feasible infiltration receptor due to a combination of high groundwater elevation or high fine-grained content.

17.0 PROJECT DESIGN AND CONSTRUCTION MONITORING

Our report is preliminary since only a preliminary project concept was available at the time this report was prepared. We recommend that we be allowed to review project plans when they are completed and to revise the recommendations presented in this report as needed.

AESI is available to provide geotechnical engineering and monitoring services during construction. The integrity of the project elements depends on proper site preparation and construction procedures. In addition, engineering decisions may have to be made in the field in the event that variations in subsurface conditions become apparent. Construction monitoring services are not part of this current scope of work.

We have enjoyed working with you on this study and are confident these recommendations will aid in the successful completion of your project. If you should have any questions or require further assistance, please do not hesitate to call.

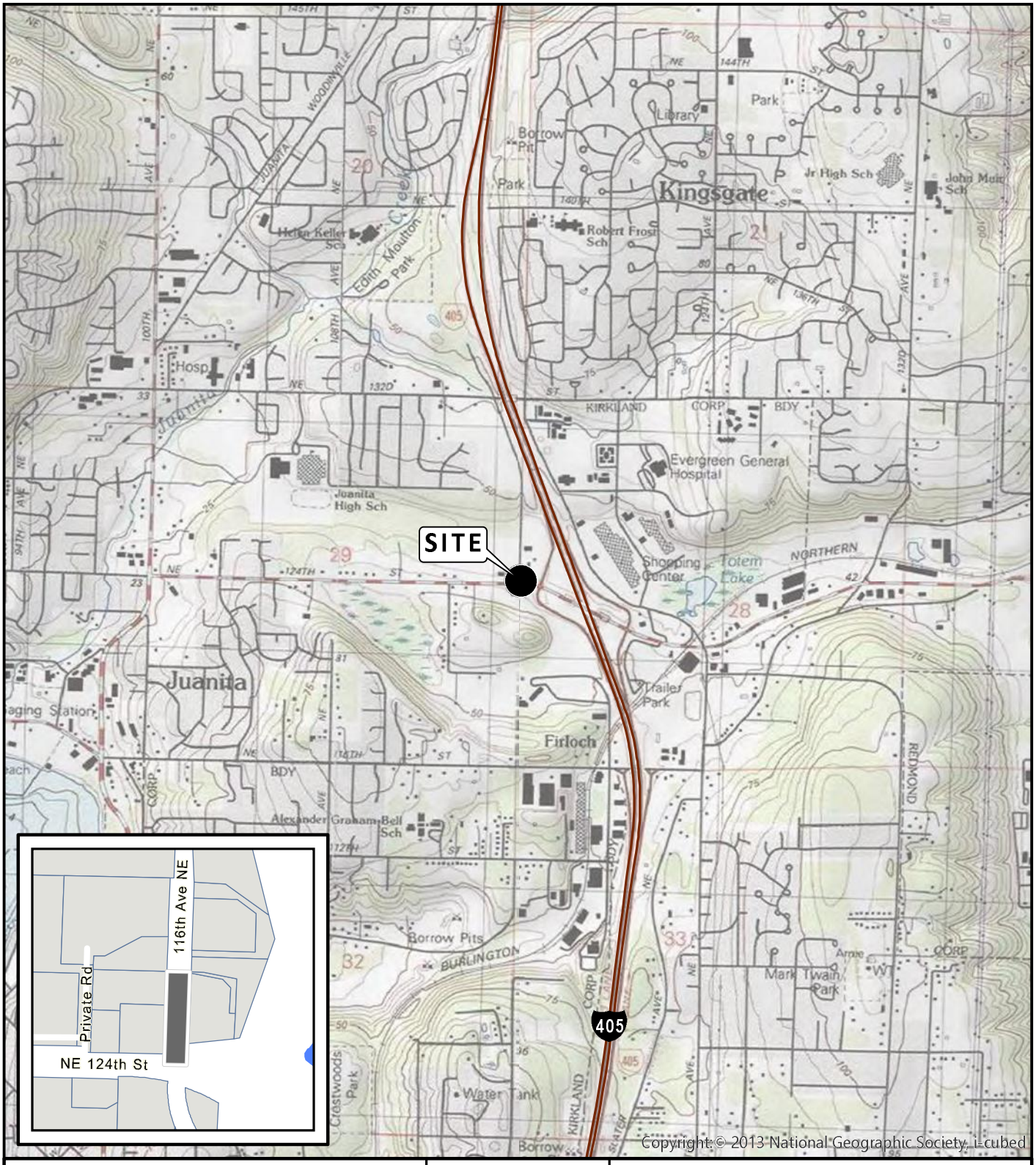
Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

ANTHONY W. ROMANICK
STATE OF WASHINGTON
51606
REGISTERED
PROFESSIONAL ENGINEER
3/23/2020

Matthew A. Miller, P.E.
Principal Engineer

Anthony W. Romanick, P.E.
Senior Project Engineer

Attachments:
Figure 1: Vicinity Map
Figure 2: Exiting Site and Exploration Plan
Appendix A: Exploration Logs



DATA SOURCES / REFERENCES:
USGS: 7.5' SERIES TOPOGRAPHIC MAPS, ESRI/I-CUBED/NGS 2013
KING CO: STREETS, CITY LIMITS 1/19, PARCELS 4/19
LOCATIONS AND DISTANCES SHOWN ARE APPROXIMATE

N

0 1000 2000

FEET

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION

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VICINITY MAP

116TH AVENUE NE & NE 124TH STREET INTERSECTION
KIRKLAND, WASHINGTON

PROJ NO.	DATE:	FIGURE:
20190348E001	1/20	1

\\kirkfile2\GIS\GIS_Projects\aaY2019\190348 116th Ave & NE 124th\aprx_mxd\20190348E001 F1 VM_116thAve.aprx

SITE
EXPLORATION BORING
GEOPROBE BORING
PARCEL
CONTOUR 10 FT
CONTOUR 2 FT

DATA SOURCES / REFERENCES:
PSLC: KING COUNTY 2016, GRID CELL SIZE IS 3'.
DELIVERY 1 FLOWN 2/24/16 - 3/28/16
CONTOURS FROM LIDAR
KING CO: STREETS, 1/19, PARCELS 4/19
AERIAL: PICTOMETRY INT. 2015

LOCATIONS AND DISTANCES SHOWN ARE APPROXIMATE

N

0 100
Feet

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION

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EXISTING SITE AND EXPLORATION PLAN

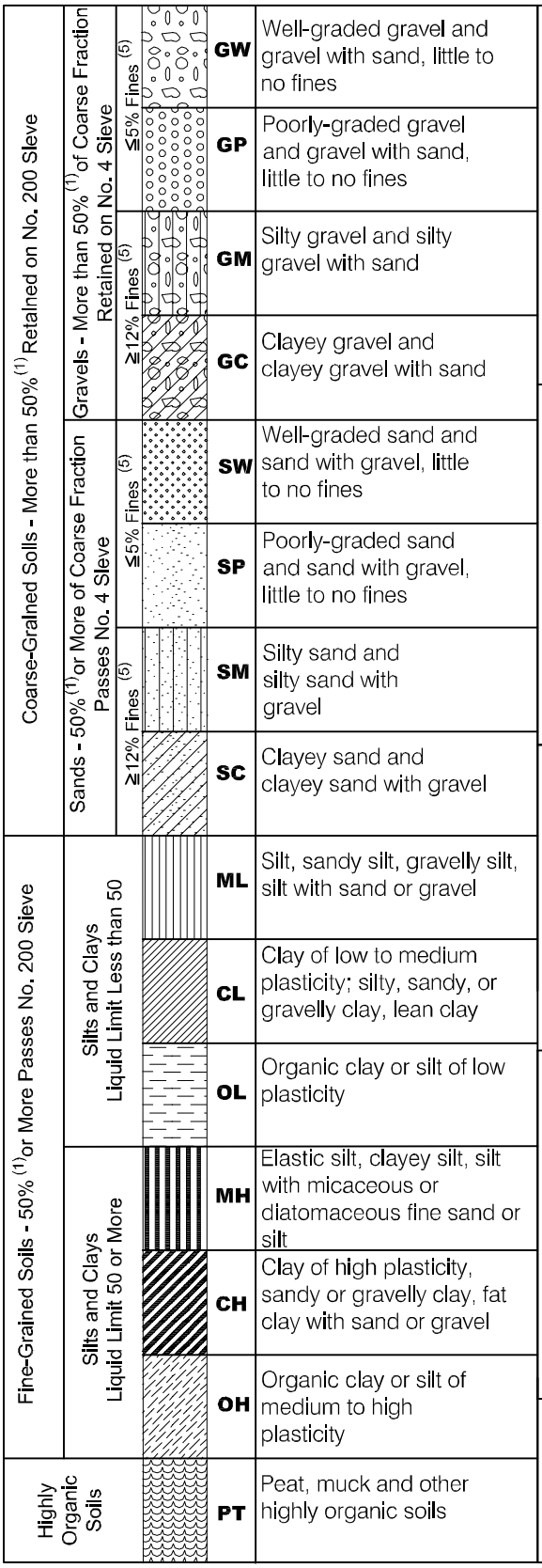
116TH AVENUE NE & NE 124TH STREET INTERSECTION
KIRKLAND, WASHINGTON

PROJ NO.	DATE:	FIGURE:
20190348E001	1/20	2

G:\GIS_Projects\aaY2019\190348 116th Ave & NE 124th\aprx_mxd\20190348E001 F2 ESM_116thAve.aprx

APPENDIX A

Exploration Logs



Terms Describing Relative Density and Consistency

Coarse-Grained Soils	Density	SPT (2) blows/foot
	Very Loose	0 to 4
	Loose	4 to 10
	Medium Dense	10 to 30
	Dense	30 to 50
	Very Dense	>50

Fine-Grained Soils	Consistency	SPT (2) blows/foot
	Very Soft	0 to 2
	Soft	2 to 4
	Medium Stiff	4 to 8
	Stiff	8 to 15
	Very Stiff	15 to 30
	Hard	>30

Test Symbols

G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Chemical
DD = Dry Density
K = Permeability

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

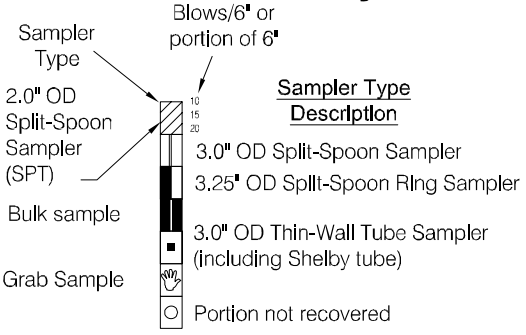
(3) Estimated Percentage

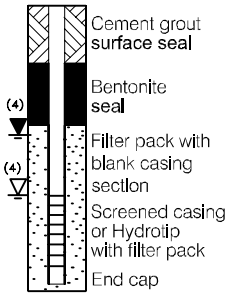
Component	Percentage by Weight
Trace	<5
Some	5 to <12
Modifier (silty, sandy, gravelly)	12 to <30
Very *modifier* (silty, sandy, gravelly)	30 to <50

Moisture Content

Dry - Absence of moisture, dusty, dry to the touch
Slightly Moist - Perceptible moisture
Moist - Damp but no visible water
Very Moist - Water visible but not free draining
Wet - Visible free water, usually from below water table

Symbols





(1) Percentage by dry weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of ground water
▼ ATD = At time of drilling
▽ Static water level (date)
(5) Combined USCS symbols used for fines between 5% and 12%

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.

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EXPLORATION LOG KEY

FIGURE A1

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Exploration Boring

Project Number	Exploration Number	Sheet
20190348E001	EB-1	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~126
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Advance Drill / Track Mounted	Date Start/Finish	1/22/2020,1/22/2020
Hammer Weight/Drop	140# / 30	Hole Diameter (in)	8

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 10 inches					
				Crushed Rock Sub-Base - 10 inches					
				Fill					
		S-1		Very moist, brown to gray, very silty, fine SAND to sandy, SILT, trace gravel; abundant organics (charcoal); plastic (ML/SM).					
				Pre-Fraser Fine-Grained Deposits					
5		S-2		Moist, grayish brown, sandy, SILT; interbed (2 inches thick) of gray, sandy, silt near top; weakly bedded with occasional iron oxide stained bands; free water in sampler tube (ML).		▼	7 11 15	▲26	
		S-3		Moist, brownish gray, fine to medium SAND, some silt to silty, trace gravel; weak stratification; frequent silt interbeds (1/4 inch thick) (SM/SP-SM).			6 13 17	▲30	
10		S-4		Moist, grayish brown with occasional bands of iron oxide staining, sandy, SILT; weakly bedded (ML).			4 6 10	▲16	
				Bottom of exploration boring at 11.5 feet Perched groundwater encountered at 5 feet.					
15									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ALG
Approved by: JHS

AESIBOR 20190348E001.GPJ March 20, 2020

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Exploration Boring

Project Number	Exploration Number	Sheet
20190348E001	EB-2	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~127
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Advance Drill / Track Mounted	Date Start/Finish	1/22/2020,1/22/2020
Hammer Weight/Drop	140# / 30	Hole Diameter (in)	8

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 12 inches					
				Crushed Rock Sub-Base - 12 inches					
				Fill					
		S-1		Moist, brownish gray with iron oxide mottling, silty, fine SAND, some gravel; rare organics (charcoal); unsorted; slightly plastic (SM).					
				End vactor boring, augering begins.		▼			
				Vashon Recessional Lacustrine Deposit					
5		S-2		Free water in boring with bottom of hole at 4 feet, faint sheen on water surface (possible roadway runoff). Upper 6 inches: moist to very moist, interbedded silty, medium to coarse SAND, some gravel and sandy, SILT; occasional organics (charcoal) (SM/ML). Lower 10 inches: moist, brownish gray with iron oxide staining, sandy, SILT; occasional organics (charcoal); occasional interbeds of gray silt; weakly bedded (ML). Free water in sampler tube.			2 2 5	▲7	
				Pre-Fraser Fine-Grained Deposits					
		S-3		Moist, brownish gray becoming gray in bottom 6 inches, sandy, SILT; rare organics (charcoal); faintly laminated in zones; massive in zones (ML).			2 6 6	▲12	
10				Moist, gray, SILT, some fine sand; laminated (ML).					
		S-4					7 9 10	▲19	
				Bottom of exploration boring at 11.5 feet Perched groundwater encountered at 4 feet.					
15									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ALG
Approved by: JHS

AESIBOR 20190348E001.GPJ March 20, 2020

associated earth sciences incorporated

Exploration Boring

Project Number	Exploration Number	Sheet
20190348E001	EB-3	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~128
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Advance Drill / Track Mounted	Date Start/Finish	1/22/2020,1/22/2020
Hammer Weight/Drop	140# / 30	Hole Diameter (in)	8

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 12 inches					
				Crushed Rock Sub-Base - 12 inches					
				Fill					
		S-1		Very moist to wet, grayish brown, silty, gravelly, fine to coarse SAND; occasional organics (charcoal/rootlets) (SM). Hard augering.		▼			
				Vashon Recessional Lacustrine Deposit					
5		S-2		Moist, brownish gray to gray with iron oxide mottling, sandy, SILT, trace gravel; occasional organics (charcoal); weakly laminated (ML).			2 2 5	▲7	
				Pre-Fraser Fine-Grained Deposits					
		S-3		Moist, grayish brown with iron oxide staining, SILT, some sand; finely laminated; rare interbeds (1/2 inch thick) of gray silt (ML).			4 5 9	▲14	
10		S-4		Moist, grayish brown to gray, SILT, some sand; rare dropstones (coarse sand); free water in sampler tube, likely seepage from above; appears massive (ML).			4 8 7	▲15	
15		S-5		Moist, gray, SILT, some sand; rare dropstones (coarse sand); free water in sampler tube; appears massive; faintly micaceous (ML).			5 7 10	▲17	
				Bottom of exploration boring at 16.5 feet Perched groundwater encountered at 2.5 feet.					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ALG
Approved by: JHS

AESIBOR 20190348E001.GPJ March 20, 2020

associated earth sciences incorporated

Exploration Boring

Project Number	Exploration Number	Sheet
20190348V001	GP1	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~127
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Cascade Drilling / 7822DT Track Rig	Date Start/Finish	1/15/20,1/15/20
Hammer Weight/Drop	N/A	Hole Diameter (in)	2

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 3 inches					
				Vashon Recessional Outwash Slightly moist, brown, fine to medium SAND, trace gravel; faintly stratified? (SP).					
		S-1		Becomes moist. **GP1 - 3 (0.2 ppm)**		▼			
				Pre-Fraser Fine-Grained Deposits Slightly moist to moist, brown to reddish brown, SILT, some coarse sand (ML). Slightly moist, greenish gray, SILT (ML).					
5				Slightly moist to dry, greenish gray to light brown (oxidation?), SILT; massive; petroleum odor (ML). **GP1 - 6 (246.7 ppm)** **GP1 - GW**		▽			
		S-2		**(151.2 ppm)** Becomes brown and stratified with no odor. Slightly moist, dark gray, SILT to clayey, SILT; massive; no odor (ML/CL).					
10				**GP1 - 10 (0.4 ppm)**					
		S-3		**GP1 - 15 (0.1 ppm)**					
15				Bottom of exploration boring at 15 feet Temporary PVC well screen placed 0 to 10 feet; blank PVC placed 10 to 15 feet. Groundwater measured at 4.79 feet below top of casing with water level indicator prior to collecting groundwater sample. Bold = Environmental sample ID (### ppm) = Photoionization detector measurement in parts per million					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- ▽ Water Level ()
- ▼ Water Level at time of drilling (ATD)

Logged by: KMA
Approved by: TSB

AESIBOR 20190348V001.GPJ March 17, 2020

associated earth sciences incorporated

Exploration Boring

Project Number	Exploration Number	Sheet
20190348V001	GP2	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~128
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Cascade Drilling / 7822DT Track Rig	Date Start/Finish	1/15/20,1/15/20
Hammer Weight/Drop	N/A	Hole Diameter (in)	2

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 4 inches					
				Vashon Recessional Outwash Slightly moist to moist, dark gray, fine to medium SAND, trace silt, trace gravel; faintly stratified (SP).					
		S-1		Sight odor?					
				GP2 - 5 (11.3 ppm)					
5				**Pre-Fraser Fine-Grained Deposits** Slightly moist, greenish gray, SILT; massive; slight odor (ML).					
		S-2		**GP2 - 7 (20.4 ppm)**					
				(4.6 ppm) As above; light brown. **(0.9 ppm)**					
10				**GP2 - 10 (20.4 ppm)**		▽			
				GP2 - GW					
		S-3		Slightly moist, dark gray, SILT to clayey, SILT; massive (ML-CL/ML).					
				GP2 - 15 (0.0 ppm)					
15				Bottom of exploration boring at 15 feet Temporary PVC well screen placed 0 to 10 feet; blank PVC placed 10 to 15 feet. Groundwater measured at 10.24 feet below top of casing with water level indicator prior to collecting groundwater sample. Bold = Environmental sample ID (### ppm) = Photoionization detector measurement in parts per million					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- ▽ Water Level ()
- ▼ Water Level at time of drilling (ATD)

Logged by: KMA
Approved by: TSB

AESIBOR 20190348V001.GPJ March 17, 2020

associated earth sciences incorporated

Exploration Boring

Project Number	Exploration Number	Sheet
20190348V001	GP3	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~130
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Cascade Drilling / 7822DT Track Rig	Date Start/Finish	1/15/20,1/15/20
Hammer Weight/Drop	N/A	Hole Diameter (in)	2

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 4 inches					
				Vashon Recessional Outwash Slightly moist to moist, dark gray, fine to medium SAND, trace to no silt; occasional gravel; faintly stratified (SP).					
		S-1		**GP3 - 5 (0.4 ppm)**					
5				**Pre-Fraser Fine-Grained Deposits** Slightly moist, greenish gray to gray, SILT, trace organic debris; massive (ML). **GP3 - 6 (0.5 ppm)**					
		S-2		Slightly moist, light brown, SILT to clayey, SILT; massive (ML/CL). **GP3 - 8 (0.1 ppm)**					
10				As above; dark gray.					
		S-3		**GP3 - GW**		▽			
				(0.1 ppm)					
15				Bottom of exploration boring at 15 feet Temporary PVC well screen placed 0 to 10 feet; blank PVC placed 10 to 15 feet. Groundwater measured at 13.78 feet below top of casing with water level indicator prior to collecting groundwater sample. Bold = Environmental sample ID (### ppm) = Photoionization detector measurement in parts per million					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- ▽ Water Level ()
- ▼ Water Level at time of drilling (ATD)

Logged by: KMA
Approved by: TSB

AESIBOR 20190348V001.GPJ March 17, 2020

associated earth sciences incorporated

Exploration Boring

Project Number	Exploration Number	Sheet
20190348V001	GP4	1 of 1

Project Name	116th Avenue NE & NE 124th Street Intersection	Ground Surface Elevation (ft)	~131
Location	Kirkland, WA	Datum	NAVD 88
Driller/Equipment	Cascade Drilling / 7822DT Track Rig	Date Start/Finish	1/15/20,1/15/20
Hammer Weight/Drop	N/A	Hole Diameter (in)	2

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Vashon Recessional Outwash					
				Wet, brown to gray brown, fine to medium SAND, trace silt (SP).		▼			
		S-1		**GP4 - GW**		▽			
				GP4 - 5 (0.4 ppm)					
5				**Vashon Recessional Lake Bed Deposits**					
				Slightly moist, light brown with pockets of gray, SILT; massive (ML).					
		S-2		Becomes light brown.					
				GP4 - 10 (0.1 ppm)					
10									
		S-3		Slightly moist, dark gray, SILT to clayey, SILT; massive (ML/CL).					
				GP4 - 15 (0.2 ppm)					
15				Bottom of exploration boring at 15 feet Temporary PVC well screen placed 0 to 10 feet; blank PVC placed 10 to 15 feet. Groundwater measured at 2 feet below top of casing with water level indicator prior to collecting groundwater sample. Bold = Environmental sample ID (### ppm) = Photoionization detector measurement in parts per million					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- ▽ Water Level ()
- ▼ Water Level at time of drilling (ATD)

Logged by: KMA
Approved by: TSB

AESIBOR 20190348V001.GPJ March 17, 2020

APPENDIX E

CULTURAL RESOURCES RECORDS SEARCH AND UNANTICIPATED DISCOVERY PLAN

City of Kirkland

Cultural Resources Records Search, Literature Review, and Unanticipated Discovery Plan for the 116th Avenue NE/NE 124th Street Intersection Improvements Project, City of Kirkland, King County, Washington

Brandon M. McIntosh

Prepared for
Cindy Clark, PE
Parametrix
1019 39th Ave SE, Suite 100
Puyallup, WA 98374

Technical Report 20-17
Statistical Research, Inc.
Lacey, Washington

Cultural Resources Records Search, Literature Review, and Unanticipated Discovery Plan for the 116th Avenue NE/NE 124th Street Intersection Improvements Project, City of Kirkland, King County, Washington

Brandon M. McIntosh

Prepared for
Cindy Clark, PE
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Puyallup, WA 98374

Technical Report 20-17
Statistical Research, Inc.
Lacey, Washington

June 2020

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EXECUTIVE SUMMARY

Parametrix of Puyallup, Washington, retained Statistical Research, Inc. (SRI), to conduct a cultural resource records search and literature review and to develop an Unanticipated Discovery Plan for the proposed 116th Avenue NE/NE 124th Street Intersection Improvements Project, City of Kirkland, King County, Washington. The proposed project involves widening of 116th Avenue NE approaching NE 124th Street from the north to install a new right-hand-turning lane and modification of the current traffic lights at the same intersection. The cultural resource records search, the literature review, and the Unanticipated Discovery Plan were completed per Executive Order 05-05 and to comply with the provisions of the Washington State Environmental Policy Act.

The project area consists of multilane paved roads, adjacent parking lots, and commercial buildings in an urban strip-mall setting. The results of the records search completed in March 2020 revealed two historical-period buildings and one archaeological site located within 1 mile of the project area. Both of the historical-period buildings have been previously recommended not eligible, and there is no effect on these buildings resultant from the project.

Nearby cultural resource investigations suggest that glacial-till deposits are present at shallow depths in the project area, and the current modern streets and built environment further indicate significant previous disturbance. For these reasons, it is unlikely that buried, intact cultural resources are present within the project area. SRI recommends that the project be allowed to proceed but that it should follow the attached Unanticipated Discovery Plan if cultural resources are identified during project construction work.

Introduction

Statistical Research, Inc. (SRI), completed a cultural resource records search, a literature review, and an Unanticipated Discovery Plan (Attachment A) on behalf of Parametrix, Inc. (Parametrix), in support of the 116th Avenue NE/NE 124th Street Intersection Improvement Project in the City of Kirkland, King County, Washington. The project falls within Section 29, Township 26 North, Range 5 East, of the Willamette Meridian (Figure 1). The City of Kirkland proposes widening 116th Avenue NE approaching NE 124th Street from the north to install a new right-hand-turning lane and modification of the current traffic lights at the same intersection (Figure 2). This report supports the project's completion in accordance with Excusive Order 05-05 and the requirements of the Washington State Environmental Policy Act.

The project area of potential impact (AOI) is within an area with moderate to high potential for archaeological resources, according to the Washington Department of Archaeology and Historic Preservation (DAHP) archaeological predictive model. Much of the project area is covered by concrete, cement, pavement, or commercial buildings that suggest heavily disturbed subsurface ground conditions. SRI completed a detailed records search, a literature review, and is providing an Unanticipated Discovery Plan that outlines steps to take if subsurface cultural resources are identified during project construction. The report provides background on the physical environment, paleoenvironment, and cultural contexts of the project area. Results of the records search are discussed and followed by management recommendations.

Physical Environment

The project area at the intersection of 116th Avenue NE and NE 124th Street in Kirkland, Washington is located in the Lake Washington Basin, approximately 2.2 km (1.4 miles) east of Lake Washington, 3.2 km (2 miles) west of the Sammamish River, and 9.0 km (5.6 miles) northwest of Lake Sammamish in the City of Kirkland (see Figure 2). As part of the Puget Lowlands, the region has a temperate maritime climate, with warm summers and moderately rainy winters. The yearly average temperature in the Kirkland area is 11°C (52°F), with average monthly high temperatures ranging from 7°C to 23°C (45°F to 73°F) and low temperatures from 2°C to 13°C (36°F to 55°F). The area averages 86 cm (34 inches) of rain per year, with more than 150 days per year having measurable precipitation. The coastal climate and high moisture in the region provide a rich variety of habitats for both plant and animal species (Franklin and Dyrness 1973; Kruckeberg 1991).

The geomorphology of the Puget Lowlands was formed primarily by the last glaciation. The last glacial maximum, between 17,000 and 18,000 years before present (B.P.), reached 32 km (20 miles) south of Olympia near the modern town of Centralia, Washington. Between 17,000 and 14,000 B.P., the advance and retreat of glaciers scoured landforms and meltwaters carved channels, creating the extant landforms that characterize the Puget Sound region. The multiple ice sheets created north–south-trending ridges and extensive drift uplands with numerous surface depressions. Outwash sediments deposited by the Vashon ice sheet were later overlain by a layer of till and recessional sands and gravels associated with deglaciation. Currently, a relatively thin layer of postglacial sediments overlies glacial till deposits throughout the South Puget Sound, although the depth can vary greatly in areas impacted by volcanic mudflows and other large soil deposition events (Kruckeberg 1991; Pierce County 2007).

In addition to glacial processes, Puget Lowland evolution has been influenced by changes in relative sea level and localized emergence and submergence tied to isostatic rebound and tectonics (Sherrod 2001; Shipman 2008). Sherrod's (2001) research in south Puget Sound showed that earthquake-induced submergence buried coastal land throughout prehistory, indicating that many archaeological sites may lie beneath the water of the modern tidelines. The West Point archaeological site (45KI428/429), located west of the project area and just north of the Seattle Fault, contains shell-midden deposits below the current sea level

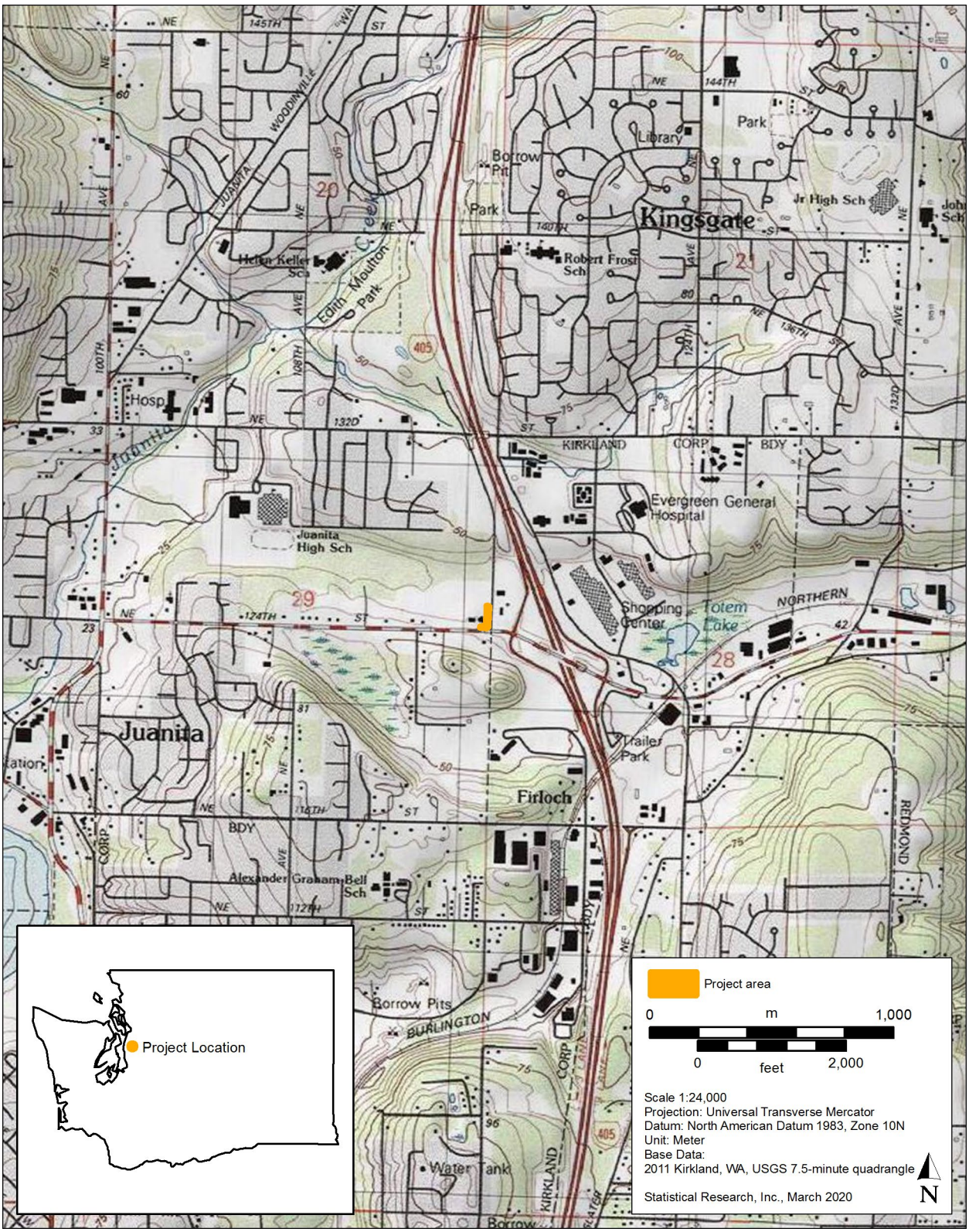

Figure 1. Location of the project as shown on the 2011 Kirkland, Washington, 7.5-minute U.S. Geological Survey quadrangle.

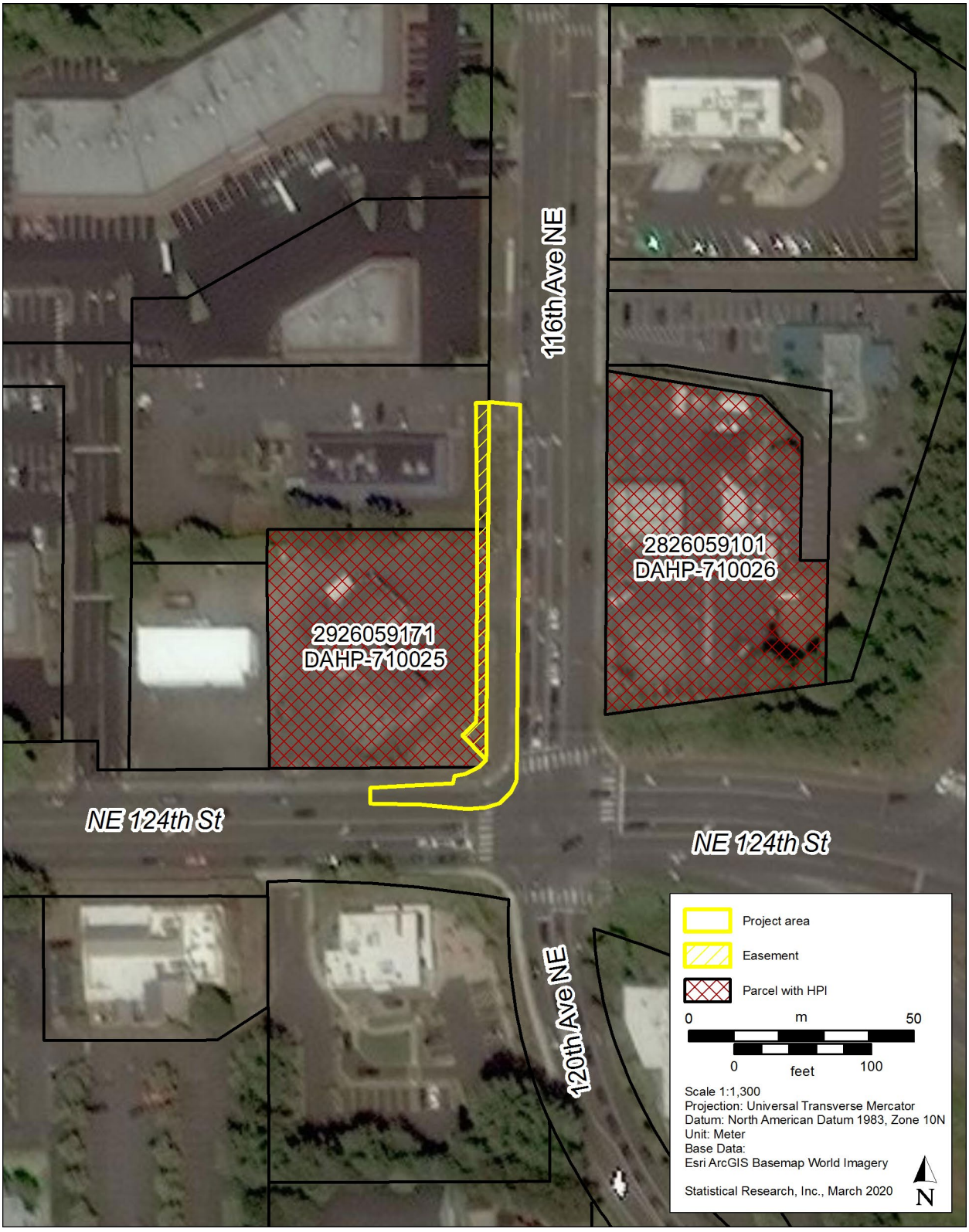

Figure 2. Area of Potential Impact as shown on an aerial photograph.

that were submerged during the last major shift in the Seattle Fault approximately 1,100 years ago (Larson and Lewarch 1995). The current project area is also located to the north of the Seattle Fault and is, therefore, in a subsidence zone (Sherrod 2001).

According to the U.S. Department of Agriculture (USDA) Web Soil Survey, sediments within the project area are made up of Kitsap silt loam. Parent materials of Kitsap silt loam are lacustrine deposits with some volcanic ash. These moderately well-drained sediments are common along terraces in the region with a water table ranging between 33 and 45 cm (13 and 18 inches) below surface (data from USDA Web Soil Survey, available online at https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, accessed March 26, 2020).

The project area is within the western hemlock (*Tsuga heterophylla*) vegetation zone that is typical of the Puget Lowland (Franklin and Dyrness 1973). This zone is characterized by dense coniferous forests with high primary biomass accumulations and long-lived tree species such as western hemlock, western red cedar (*Thuja plicata*), and Douglas fir (*Pseudotsuga menziesii*), along with an understory of salal (*Gaultheria shallon*), Oregon grape (*Mahonia* spp.), sword and bracken fern (*Pteridium* spp.), salmonberry (*Rubus spectabilis*), trailing blackberry (*Rubus ursinus*), huckleberry (*Vaccinium* spp.), and other species (Kruckeberg 1991). In the Puget Sound area, Douglas fir and grand fir (*Abies grandis*) often dominate, and in dry areas, Oregon white oak (*Quercus garryana*) groves are common (Brennan 2007). The current area is located in a highly modified city environment and retains very little natural vegetation.

Shellfish are plentiful in the south Puget Sound area, and numerous species were important to prehistoric and early-historical-period inhabitants. Butter clams (*Saxidomus gigantea*), native littleneck clams (*Protothaca staminea*), horse clams (*Tresus capax* and *T. nuttallii*), cockles (*Clinocardium nuttallii*), macomas (*Macoma* spp.), nonnative softshell clams (*Mya arenaria*), and a variety of gastropods all prefer the sandy beach substrates common in the area, whereas mussels (*Mytilus* spp.) and barnacles (Maxillopoda) are found attached to beach cobbles and on rocky outcrops in smaller numbers in the region. Reports of geoducks (*Panopea generosa*) from precontact archaeological sites are extremely rare (Campbell 1981), but they became an important resource during the historical period, along with invasive manila clams (*Venerupis philippinarum*) and the large Pacific (*Crassostrea gigas*) and Kumamoto oysters (*C. japonica*) that were imported from Japan and are now common throughout Puget Sound (Washington State Department of Fish and Wildlife Recreational Shellfishing 2015). Olympia oyster (*Ostrea lurida*) was important to Native American groups (Steele 1957), but because of a number of factors including pollution, competition with introduced shellfish, and historical-period overharvesting, very little of their historical core population remains (White et al. 2009). Western pearlshell mussel (*Margaritifera falcata*) has been found in small quantities at archaeological sites in the area dating to the late precontact to early historical period (Schultze et al. 2013).

Every species of native West Coast salmon has been reported in the area, as well as nonnative Atlantic salmon in recent years (King County Department of Natural Resources 2000). The most-common salmon species reported from 1968 to 1997 was chinook salmon (*Oncorhynchus tshawytscha*), although these fish were actively supplemented by the Soos Creek hatchery during this period. Saltwater fish species most commonly found in the Puget Sound are largely bottomfish; the three most common forage fish are Pacific herring (*Clupea pallasii*), surf smelt (*Hypomesus pretiosus*), and Pacific sand lance (*Ammodytes hexapterus*) (Pierce County 2009).

A number of marine mammals are found in the nearshore and marine waters of Puget Sound, including harbor seals (*Phoca vitulina*), which pup on local beaches; California sea lions (*Zalophus californianus*); Steller's sea lions (*Eumetopias jubatus*); and growing numbers of northern elephant seals (*Mirounga angustirostris*). On the basis of archaeological data, sea otters (*Enhydra lutris*) are believed to have been present in Puget Sound in low numbers during precontact times (Lance et al. 2004). Members of the Southern Resident Killer Whale (*Orcinus orca*) Distinct Population Segment occasionally visit the southern Puget Sound. Other cetaceans found in the waters of Puget Sound include minke (*Balaenoptera acutorostrata*), gray (*Eschrichtius robustus*), and humpback whales (*Megaptera novaeangliae*), which were common in the sound in the early 1900s but were extirpated through hunting pressure (Pike and MacAskie 1969; Webb 1988), as well as smaller cetaceans such as Pacific white-sided dolphins (*Lagenorhynchus obliquidens*), Dall's porpoises (*Phocoenoides dalli*), and harbor porpoises (*Phocoena phocoena*).

The primary large-game species in King County is the Columbian black-tailed deer (*Odocoileus hemionus columbianus*), although archaeological evidence shows that the Roosevelt elk (*Cervus elaphus roosevelti*) was a prominent species in the region during the last half of the Holocene (Harpole and Lyman 1999). Smaller game species such as snowshoe hare (*Lepus americanus*), mountain beaver (*Aplodontia rufa*), muskrat (*Ondatra zibethicus)*, and beaver (*Castor canadensis*) are also available. Although less commonly sought as game, predators and scavengers such as wolf (*Canis lupus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), bobcat and lynx (*Lynx* spp.), mountain lions (*Puma concolor*), and bears (*Ursus* spp.) all occupied this area at one time, and some populations have seen a resurgence in recent years. Various smaller mammals also occupy this group, including raccoon (*Procyon lotor*), western spotted (*Spilogale gracilis*) and striped skunks (*Mephitis mephitis*), and various mustelids such as badger (*Taxidea taxus*), wolverine (*Gulo gulo*), and river otter (*Lontra canadensis*) (Wilson and Ruff 1999).

At least 266 bird species have been identified in the Puget Trough Ecoregion (Seattle Audubon Society 2014). Fifty of these species are currently listed as protected species in the King County Comprehensive Plan; these include ducks (Anatidae) and other waterbirds that served as important food resources to Native American groups.

Paleoenvironment

Significant shifts in regional vegetation in the Puget Sound from the time of deglaciation (starting 14,000 B.P.) to the present are evidenced in pollen-coring data from lakes and wetlands (Heusser 1973; Whitlock 1992). Immediately after deglaciation until 9500 B.P., subalpine conditions dominated the region, as is evident from the presence of pioneer species, including lodgepole pine (*Pinus contorta*), Sitka spruce (*Picea sitchensis*), western hemlock, bracken fern, and red alder (*Alnus rubra*), followed soon after by Douglas fir (Heusser 1973; Whitlock 1992). Although conditions were warmer and wetter than at 18,000 B.P., the climate at this time was still significantly cooler than it is today (Whitlock 1992).

Faunal communities during the early Holocene were in transition from megafauna-dominated communities containing mammoths (*Mammuthus* spp.), mastodons (*Mammut* sp.), giant ground sloths (Xenarthra), various artiodactyls (Artiodactyla), large carnivores such as dire wolves (*Canis dirus*) and various large cats (Felidae) to a less-well-understood variety of birds, reptiles, and smaller mammals (Grayson 2011). Important modern North American taxa such as elk (*Cervus* spp.), moose (*Alces alces*), and grizzly bear (*Ursus arctos*) did not reach the southern extent of the North American ice sheets until the end of the ice age, beginning approximately 14,000 years ago, and probably did not become abundant until much later (Hundertmark et al. 2003; Martinka 1974).

The beginning of the middle Holocene (ca. 8000 B.P.) saw the earliest movement of western red cedar into the southern Puget Sound region from more-southern glacial refugia, although large, regular stands of mature cedar trees probably were not present until the late Holocene (Hebda and Matthews 1984). Along with the spread of cedar in the middle Holocene, there also was a continued increase in western hemlock and Sitka spruce, as well as, in some dry settings, western white pine (*Pinus monticola*) and oak savannah (for a summary of the literature, see Moss et al. 2007).

Modern forest communities of the Puget Lowlands were established by the late Holocene in conjunction with modern faunal communities (Beechie et al. 2001). Salmon and other fish populations in Puget Sound existed before the Last Glacial Maximum but survived only in glacial refugia. Salmon gradually repopulated the sound and established the modern population structure sometime after 5,000 years ago (Waples et al. 2008). It is assumed that other Puget Sound animal populations also survived in refugia and later repopulated the sound region as glaciers retreated.

Cultural Background

Precontact

Recent genetic studies coupled with archaeological data have suggested the Americas were populated by people from Asia through at least three waves of colonization, beginning with a coastal migration along the recently deglaciated west coast of North America by at least 17,000 B.P., followed by a second migration across Beringia through the mid-continental ice-free corridor around 13,500 B.P., and finally by a migration of Neo-eskimo ancestors into the high arctic by 1000 B.P. (Achilli et al. 2013; Raff and Bolnick 2014). Genetic evidence supports these models, showing a direct link between Paleoindians and contemporary Native American groups (Goebel et al. 2008; Rasmussen et al. 2014).

Traditionally, the earliest occupants of North America have been distinguished by the presence of large, fluted Clovis projectile points (Waters and Stafford 2007). A model of human migration into the New World referred to as "Clovis-first" developed in the mid-twentieth century (Haynes 1964). The first Clovis point was found in 1927 in eastern New Mexico. Since then, Clovis points have been found across North and Central America. These tools are typically found in contexts dating between 13,800 and 11,400 B.P., but they are often found in contexts lacking datable material. The only firmly dated Clovis site in the Pacific Northwest, the East Wenatchee Clovis Cache (45DO482) located in the Middle Columbia region, dates to 11,250 B.P., based on Glacier Peak ash adhering to points found at the site (Mehringer and Foit 1988). At least seven isolated Clovis points have been found in the Puget Sound region (Croes et al. 2008), although none of these was recovered from datable contexts.

Non-Clovis sites in the region dating between 11,400 and 8000 B.P. have traditionally been assigned to the Western Stemmed (or Windust) tradition, which is characterized by a variety of large points with stemmed bases and other artifacts, including large bifacial knives, scrapers, blades, and several different types of pebble and bone tools (Borden 1969; Craven 2004; Galm and Gough 2000; Hicks 2004). However, older sites with stemmed points and microblades (common at Pleistocene sites in northeast Asia and Beringia) dating to 12,900 B.P. have been found at Paisley Caves in central Oregon (Jenkins et al. 2012). Until recently, the earliest radiocarbon date from an archaeological site in the greater Pacific Northwest region (and one of the earliest in the western hemisphere) came from a human coprolite dating to 14,400 B.P. that was found in one of these caves (Gilbert et al. 2008), suggesting a human presence in North America before the advent of Clovis technology. This site, among others, has provided evidence that not only were stemmed projectile points contemporary with the Clovis in western North America, but in some cases, they may have predated fluted point technology by millennia (Beck and Jones 2010, 2012), implying stemmed rather than fluted projectile points were utilized by the earliest migrants into North America (Erlandson and Braje 2011).

Evidence for an even earlier human presence in the general Northwest region comes from the Cooper's Ferry site in Northern Idaho. Robert Butler of the Idaho State College Museum recorded the site in the early 1960s during a survey of the Lower Salmon River. Several sites were documented, including stemmed projectile points and microblades found near the confluence of the Salmon River and Rock Creek. Excavation at Cooper's Ferry later revealed additional stone tools associated with animal bone and shell. Wood charcoal and animal bone from pit features discovered during excavation were subjected to accelerated mass spectrometry (AMS) analysis, which produced radiocarbon dates overlapping the transition from the late Pleistocene to early Holocene (13,260 to 9430 B.P.) (Davis and Schweger 2004). Additional AMS samples analyzed 15 years later revealed an earlier occupation between 16,560 and 15,280 B.P. (Davis et al. 2004). These results make the Cooper's Ferry site one of the oldest well-dated archaeological sites in North America and confirm the antiquity of stemmed tool technology and an early coastal migration into the New World. A costal migration seems likely, as the site predates the ice-free corridor, which only later provided a terrestrial migration route after 14,500 B.P.

Radiocarbon dates from a bone tool recovered from the Manis Mastodon site near Sequim, Washington, suggests humans hunted Pleistocene megafauna on the Olympic Peninsula 13,800 years ago (Waters et al. 2011). The site contained extinct mammals, including a mastodon that had a bone point embedded in its

rib. In addition, a 14,000-year-old extinct bison (*Bison antiquus*) found on Orcas Island in the San Juan Islands has been proposed as a butchery site, although excavation by nonprofessionals has made assessment of the site difficult (Kenady et al. 2011). In both cases, a lack of diagnostic stone artifacts associated with the megafauna makes it impossible to determine what stone-tool tradition the people responsible for the assemblage may have used.

The oldest dated site in King County is the Bear Creek site (45KI839) in Redmond, Washington, which contains a small number of concave-base and Western Stemmed tradition points in levels dating to 12,500–10,000 cal B.P. (Kopperl 2016). A large number of expedient stone tools also were found at the site, probably having been quarried locally (Taylor and Beck 2016). Although almost no faunal remains were found at the site, a single calcined salmon vertebra recovered suggests that these early inhabitants could have been fishing for this important resource as early as 10,000 years ago (Kopperl 2016).

The first substantial occupation of the Central and South Coast regions of the Pacific Northwest is the Old Cordilleran culture dated to ca. 9000–4500 B.P. Cordilleran material culture is dominated by leaf-shaped, bifacially flaked blades and cobble flake tools (Butler 1961). Variability in assemblages from both coastal and inland sites is common. Subsistence items recovered from excavations indicate exploitation of a wide range of coastal and terrestrial resources, including land and sea mammals, as well as shellfish. Salmon also was exploited widely, as evidenced by the Glenrose site along the Fraser River in British Columbia and at the Dalles site along the Columbia River in Oregon.

In the State of Washington, Old Cordilleran cultural material is assigned to the "Olcott complex" (Grabert 1977; Matson and Coupland 2009). The Olcott complex of the Puget Sound lowlands and Cascade Range in western Washington is defined by the distribution of laurel-leaf-shaped bifaces in upland or upper-river-terrace site locations. The complex is further characterized by highly weathered artifacts dominated by heavy cobble spalls, scrapers, and choppers (Chatters et al. 2011). Lithic scatters, other flake tools, and blade cores are also commonly found in these assemblages (Carlson 1990; Matson 1985; Morgan 1999).

Between ca. 5000 and 4500 B.P., there was an emergence of distinctive coastal adaptations with settlement and subsistence patterns that differ significantly from those of the Columbia Plateau. This corresponds temporally with the establishment of western red cedar forests along the Northwest Coast (Hebda and Matthews 1984), which may have influenced the expression of classic Northwest Coast material culture. Cultural evolution at this time is expressed by the advent of woodworking adzes ca. 5000 B.P. and the first cedar canoe paddles and plank houses ca. 3000–2000 B.P. (Donald 2003). These changes mark a broad cultural shift in the region, although a limited archaeological record (perhaps due to preservation issues) makes interpreting the environmental and cultural motivations behind these changes challenging (Moss et al. 2007).

Between 4500 and 1500 B.P., distinct coastal cultures developed that in many ways appear similar to the contact-period ethnographic record. This transitional period is characterized by distinct, coastally oriented settlement and subsistence patterns strongly focused on intensive shellfish gathering and specialization in salmon procurement, processing, and storage (Matson and Coupland 2009). The vast majority of dated shell midden sites in the Puget Sound region date to this period or later (Taylor et al. 2011). This may not necessarily be due to increasing Native American populations, however, and may be a result of rising sea levels during the late Holocene perpetuating erosion and submerging older coastal sites (Moss et al. 2007).

Ethnohistory

The project area is located within the traditional territory of the Duwamish Tribe (Hilbert et al. 2001). The Duwamish are members of the Southern Coast Salish and, at contact, spoke a dialect of Southern Lushootseed (Suttles and Lane 1990), also referred to as Whulshootseed by some modern tribes in the region (Miller and Blukis Onat 2004). Although the Duwamish were signatories of the Point Elliott Treaty in 1855, the tribe has been denied federal recognition in the United States. Members of the Duwamish Tribe were actively moved into neighboring reservations (Port Madison [of the Suquamish] and Muckleshoot reservations) to allow for Euroamerican settlement of the Washington Lake Basin. However, not all members of the Duwamish Tribe moved to reservations, as several families continued to live along rivers in the basin (Miller and Blukis Onat 2004). Federal recognition of the tribe was temporarily granted by the Clinton

administration in December 2000, but it was revoked by the Bush administration in January 2001 (Kamb 2004). Because of the lack of federal recognition of the Duwamish Tribe, the traditional Duwamish territories are used by the federally recognized Suquamish Tribe and Muckleshoot Indian Tribe, whose members include those with Duwamish ancestry.

Like other tribes in the Northwest region, the people in the Puget Lowlands practiced a seasonal subsistence mobility, hunting for and gathering resources as they became available throughout the year. It has been suggested that native peoples of Puget Sound may have depended more heavily on inland game and vegetable food, in particular the annual camas (*Camassia*) harvest (Carpenter 1993), than other Coast Salish groups, but salmon was still of primary importance during ethnographic times (Suttles and Lane 1990).

People in the area lived in permanent winter villages that were usually located on the banks of large waterways or above the confluence of streams to allow access to fishing and clamming (Hollenbeck 1987; Smith 1940). Shed-roof-style was likely most common among longhouses in the Puget Sound region, although gable-roofed homes also were built in the southern portion of the Puget Sound (Suttles and Lane 1990). Tipis and gable-roofed structures made of woven mats and wooden poles were common at smaller temporary settlements and camps. These settlements were established near catchment areas rich in subsistence resources such as waterfowl, deer, elk, river fishes, and root crops (Suttles and Lane 1990).

Historical Period

In the early eighteenth century, Russians explored the northern Northwest Coast of North America, though the extent of their travels is unknown. Later, Juan Pérez, leader of a group of Spanish explorers, traveled along the coast of the Pacific Northwest in 1774, and although this expedition did not enter Puget Sound, they may have been responsible for the initial introduction of European diseases to the region. These diseases had a significant impact on the Northwest Coast region. Major depopulation occurred through pandemic-level disease spread after initial contact and before European populations became established in the region (Jones 2014). Smallpox in particular led to the apparent abandonment of large areas of traditional land by Native American groups (Boyd 1990, 1994).

The first well-documented Euroamerican explorations of western Washington began with the arrival of Robert Gray, an American, in 1788 and 1789, and of Captain George Vancouver and the British Royal Army in 1792. Later, Fort Nisqually was established by the British-owned Hudson's Bay Company in the south Puget Sound in 1833 (Dunkelberger and Neary 2005:2). The Wilkes party and the United States Exploring Expedition of 1841 named many places in the region, including nearby Commencement Bay and Point Defiance (Phillips 1971). The Wilkes expedition emphasized an American interest in lands north of the Columbia River, resulting in a dispute between the United States and the British empire.

By 1846, Great Britain and the United States had signed the Oregon Treaty, through which Great Britain ceded the Oregon Territory to the United States, including land now known as Washington State. The growing Euroamerican presence resulted in increased hostilities between new settlements and Native populations who had been marginalized by both the European and American interests in the region. Fort Steilacoom became the first official, permanent United States presence north of the Columbia River when it was established in 1849 (Dunkelberger and Neary 2005:2). The establishment of the Washington Territory in 1853 resulted in increased settlement to the area and the arrival of Isaac Stevens, appointed governor of the Washington Territory and superintendent of the newly established Bureau of Indian Affairs. Stevens was tasked with negotiating treaties with the local native populations in an effort to acquire additional lands for American settlement. Disparate interests between American and Native populations led to the Indian War of 1855–1856.

Native American groups living in the Washington Lake Basin were relocated to the Port Madison Indian Reservation; however, members of the Upper Duwamish and Upper Puyallup refused to be relocated and participated in the conflict. Following the relocation of Native populations to reservations, settlement of the Washington Lake Basin by Euroamericans increased, including within the project area. A patent was awarded to Hiram Langdon on March 14, 1887, as a cash sale entry in the S $^1/_2$ of the N $^1/_2$ of Section 29, Township 26 North, Range 5 East, where the project area is located. Rowland Langdon later received a

homestead patent on July 19, 1889, for the SE 1/4 of Section 29, Township 26 North, Range 5 East, immediately south of the project area (BLM 1889). The 1895 U.S. Geological Survey (USGS) Snohomish quadrangle shows some improved roads and domestic structures located in Section 29, but these features are not labeled (USGS 1895).

The 1936 Metsker Atlas of King County, Washington, reveals a far more developed Section 29, with property owned by a F. A. Evans on the northwest corner of the intersection of 116th Avenue NE and NE 124th Street adjacent to where the proposed right-hand-turn land is to be installed. The same atlas shows property owned by Olivia Johnson across 116th Avenue to the east (Metsker 1936). The 1950 USGS Kirkland quadrangle shows a four-lane, east–west-trending road (NE 124th Street) bordering the southern extent of the project area. Domestic structures were also plotted near the intersection of what is now 116th Avenue NE and NE 124th Street (USGS 1950). Revised versions of the 1950 Kirkland quadrangle (USGS 1968) and the 1958 Seattle quadrangle were the first to plot Interstate 405 (I-405) east of the project area. The review of maps and satellite imagery reflects an ever-increasing commercial development at this intersection.

Records-Search Results

SRI conducted a records search and literature review of materials located on the DAHP's online database, the Washington Information System for Architectural and Archaeological Records Data (WISAARD). Documents regarding archaeological sites, National Register of Historic Places– (NRHP-) listed historic properties, Historic Property Inventories (HPIs), cemeteries, and previous cultural resource projects and associated reports within 1 mile of the project area were identified, reviewed, and mapped (Figure 3). There have been 11 previously conducted projects within 1 mile of the project area (Table 1). In addition, two previously recorded HPIs (Table 2) and one historical-period archaeological site (45KI741) are located within 1 mile of the project area.

Previous Projects

Eleven previously completed projects were conducted within 1 mile of the current project area (see Table 1). Compliance Archaeology conducted a cultural resource survey for the Sound Transit Regional Express Totem Lake project in 2000 (Robbins and Dugas 2000). The project included the installation of a high-occupancy-vehicle access ramps from I-405 to NE 128th Street. No precontact or historical-period cultural resources were observed during field reconnaissance.

Larson Anthropological Archaeological Services Limited completed a cultural resource assessment for the 124th Avenue Northeast Roadway Improvement Project for the King County Department of Transportation in 2003. This project proposed to widen the roadway, install car and bicycle lanes, and provide additional roadway improvements, such as gutters and retaining walls along a 1.17-mile stretch of 124th Avenue. No precontact or historical-period cultural resources were observed during the survey (Iversen et al. 2003).

The Washington State Department of Transportation (WSDOT) completed a cultural resource study for Phase II of the I-405 Corridor Program in 2005 (WSDOT 2005). WSDOT planned to integrate several departments of transportation with jurisdiction along I-405 between Bothell and Bellevue, Washington, and develop an extensive strategy to improve mobility along the interstate. No precontact or historical-period cultural resources were observed during the survey.

An additional project by the WSDOT was conducted in 2009 for the I-405, State Route 520 to Interstate 5 Improvement Project (Bundy 2009). The project included roadway earthwork, installation of storm water detention ponds, and ecology embankments along I-405 between Lynnwood and Bellevue, Washington. No precontact or historical-period cultural resources were observed during the survey.

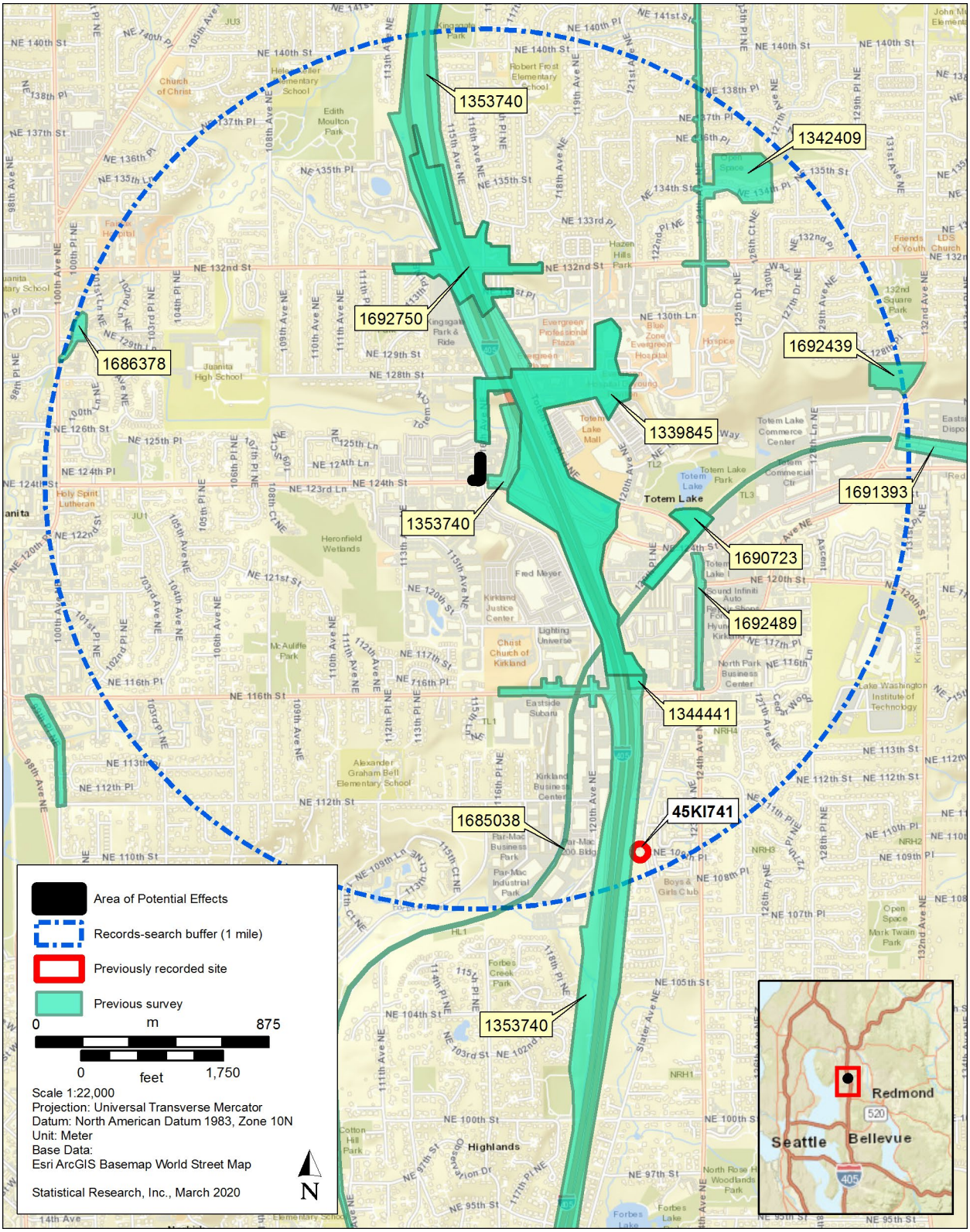

Figure 3. Previous cultural resource surveys and identified archaeological sites within 1 mile of the project area.

Table 1. Previously Conducted Cultural Resource Projects within 1 Mile of the Project Area

DAHP No.	Location	Project Name	Sites	Reference
1339845	116th Avenue NE and 124th Avenue NE	Sound Transit Regional Express Totem Lake Project	none	Robbins and Dugas 2000
1342409	124th Avenue NE between NE 132nd Street and NE 146th Street	124th Avenue Northeast Roadway Improvement Project	none	Iversen et al. 2003
1344441	I-405 corridor between Bothell and Bellevue	I-405, SR 520 to SR 522 Kirkland Nickel Project	none	WSDOT 2005
1353740	I-405 corridor between Lynnwood and Bellevue	Interstate 405 Corridor Survey: Phase III I-405, SR 520 to I-5 Improvement Project	none	Bundy 2009
1685038	Kirkland Way Bridge (Milepost 17.1); 68th Street Bridge (Milepost 16)	Cross Kirkland Corridor Trail Project	none	Baldwin 2014
1686378	NE 129th Street and Juanita Creek	Juanita Creek Stream Bank Adjustment and Retaining Wall Replacement Project	none	Chambers and Amell 2014
1690723	NE 124th Street and 124th Avenue NE	City of Kirkland-Totem Lake Connector Project	none	Trautman and Flenniken 2018
1691393	Corridor running along edge of Lake Washington through Renton, Bellevue, Kirkland, Redmond, and Woodinville	Eastside Rail Corridor Regional Trail Master Plan Project	none	ESA 2015
1692439	13000 132nd Place NE	RC 124th LLC Project	none	Berger et al. 2018
1692489	124th Avenue NE between NE 116th Street and NE 124th Street	124th Ave NE Roadway Improvements Project	none	Kopperl 2019
1692750	I-405 and NE 132nd Street, Milepost 20.90	I-405/NE 132nd Street Interchange Project	none	Cooper and Jenks 2019

Key: DAHP = Washington Department of Archaeology and Historic Preservation; ESA = Environmental Science Associates; WSDOT = Washington State Department of Transportation.

Table 2. Previously Recorded HPIs within 1 Mile of the Project Area

DAHP No.	Address	Property Type	Construction Date	NRHP Status
710025	11450 NE 124th Street, Kirkland, WA	gas station	1968	recommended not eligible
710026	12412 116th Avenue NE, Kirkland, WA	gas station	1970	recommended not eligible

Key: DAHP = Washington Department of Archaeology and Historic Preservation; NRHP = National Register of Historic Places.

In 2014, Drayton Archaeology conducted a cultural resource review for the Cross Kirkland Corridor Trail Project in King County, Washington (Baldwin 2014). The project was designed to install a multiuse trail along 5.75 miles of an abandoned rail corridor. No precontact or historical-period cultural resources were observed during the survey. That same year, Aqua Terra Cultural Resource Consultants conducted a cultural resource survey for the Juanita Creek Stream Bank Adjustment and Retaining Wall Replacement Project (Chambers and Amell 2014). No precontact or historical-period cultural resources were observed during this survey either.

Environmental Science Associates (ESA) conducted a cultural resource survey for the Eastside Rail Corridor Regional Trail Master Plan Project (ESA 2015). The project involved developing a strategy for building a nonmotorized trail within the corridor. The field survey consisted of walking the corridor and recording bridges and buildings associated with the rail line. Other material, such as rails segments and rail ties and spikes were documented during the survey.

Cultural Resource Consultants conducted a cultural resource assessment for the RC 124th LLC Project in 2018 (Berger et al. 2018). The project was designed to construct a parking lot, access ramp, and retaining walls at 13000 132nd Place in Kirkland, Washington. No precontact or historical-period cultural resources were observed during field reconnaissance. That same year, GeoEngineers conducted a cultural resource survey for the Totem Lake Connector Project for the City of Kirkland (Trautman and Flenniken 2018). The project included the construction of an elevated bridge for pedestrians and cyclists between NE 124th Street and 124th Avenue. No precontact or historical-period cultural resources were identified during the survey.

Most recently, Willamette Cultural Resources Associates conducted a cultural resource assessment for the 124th Avenue NE Roadway Improvements Project (Kopperl 2019). The project widened 124th Avenue NE in Kirkland from three to five lanes between NE 116th Street and NE 124th Street. No precontact or historical-period cultural resources were observed during field reconnaissance. That same year, WSDOT conducted a cultural resource survey for the I-405/NE 132nd Street Interchange Project (Cooper and Jenks 2019). The project was designed to install an interchange at the intersection of I-405 and 132nd Street in King County, Washington. No precontact or historical-period cultural resources were observed during this survey either.

Previously Documented Site

One historical period archaeological site is located within 1 mile of the project area (see Figure 3). The Gertrude Wiley Homestead (45KI741) is a historical-period debris scatter with an associated feature originally recorded in 2006 (Fallon and Lenz 2006). The assemblage included glass, brick, metal, and ceramic artifacts, such as bottle bases, bucket, and piping. The site also included a wooden and concrete pump house. Site 45KI741 was evaluated and determined not eligible for listing in the NRHP (Sterner 2006).

HPIs

Two HPIs are located within 1 mile of the project area (see Figure 2; Table 2). Property No. 710025 is the ARCO gas station located at 11450 NE 124th Street in Kirkland, Washington (Provost 2017a). This is the building on the northwest corner of the project intersection. The wooden structure with a gable side roof was constructed in 1968. Property No. 710026, another gas station, is located at 12412 116th Avenue NE in Kirkland, Washington (Provost 2017b). The wooden structure with a gable cross roof was constructed in 1970. Both commercial buildings were recorded in 2017. In each case, the architectural historian recommended these properties not eligible for listing in the NRHP, as they lack sufficient integrity, although the DAHP has yet to make a determination on these recommendations.

Conclusions and Recommendations

The records search and literature review covered all reported archaeological sites and HPIs within 1 mile of the project area. The project area is on the border of moderate- to high-potential areas for archaeological resources, as determined from the DAHP's online archaeological predictive model. Although this predictive model suggests that there is at least a moderate potential for the discovery of archaeological resources, the 11 cultural resource projects conducted within 1 mile of the project area did not result in the identification of any precontact archaeological sites. The one historical-period archaeological site was determined not eligible for listing in the NRHP. Moreover, considering the high level of ground disturbance within the project area due to the construction of roads and buildings, as well as the likelihood of encountering the water table in native sediments at relatively shallow depths, the project area represents a generally low potential for the discovery of cultural resources. The two HPIs identified within 1 mile of the project area also were recommended not eligible for listing in the NRHP, although a determination on this recommendation from the DAHP is pending. However, SRI has reviewed these property records and agrees with the original recommendation that they are not NRHP eligible. The proposed project will not have any effects on any previously identified historical-period buildings.

SRI concludes that cultural resources are unlikely to be encountered during construction activities and recommends that the project should be allowed to proceed without any further archaeological or architectural history investigations. Construction crews should be aware of the potential for encountering cultural resources during construction, and in the unlikely event that archaeological resources are encountered, they should follow the steps outlined in the attached Unanticipated Discovery Plan.

Unanticipated Discovery Plan (Attachment A)

Although no archaeological sites or isolates have been identified within the project area, there is still some potential for subsurface cultural materials. The DAHP's online predictive model indicates that there is moderate to high potential for archaeological resources within the project area because of its proximity to Puget Sound and the Sammamish River. During ground-disturbing construction activities, cultural resources may be encountered, such as flaked stone debris or tools or concentrations of shell, bone, charcoal, or fire-modified rock. In addition, early-historical-period artifacts or features may be present, evidenced by privies, rusted metal, cans, glass scatters, or ceramic fragments.

Discovery of Archaeological Materials

If suspected archaeological deposits or artifacts are encountered during construction work, project activities in the immediate vicinity should stop. The construction foreman should call the City of Kirkland's project manager and DAHP State Archaeologist Robert Whitlam should be contacted by phone at (360) 586-3080. WSDOT and the DAHP will determine whether further work is needed to evaluate the artifacts or cultural deposits.

Discovery of Human Remains

If human remains are discovered during project construction, onsite contractors should follow DAHP procedures in compliance with State of Washington laws and regulations, as cited below (DAHP 2018 [emphasis in original]):

Inadvertent Discovery of Human Skeletal Remains on Non-Federal and Non-Tribal Land in the State of Washington (RCWs [*Revised Code of Washington* Sections] 68.50.645, 27.44.055, and 68.60.055)

> "If ground disturbing activities encounter human skeletal remains during the course of construction, then all activity **will** cease that may cause further disturbance to those remains. The area of the find will be secured and protected from further disturbance until the State provides notice to proceed. The finding of human skeletal remains **will** be reported to the county medical examiner/coroner **and** local law enforcement in the most expeditious manner possible. The remains will not be touched, moved, or further disturbed. The county medical examiner/coroner 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/coroner determines the remains are non-forensic, then they will report that finding to the Department of Archaeology and Historic Preservation (DAHP) who will then take jurisdiction over the remains. The DAHP will notify any appropriate cemeteries and all affected tribes of the find. 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. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains."

If construction crewmembers encounter suspected human remains, all construction activities in the vicinity should stop immediately, and the King County coroner ([206] 731-3232) or local law enforcement should be contacted immediately. The remains should not be touched, moved, or further disturbed. The coroner will determine whether human skeletal remains are forensic or nonforensic. If the coroner determines that the skeletal remains are human and nonforensic, the Washington State Physical Anthropologist, Dr. Guy Tasa, at the DAHP should be contacted by phone at (360) 586-3534. Dr. Tasa will take jurisdiction over the remains, undertake tribal consultation, and determine what further steps would be necessary for construction to continue.

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APPENDIX F

WSDOT CONSTRUCTION AGREEMENT

City of Kirkland

Washington State Department of Transportation

Construction Agreement

Construction by Local Agency on State Highway Right of Way at Local Agency Expense

Local Agency

Contact Name Catherine Okamura, P.E.

Title Project Engineer

Address Public Works Department | City of Kirkland
123 Fifth Avenue, Kirkland, WA 98033-6189

Phone Office: (425) 587-3832 Mobile: (805) 242-3412

Email cokamura@kirklandwa.gov

Agreement Number	Project Title
GCB 3548	116th Ave NE Southbound Right Turn Lane to NE 124th Street

State Route Number	Mile Post	Control Section
405	20.48	

Exhibits Attached

Exhibit A: Special Provision - 8 pages

Exhibit B: Right of Way Plan - 1 page

Exhibit C: Channelization Plans - 3 pages

Exhibit D: Traffic Control Plans - 5 pages

Exhibit E:

Description of Improvements

Construction of a southbound right turn lane from 116th Ave NE to NE 124th Street. The work includes widening of the NW quadrant of the intersection to allow a right turn lane, channelization and updating pedestrian facilities at the location and acquisition of new limited access right of way.

Sections 16, 17, and 18 from Exhibit A were not checked as the city of Kirkland maintains these areas.

This Agreement is entered into between the Washington State Department of Transportation (WSDOT) and the above named governmental entity (Agency), hereinafter referred to individually as the "Party" and collectively as the "Parties."

Recitals

1. The Agency wishes to construct certain improvements on state highway right of way located within (a) a county, (b) a state limited access facility inside city limits, or (c) on areas under state jurisdiction within city streets that form part of the state highway system, hereinafter referred to as "Improvements."
2. WSDOT is willing to authorize the Agency to construct the Improvements subject to the terms and conditions identified in this Agreement.
3. In addition to the provisions below, construction, maintenance, and/or operation of the Improvements are subject to the Special Provisions, attached as Exhibit A, which set forth Agency and Improvements requirements specific to the type of state highway facility on which the Improvements will be constructed.

Now, Therefore, pursuant to RCW 47.28.140, RCW 47.24.020, and/or chapter 39.34 RCW, the above recitals, which are incorporated herein as if set forth below, and in consideration of the terms, conditions, covenants, and performances contained herein, and in the Exhibits attached hereto and hereby made a part of this Agreement,

It Is Mutually Agreed as Follows:

1.0 Purpose of Agreement

The Agency provided WSDOT with its Plans and Specifications for the proposed Improvements, and WSDOT has reviewed and agreed with the plans and specifications, unless otherwise modified pursuant to the terms of this Agreement. The Agency agrees to and shall construct, operate and/or maintain the Improvements in accordance with the terms of this Agreement.

2.0 Right of Entry

2.1 Agency

Subject to the terms of this Agreement, WSDOT hereby grants to the Agency, its authorized agents, contractors, subcontractors, and employees, a right of entry upon state-owned highway right of way or upon state highway right of way under WSDOT jurisdiction, onto which access is necessary to construct, operate and/or maintain the Improvements.

If WSDOT has approved any limited access breaks for the Improvements, the Agency shall comply with the terms and conditions of such approval.

2.2 WSDOT

The Agency hereby grants to WSDOT, its employees, authorized agents, contractors, and subcontractors, a right of entry upon all Agency-owned property necessary for WSDOT's design review, inspection, and, as applicable, maintenance and/or operation of the Improvements as provided in Section 6, below.

3.0 Construction

3.1 Documents on Site

Copies of this Agreement shall be kept at the Agency's project office and by the Agency or its contractor at the construction site. The Agreement shall be shown, upon request, to any state representative or law enforcement officer.

3.2. Pre-Construction Conference

Prior to the beginning of construction, a preconstruction conference shall be held at which WSDOT, the Agency, and the Agency's contractor (if applicable) shall be present. The Agency shall give a minimum of five (5) working days notice to WSDOT's construction representative prior to holding the pre-construction conference. Working days for this Agreement are defined as Monday through Friday, excluding Washington State furlough days or state holidays pursuant to RCW 1.16.050.

3.3 Construction of Improvements

3.3.1 The Agency shall construct the Improvements as shown on the attached Exhibits at the Agency's expense; WSDOT shall not be required to contribute to the Improvements construction. Any proposed changes to the Improvements' plans or specifications previously approved by WSDOT require further WSDOT review and prior written approval before implementing the changes.

3.3.2 The Agency agrees and shall construct the Improvements to the satisfaction of WSDOT. All material and workmanship shall conform to the Washington State Department of Transportation's Standard Specifications for Road, Bridge, and Municipal Construction, current edition, and amendments thereto, and shall be subject to WSDOT inspection. The parties agree that WSDOT inspections and acceptances regarding the Improvements are solely for the benefit of WSDOT and not for the benefit of the Agency, the Agency's contractor (if any), or any third party.

3.3.3 No excavation shall be made or obstacle placed within the limits of the state-owned, or under state jurisdiction, highway right of way in such a manner as to interfere with the construction of, operation of, maintenance of and/or travel over the state highway, unless the Agency obtains WSDOT's prior written authorization.

3.4 Construction Schedule

In addition to the requirements in Section 3.2, WSDOT may, at any time, request a construction schedule or updates thereto from the Agency, showing critical dates and activities that will lead to the timely completion of the Improvements. The Agency shall notify WSDOT's construction representative of any changes to the construction schedule at least three (3) working days prior to implementation. Working days are defined in Section 3.2.

3.5 Local Agency Representative

Should the Agency choose to perform the work outlined herein with other than its own forces, an Agency representative shall be present on-site at all times during performance of the work, unless otherwise agreed to by WSDOT. Where the Agency chooses to perform the work with its own forces, it may elect to appoint one of its own employees engaged in the construction as its representative. Should the Agency

fail to comply with this section, WSDOT, in its sole discretion, may restrict any further Agency work within state highway right of way until the requirements of this section are met. All contact between WSDOT and the Agency's contractor shall be through an authorized representative of the Agency.

3.6 Supervision of Work

The Agency, at its own expense, shall adequately police and supervise construction of the Improvements by itself, its contractor, subcontractor, or agent, and others, so as not to endanger or injure any person or property. The Agency's responsibility for the proper performance, safe conduct, and adequate policing and supervision of the work shall not be lessened or otherwise affected by WSDOT's review and concurrence with the Agency's plans, specifications, or work, or by WSDOT's construction representative's presence at the work site to assist in determining that the work and materials meet this Agreement's requirements.

3.7 Required Permits

The Agency shall obtain all necessary Federal, State, and Local Permits including, but not limited to, permits required by the Washington State Department of Ecology, the Washington State Department of Fish and Wildlife, U.S. Army Corps of Engineers, and the National Environmental Policy Act (NEPA) prior to beginning construction.

3.8 Compliance with Clear Zone Guidelines

The Agency hereby certifies that the Improvements described in this Agreement are in compliance with the WSDOT's Clear Zone Guidelines as specified within WSDOT's Utilities Manual (publication M 22-87.01). If applicable, for Improvements constructed within the Agency's city streets that form part of the state highway system, the Agency may apply its own clear zone guidelines in lieu of WSDOT's guidelines.

3.9 Protection of Property

Unless authorized by WSDOT or other affected property owner in writing, the Agency shall assure that all public and private property, including but not limited to signal equipment, signs, guide markers, lane markers, and utilities, are not damaged, destroyed, or removed. If any such property is damaged, destroyed, or removed without prior written authorization, the Agency shall notify WSDOT's construction representative within eight (8) hours of such damage, destruction or removal.

The Agency shall replace, repair, or fully restore any private or public property that is damaged, destroyed, or removed to WSDOT's sole satisfaction.

The Agency shall not disturb, remove, or destroy any existing Survey Monument before first obtaining a Washington State Department of Natural Resources (DNR) permit. The Agency agrees that resetting Survey Monuments shall be done by or under the direct supervision of a Licensed Professional Land Surveyor.

A listing of Survey Monuments can be found at WSDOT's Geographic Services Office Website: (http://www.wsdot.wa. gov/monument/searchBroad.aspx).

3.10 Cultural Resources

If any archaeological or historical resources are revealed in the work vicinity, the Agency shall immediately **stop** work, notify WSDOT's construction representative and retain a US Secretary of the Interior's qualified archaeologist. Said archaeologist shall evaluate the site and make recommendations to WSDOT regarding the continuance of the work.

3.11 Clean Up

Upon completion of the work, the Agency shall immediately remove all rubbish and debris and shall leave the state highway right of way neat and presentable to WSDOT's sole satisfaction. Agency agrees to take corrective action if directed by WSDOT.

3.12 Failure to Complete Project

Should for any reason, the Agency decide not to complete the Improvements in a timely manner after construction has begun, WSDOT shall determine what work must be completed to restore WSDOT facilities and right-of-way to a condition and configuration that is safe for public use. If the Agency or its contractor is not able to restore WSDOT facilities and right-of way, WSDOT may perform or contract to perform, the restoration work at the Agency's sole expense. The Agency agrees that all costs associated with Agreement termination, including engineering, completing WSDOT facility and right-of way restoration, and contractor claims will be the sole responsibility of the Agency.

This section shall survive Agreement termination.

4.0 Acceptance of Improvements

4.1 Final Inspection

The Agency shall notify WSDOT, in writing, of its completion of the Improvements within five (5) working days, as defined in section 3.2, of such completion. The Agency shall include in the written notice a proposed date on which to meet with WSDOT for the purpose of conducting a final inspection of the Improvements.

WSDOT will not make its final inspection of the Improvements until all Agency construction work required under this Agreement has been completed.

4.2 WSDOT's Acceptance

4.2.1 WSDOT will provide the Agency with a Letter of Acceptance for the Improvements after the following items have been completed:

(a) Satisfactory completion of the Improvements and all Agency obligations hereunder;
(b) Final inspection of the Improvements;
(c) Submittal by the Agency to WSDOT of a complete set of as-built plans for the Improvements;
(d) Receipt of material acceptance documentation by WSDOT (if required under the Special Provisions hereto); and
(e) Final payment pursuant to Section 7.

The Letter of Acceptance shall not waive any potential claims against the Agency or its contractor for defective work or materials, nor bar WSDOT from requiring the Agency to remedy any and all work deficiencies not identified by WSDOT during its inspection.

4.2.2 WSDOT may withhold acceptance of the Improvements by submitting written notification, including the reason(s) for withholding acceptance, to the Agency, within thirty (30) calendar days following the final inspection. The parties shall work together in good faith to resolve the outstanding issues identified in WSDOT's written notification. If any issues cannot be resolved within forty five (45) calendar days after WSDOT's notification, the parties mutually agree to seek resolution of the issues through the process described in Section 8.7.

4.2.3 Upon resolution of the outstanding issues, WSDOT will deliver the Letter of Acceptance to the Agency.

4.2.4 The Agency shall continue to be responsible for all actual direct and related indirect costs to WSDOT, including inspection and monitoring, until the disputed issue(s) has been resolved and a Letter of Acceptance has been issued.

5.0 Insurance and Indemnification

5.1 Insurance

The Agency must provide proof of the following insurance coverage prior to performing any work within state highway right of way:

a) Commercial General Liability covering the risks of bodily injury (including death), property damage and personal injury, including coverage for contractual liability; this coverage may be any combination of primary, umbrella and/or excess coverage affording total liability limits of not less than $3 million per occurrence/$3 million general aggregate;

b) Business Automobile Liability (owned, hired, or non-owned) covering the risks of bodily injury (including death) and property damage, including coverage for contractual liability; this coverage may be any combination of primary, umbrella and/or excess coverage affording total liability limits of not less than $1 million per accident;

c) Employers Liability (Stop Gap) insurance covering the risks of Agency's employees' bodily injury by accident or disease with limits of not less than $1 million per accident for bodily injury by accident and $1 million per employee for bodily injury by disease;

Such insurance policies or related certificates of insurance shall name the Washington State Department of Transportation (WSDOT) as an additional insured on all general liability, automobile liability, employers' liability, and excess policies, using form CG 2010 11 85 or similar endorsement approved in advance by WSDOT. The additional insured coverage afforded shall be "primary and non-contributory" with respect to any other coverage which may be available to WSDOT. All coverages afforded to WSDOT as an additional insured shall also contain a waiver of subrogation endorsement made in favor of WSDOT. The Agency may comply with these insurance requirements through a program of self insurance that meets or exceeds these minimum limits. The Agency must provide WSDOT with adequate documentation of self insurance prior to performing any work within state highway right of way. Should the Agency no longer benefit from a program of self-insurance, the Agency agrees to promptly obtain insurance as provided above. A forty-five (45) Calendar Day written notice shall be given to prior to termination of or any material change to the policy(ies) as it relates to this Agreement.

5.2 Indemnification

The Agency, its successors and assigns, agree to indemnify, defend, and hold harmless the State of Washington and its officers and employees, from all claims, demands, damages (both to persons and/or property), expenses, regulatory fines, and/or suits that: (1) arise out of or are incident to any acts or omissions by the Agency, its agents, contractors, and/or employees, in the use of the state highway right of way as authorized by the terms of this Agreement, or (2) are caused by the breach of any of the conditions of this Agreement by the Agency, its contractors, agents, and/or employees. The Agency, its successors and assigns, shall not be required to indemnify, defend, or hold harmless the State of Washington and its officers and employees, if the claim, suit, or action for damages (both to persons and/or property) is caused by the sole acts or omissions of the State of Washington, its officers and employees; provided that, if such claims, suits, or actions result from the concurrent negligence of (a) the State of Washington, its officers and employees and (b) the Agency, its agents, contractors, and/or employees, or involves those actions covered by RCW 4.24.115, the indemnity provisions provided herein shall be valid and enforceable only to the extent of the concurrent acts or omissions of the State of Washington, its officers and employees and the Agency, its agents, contractors, and/or employees.

The Agency agrees that its obligations under this section extend to any claim, demand and/or cause of action brought by, or on behalf of, any of its employees or agents while performing construction, operation and/or maintenance of the Improvements under this Agreement. For this purpose, the Agency, by mutual negotiation, hereby waives with respect to WSDOT only, any immunity that would otherwise be available to it against such claims under the Industrial Insurance provisions chapter 51.12 RCW.

This indemnification and waiver shall survive the termination of this Agreement.

6.0 Maintenance

6.1 General Maintenance Responsibilities

Unless otherwise agreed to pursuant to a separate written agreement between WSDOT and Agency, upon completion of the Improvements authorized herein, all future operation and maintenance of the Improvements shall be in accordance with each party's ownership and/or jurisdictional responsibilities as follows:

a) For Improvements on state-owned highway right of way located within unincorporated county limits and/or within any limited access highway rights of way: WSDOT has sole ownership, operation and maintenance responsibilities for the Improvements.

b) For Improvements located inside city limits within managed access highway rights of way: Ownership, operation and maintenance responsibilities shall be apportioned between the city and WSDOT pursuant to chapter 47.24 RCW and the City Streets as Part of State Highways Guidelines developed between the Association of Washington Cities and WSDOT, as may be revised from time to time.

6.2 Emergency Work by WSDOT

If WSDOT determines in good faith that emergency work to any Improvements to be maintained by the Agency, as provided in Section 6.1(b) hereunder, is immediately needed to protect (a) any aspect of the state highway, or (b) to secure the safety of the traveling public, as a result of a failure of the Agency's Improvements, such work may be performed by WSDOT without prior approval of the Agency, and the Agency agrees to pay WSDOT's reasonable cost and expense for performing the work. The Agency will be notified of the emergency work and the necessity for it at WSDOT's earliest opportunity. WSDOT shall provide to the Agency a detailed invoice for such emergency work, and the Agency agrees to make payment within thirty (30) calendar days of the date of the invoice.

The terms of this section shall survive the termination of this Agreement.

7.0 Payment

7.1 Reimbursable Costs

The Agency shall reimburse WSDOT for all actual direct and related indirect costs incurred by WSDOT under this Agreement. Such costs include, but are not limited to, agreement preparation, plan review, including review of proposed revisions to plans and specifications contained in the Exhibits, construction inspection, and administrative overhead.

7.2 Invoices

WSDOT shall provide detailed invoices to the Agency for WSDOT-performed work as required under this Agreement. The Agency agrees to make payment within thirty (30) calendar days from the date of a WSDOT invoice. The Agency agrees that if it does not make payment within thirty (30) calendar days after the date of a WSDOT invoice, the invoice amount shall bear interest at the rate of one percent per month or fraction thereof until paid.

8.0 Miscellaneous Terms

8.1 Failure to Comply with Terms and Conditions

Any breach of the terms and conditions of this Agreement, or failure on the part of the Agency to proceed with due diligence and in good faith in the construction and maintenance of the Improvements provided for herein, shall subject this Agreement to be terminated, and WSDOT, in its sole discretion, may require the Agency to remove all or part of the Improvements constructed hereunder at the Agency's sole expense. If the Agency fails to effect such removal of its Improvements, the removal may be performed by WSDOT without prior approval of the Agency, and the Agency agrees to pay WSDOT's reasonable cost and expense for performing the work. WSDOT shall provide to the Agency a detailed invoice for such removal work, and the Agency agrees to make payment within thirty (30) calendar days of the date of the invoice pursuant to Section 7.

8.2 Term of Agreement

Should the Agency not begin construction within eighteen (18) months after the date of execution, the Agreement shall automatically terminate, unless WSDOT, in its sole discretion, grants a time extension. As part of any time extension granted by WSDOT, the Plans and Specifications attached hereto must be revised to meet WSDOT's most current design and construction standards. If this Agreement is terminated, the Agency may be required to repeat the entire application, review, and approval process in WSDOT's sole discretion.

Unless otherwise provided herein, the term of this Agreement shall commence as of the date this Agreement is fully executed by the parties and shall continue until the Improvements are accepted by WSDOT pursuant to Section 3 or as otherwise provided herein.

8.3 Assignment of Agreement

No assignment or transfer of this Agreement in any manner whatsoever shall be valid, nor vest any rights hereby granted, until WSDOT consents thereto and the assignee accepts all terms of this Agreement.

8.4 Non-Exclusivity

This Agreement shall not be deemed or held to be an exclusive one and shall not prohibit WSDOT from granting permits or franchise rights; or entering into other Agreements of like or other nature with other public or private companies or individuals, nor shall it prevent WSDOT from using any of its highways, streets, or public places, or affect its right to full supervision and control over all or any part of them, none of which is hereby surrendered.

8.5 Audit Records

All Improvement records, including labor, material and equipment records in support of all WSDOT costs shall be maintained by WSDOT for a period of six (6) years from the date of termination of this Agreement. The Agency shall have full access to and right to examine said records during normal business hours and as often as it deems necessary, and should the Agency require copies of any records, it agrees to pay the costs thereof. The parties agree that WSDOT work performed herein is subject to audit by either or both parties and/or their designated representatives and/or state and federal government.

8.6 Modification

This Agreement may be amended or modified only by the mutual agreement of the parties. Such amendments or modifications shall not be binding unless they are in writing and signed by persons authorized to bind each of the parties.

8.7 Disputes

In the event that a dispute arises under this Agreement, it shall be resolved as follows: WSDOT and the Agency shall each appoint a member to a disputes board, these two members shall select a third board member not affiliated with either party. The three-member board shall conduct a dispute resolution hearing that shall be informal and unrecorded. An attempt at such dispute resolution in compliance with aforesaid process shall be a prerequisite to the filing of any litigation concerning the dispute. The parties shall equally share in the cost of the third disputes board member; however, each party shall be responsible for its own costs and fees.

8.8 Venue and Attorney's Fees

In the event that either party to this Agreement deems it necessary to institute legal action or proceedings to enforce any right or obligation under this Agreement, the parties hereto agree that any such action or proceedings shall be brought in a court of competent jurisdiction situated in Thurston County, Washington Superior Court. Further, the parties agree that each will be solely responsible for payment of its own attorney's fees, witness fees, and costs.

8.9 Independent Contractor

The Agency shall be deemed an independent contractor for all purposes under this Agreement, and the employees of the Agency or any of its contractors, subcontractors, consultants, and the employees thereof, shall not in any manner be deemed to be employees or agents of WSDOT.

8.10 Termination of Agreement

Neither party may terminate this Agreement without the concurrence of the other party, except as otherwise provided under Section 8.2. Termination shall be in writing and signed by both parties. If this Agreement is terminated prior to the fulfillment of the terms stated herein, the Agency shall reimburse WSDOT for its actual direct and related indirect expenses and costs incurred up to the date of termination. Any termination of this Agreement shall not prejudice any rights or obligations accrued to the parties prior to termination.

In Witness Whereof, the parties hereto have executed this Agreement as of the Party's date last signed below.

Local Agency	Washington State Department of Transportation
Signature: _____	Signature: _____
By: Rod Steitzer Print Name	By: Ramin Pazooki Print Name
Title: Capital Projects Manager	Title: Utilities and Developer Services Manager
Date: _____	Date: _____

SPECIAL PROVISIONS

County Projects on State Highways
City Projects on Limited Access State Highways

Agreement Number: GCB 3548

The Agreement and these Special Provisions apply to all construction items within WSDOT jurisdiction and maintenance responsibility only (RCW 47.24.020).

Applicable provisions are denoted by (☒)

☒ **1. WSDOT REPRESENTATIVE/NOTICE TO PROCEED.** *(Applicable to ALL Projects)*
No Improvements provided for herein shall be performed until the Agency is authorized by the following WSDOT representative:

Rus Mandery, WSDOT Construction Representative
WSDOT Northwest Region NB82-240
15700 Dayton Avenue North
PO Box 330310
Seattle WA 98133-9710
206-327-1877
manderr@wsdot.wa.gov

☒ **2. PLAN CHANGES** *(Applicable to ALL Projects)*

- **AGENCY CHANGE ORDERS / ADDENDAS**
  Changes to any previously Approved Plans affecting WSDOT-owned highway right-of-way or highway right-of-way under WSDOT jurisdiction must be reviewed and approved in writing by WSDOT prior to execution and implication

- **WSDOT REQUIRED CHANGES OR CORRECTIONS**
  WSDOT reserves the right to require changes or corrections due to plan omissions or details not in conformance with WSDOT's Standard Specifications, Standard Plans, Design Manual Design Standards and/or Project Special Provisions.

☒ **3. DELAY TO WSDOT CONTRACTS** *(Applicable to ALL Projects)*
The Agency agrees to schedule and perform the Improvements herein in such a manner as not to delay WSDOT's contractor in the performance of any WSDOT contract in the area. WSDOT shall in no way be held liable for any damage to the Agency or the Agency's contractor, by reason of any such work by WSDOT, its agents or representatives, or by the exercise of any rights by WSDOT upon any applicable roads, streets, public places, or structures.

☒ **4. AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS** *(Applicable to ALL New Construction and Alteration Projects).*
All public entities are required to follow *the Americans with Disabilities Act of 1990* (ADA), regardless of funding sources. Wherever pedestrian facilities are intended to be a part of the transportation facility, federal regulations require that those pedestrian facilities meet ADA standards. All new construction or alteration of existing transportation facilities must be designed and constructed to be accessible to and usable by persons with disabilities per Title II of the ADA (28 CFR Part 35.151) and Section 504 regulations (49 CFR Part 27.7(c)).

Neither cost nor schedule are factors in determining whether the ADA standards can be met, nor are they factors in determining the feasibility of complying with the standard. An alteration project must be planned, designed, and constructed so that the required accessibility improvements occur at the same time as the alteration.

The following are not considered Alteration Projects: Spot Pavement Repair, Liquid-Asphalt Sealing, Chip Seal (BST), Crack Sealing, and Lane Restriping that does not alter the usability of the shoulder.

If there is uncertainty as to whether a project meets the definition of an alteration project, WSDOT's Construction Representative and the Agency's Representative shall consult with WSDOT's Regional ADA Coordinator.

If a situation is encountered where it may not be possible to fully meet the applicable accessibility requirements during alterations of existing facilities, WSDOT's Construction Representative and the Agency's Representative shall consult with WSDOT's Regional ADA Coordinator in order to develop a workable solution to meet the accessibility requirements to the maximum extent feasible (MEF).

☒ **5. ADA FEATURE AS-BUILT MEASUREMENTS** *(Applicable to ALL New Construction and Alteration Projects).*
The Agency shall be responsible for providing WSDOT with electronic As-Built records of all ADA feature improvements completed on the State Highway(s) in the Construction Agreement. The survey work shall include but not be limited to completing the measurements, recording the required measurements and completing other data fill-ins found on the ADA Measurement Forms, and transmitting the electronic Forms to WSDOT's Construction Representative. The ADA Measurement Forms are found at the following website location: http://www.wsdot.wa.gov/Design/ADAGuidance.htm. In the instance where an ADA Feature does not meet accessibility requirements, all work to replace non-conforming work and then to measure, record the as-built measurements, and transmit the electronic Forms to the WSDOT's Construction Representative shall be completed as requested by WSDOT at no additional cost to the Agency, or WSDOT. WSDOT reserves the right to verify As-Built records for accuracy.

☒ **6. SURVEY MONUMENTS** *(Applicable to ALL Projects)*
The Agency shall not disturb, remove, or destroy any existing Survey Monument before obtaining a Permit from the Washington State Department of Natural Resources (DNR). Resetting Survey Monuments shall be done by or under the direct supervision of a Licensed Professional Engineer or a Licensed Professional Land Surveyor.

A listing of Survey Monuments can be found at WSDOT's Geographic Services Office Website: https://www.wsdot.wa.gov/monument

☒ **7. ARCHAEOLOGICAL/HISTORICAL FINDINGS** *(Applicable to ALL Projects)*
If any archaeological or historical resources are revealed in the Work vicinity, the Agency shall immediately stop Work, notify WSDOT's Construction Representative, retain a qualified Archaeologist who shall evaluate the site, and make recommendations to WSDOT Representative regarding the continuance of Work.

☒ **8. PROTECTION OF PUBLIC AND PRIVATE PROPERTY** *(Applicable to ALL Projects)*
The Agency shall assure that all Public and Private Property – including – but not limited to Electrical Equipment, Signs, Guide Markers, and Survey Monuments, on or near the project is not damaged, destroyed, or removed. If any such property is disturbed, WSDOT's Construction Representative shall be notified within eight (8) hours. Any Private or Public Property that is damaged, removed, relocated or rendered less functional shall be replaced, repaired, or fully restored to the satisfaction of WSDOT's Construction Representative. Construction shall be in conformance with WSDOT's Standard Specifications, Standard Plans, Design Standards, or Project Special Provisions.

☒ **9. TRAFFIC CONTROL AND PUBLIC SAFETY** *(Applicable to all City Projects within Limited Access Areas and/or City Projects within Managed Access Areas involving WSDOT maintained Traffic Signals, Freeway Ramps, or Ferry Traffic. Applicable to all other City Projects when WSDOT assistance is requested by the City. Applicable to all County Projects)*

- **TRAFFIC CONTROL PLANS (TCPs)**
  Prior to construction and/or maintenance of this facility, the Agency shall submit Traffic Control Plans to WSDOT for Review and Approval at least fifteen (15) days in advance of the time that signing and other traffic control devices will be required. These TCP's shall be in compliance with The Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways – Part 6 (Temporary Traffic Control) https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part6.pdf and Washington modifications thereto. All TCP's shall be site specific, unless allowed otherwise by WSDOT.

- **MODIFICATION OR REVOCATION OF APPROVED TRAFFIC CONTROL PLANS**
  WSDOT reserves the right to modify or revoke any Traffic Control Plan at any time due to unexpected emergencies or safety and operational problems for the traveling public. All costs and time delays associated with modification or revocation shall be borne by the Agency. WSDOT shall in no way be held liable for any delays, costs, or other damages to the Agency by reason of any such WSDOT action.

- **PERMITTED HOURS FOR LANE CLOSURES / WSDOT NOTIFICATION**
  The working hours within State owned highway right-of-way or highway right-of-way under WSDOT jurisdiction for this project are restricted per the Approved Traffic Control Plan(s). Any extension of these hours must be requested in writing and approved by the WSDOT in writing prior to construction. Weekend or Holiday (including Canadian Holidays-Skagit & Whatcom Counties) work is not permitted without prior written permission from the WSDOT. Five (5) working days written notification shall be given to the WSDOT's Representative prior to any lane closure.

- **SUSPENSION OF TRAFFIC CONTROL OPERATIONS**
  WSDOT reserves the right to suspend all lane and shoulder closure operations due to unexpected emergencies or impediments to the flow of traffic. All costs associated with this suspension shall be borne by the Agency or their contractor.

- **TRAFFIC CONTROL CONSTRUCTION SIGNS**
  The Agency's contractor shall install construction signs required in the Approved Traffic Control Plans as described hereinafter.

  - Class A Construction Signs are those signs that remain in in service throughout the construction or during a major phase of the work. They are post mounted with the bottom of the sign located from five (5) to seven (7) feet above pavement elevation.

  - Class B Construction Signs are those signs that are placed and removed daily or are used for short durations which may extend for no more than one (1) to three (3) days. These signs are to be mounted on crashworthy temporary or portable supports and shall be no less than one (1) foot above the pavement elevation.

- **HAZARD PROTECTION**
  All hazards to vehicular, pedestrian, and bicycle traffic shall be marked by warning signing, barricades, and lights.

- **STORAGE OF EQUIPMENT AND MATERIALS**
  All lanes shall be open, and the shoulders shall be clear of construction equipment and materials during non-working hours. The Work Zone Clear Zone (WZCZ) applies during working and non-working hours. The WZCZ applies only to temporary roadside objects introduced by the Agency's operations and does not apply to pre-existing conditions or permanent Improvements. Those operations that are actively in progress shall be in accordance with adopted and approved Traffic Control Plans, and other Contract or Agreement requirements.

  During nonworking hours, equipment or materials shall not be within the WZCZ unless they are protected by guardrail or barrier. The use of temporary concrete barrier shall be permitted only if WSDOT approves the installation and location.

  During actual hours of work, unless protected as described above, only materials absolutely necessary to construction shall be within the WZCZ and only construction vehicles absolutely necessary to construction shall be allowed within the WZCZ or allowed to stop or park on the shoulder of the roadway.

Non-essential vehicles and employees' private vehicles shall not be allowed to park within the WZCZ at any time unless protected as described above.

Deviation from the above requirements shall not occur unless the Contractor has requested the deviation in writing, and WSDOT has provided written approval.

☒ **10. TRAFFIC CONTROL SUPERVISOR** *(Applicable to City Projects within Limited Access Areas; and/or City Projects within Managed Access Areas involving WSDOT maintained Traffic Signals, Freeway Ramps, or Ferry Traffic. Applicable to all County Projects).*
The Agency or their Prime Contractor shall employ an individual or individuals to perform the duties of Full-Time Traffic Control Supervisor (TCS), certified by WSDOT. The TCS shall be responsible for safe implementation of Approved Traffic Control Plans. The TCS shall be present on the project whenever flagging, spotting, or other traffic control is being utilized. The TCS shall be responsible for having a current set of approved Traffic Control Plans, inspecting traffic control devices and nighttime lighting for proper location, installation, message, cleanliness, and effect on the traveling public. Traffic control devices shall be inspected at least once per hour during working hours. The TCS shall correct, or arrange to have corrected, any deficiencies noted during these inspections. The Agency or Prime Contractor shall maintain 24-hour telephone numbers at which the TCS can be contacted and be available on the job site within 45 minutes after notification from the WSDOT Representative at other than specified working hours.

☒ **11. NOTIFICATION of LAW ENFORCEMENT and EMERGENY SERVICES** *(Applicable to Counties and Limited Access in All Cities)*
The Agency or their Prime Contractor shall notify the Washington State Patrol, the County Sheriff's Department, the Local Police Department(s), the Local Fire Department(s), and the Local Emergency Medical Services (EMS) at least 72 hours in advance of Lane Closure, Road Closure, Detour Set-up, or Rolling Slowdown.

☒ **12. WORKER VISIBILITY** *(Applicable to Counties and Limited Access in All Cities)*

- **FLAGGER APPAREL**
  Traffic Control Supervisors, Flaggers, Spotters, and others performing Traffic Control Labor of any kind shall comply with the following: (1). During daylight hours with clear visibility, workers shall wear a high-visibility ANSI/ISEA 107-2015 Class 2 or 3 vest or jacket, and hardhat meeting the high-visibility headwear requirements of WAC 296-155-305; and (2). During hours of darkness (½ hour before sunset to ½ hour after sunrise) or other low visibility conditions (snow, rain, fog, etc.), workers shall wear a high-visibility ANSI/ISEA 107-2015 Class 2 or 3 vest or jacket, high-visibility lower garment meeting ANSI/ISEA 107-2015 Class E, and headwear meeting the high-visibility headwear requirements of WAC 296-155-305.

- **APPAREL - OTHER CONTRACTOR PERSONNEL:**
  The Agency and/or the Contractor shall require all other personnel in WSDOT-owned highway right-of-way or highway right-of-way under WSDOT jurisdiction under their control (including Service Providers, Subcontractors, and lower tier Subcontractors) that are on foot in the Work zone and are exposed to vehicle traffic or construction equipment to wear the high-visibility apparel meeting Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2015 publication titled "American National Standard for High Visibility Safety Apparel and Headwear".

☒ **13. INTERFERENCE TO WSDOT HIGHWAY DRAINAGE** *(Applicable to Counties and Limited Access in All Cities)*
If the Improvements done under this Agreement interferes in any way with the drainage of WSDOT highway, the Agency shall wholly and at its own expense make such provision - as WSDOT may direct, to address the said drainage.

☒ **14. SEVERANCE AND SALE OF TIMBER AND OTHER PERSONALTY — REMOVAL OF NON-MARKETABLE MATERIALS** (*Applicable to Counties and Limited Access in All Cities)*
This Agreement is subject to RCW 47.12.140, and amendments thereto. This Agreement does not authorize the Agency, its' employees, contractors, or agents, any right to cut or remove any trees or timber located on WSDOT right-of way or upon state highway right of way under WSDOT jurisdiction without prior written approval from WSDOT.

☒ **15. MAINTENANCE OF LANDSCAPING** *(Applicable to Cities ONLY)*
The Agency is responsible for the maintenance of all landscaping beyond the back of the curbs or edge of pavement, and in the median of divided highways.

☐ **16. MATERIALS AND QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)** *(Applicable to ALL Projects)*

- **MATERIALS AND WORKMANSHIP**
  All materials and workmanship shall conform to the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction, current edition, and amendments thereto, and shall be subject to inspection by WSDOT.

- **MATERIALS TESTING/REPORTING OF RESULTS**
  All materials testing is to be performed by the Agency or an Independent Certified Testing Laboratory of their choice. Copies of all test results shall be submitted to WSDOT's Construction Representative prior to beginning the next phase of construction. WSDOT reserves the right to verify the test results or to perform the testing.

- **APPROVAL OF MATERIALS –**

  REQUEST for APPROVAL of MATERIALS (RAM)
  The RAM shall be prepared by the Contractor or Agency in accordance with the instructions on Form 350-071 and submitted to WSDOT's Construction Representative for approval before the material is incorporated into the Improvements. All material, including proposed Aggregate Sources, shall be listed on the RAM Form. Approval of the material does not constitute acceptance of the material for incorporation into the Improvements. Additional acceptance actions as noted on the RAM need to be completed prior to the materials being incorporated into the Improvements. When requesting approval of an item that requires fabrication, both the fabricator and the manufacturer of the base material shall be identified on the RAM.

QUALIFIED PRODUCTS LIST (QPL)
The most current QPL list available at the time the product is proposed for use shall be used. The QPL submittal shall be prepared by the Contractor or Agency in accordance with the instructions in the QPL and submitted to WSDOT's Construction Representative prior to use. The QPL identifies the approved products, the applicable Specification Section, and the basis for acceptance at the project level. The acceptance and use of these products is based upon additional job sampling and/or documentation. All additional acceptance actions need to be completed prior to the material being incorporated into the Improvements. Qualified products not conforming to the Specifications, not fulfilling the acceptance requirements, or improperly handled or installed, shall be replaced at the Contractor's expense. If there is a conflict between the QPL and the Contract, the provisions of the Contract shall take precedence over the QPL. The current QPL can be accessed online at www.wsdot.wa.gov/biz/mats/qpl/qpl.cfm.

AGGREGATE SOURCE APPROVAL (ASA)
All aggregates proposed for use on the project shall be from Pre-Approved WSDOT Sources. Pre-Approved Sources can be found on WSDOT's ASA database which contains results of WSDOT preliminary testing of aggregate sources. The ASA database can be accessed online at the agency website at: http://www.wsdot.wa.gov/biz/mats/ASA/ASASearch.cfm. This database is used by WSDOT to indicate the approval status of these aggregate sources for applications that require preliminary testing as defined in the Contract. The ASA '*Aggregate Source Approval Report'* identifies the currently approved applications for each aggregate source listed. The acceptance and use of these aggregates is contingent upon additional job sampling and/or documentation. Aggregates approved for applications on the ASA '*Aggregate Source Approval Report'* not conforming to the Specifications, not fulfilling the acceptance requirements, or improperly handled or installed, shall be replaced at the Contractor's or Local Agency's expense.

- **HOT MIX ASPHALT (HMA) DESIGN**
  Prior to Paving Operations, the Agency shall submit WSDOT approved HMA Mix Design(s) from WSDOT's Qualified Products List (QPL) for use on this project.

- **PAVING OPERATIONS**
  NO PAVING OPERATIONS WILL BE PERMITTED WHEN IT IS RAINING or SNOWING. Written permission from WSDOT's Construction Representative shall be required if paving operations begin before April 1st, or after October 1st. Surface temperature and other paving limitations as per WSDOT Standard Specifications shall be enforced.

- **MATERIAL TRANSFERING DEVICE / VEHICLE**
  The Contractor shall use a material transfer device (MTD) or material transfer vehicle (MTV) to deliver the HMA from the hauling equipment to the paving machine for any lift in (or partially in) the top 0.30 feet of the pavement section used in traffic lanes. However, an MTD/V is not required for HMA placed in irregularly shaped and minor areas such as tapers and turn lanes, or for HMA mixture that is accepted by Visual Evaluation. At the Contractor's request the WSDOT Construction Representative may approve paving without an MTD/V; the WSDOT Construction Representative will determine if an equitable adjustment in cost or time is due. If a windrow elevator is used, the WSDOT Construction Representative may limit the length of the windrow in urban areas or through intersections.

- **ROLLERS**
  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. An exception shall be that pneumatic tired rollers shall be used for compaction of the wearing course beginning October 1st of any year through March 31st of the following year. Coverage with a steel wheel roller may precede pneumatic tired rolling. Operation of the roller shall be in accordance with the manufacturer's recommendations. The use of equipment that results in crushing of the aggregate will not be permitted. Rollers producing pickup, washboard, uneven compaction of the surface, or displacement of the mixture, or other undesirable results shall not be used.

- **JOINT SEALING**
  All joints between existing and new pavement; or other cracks requiring repair shall be adequately cleaned and then sealed with PG 67-22 Liquid Asphalt in accordance with the manufacturer's recommendations. Filling shall be controlled to confine the material within the crack or joint. If, in the opinion of WSDOT's Construction Representative, the Contractor's method of filling results in an excessive amount of sealant on the pavement surface, filling shall be stopped, and the method changed. Any overflow shall be cleaned from the pavement surface.

- **QUALIFICATION of CONCRETE SUPPLIERS**
  Concrete Batch Plant Prequalification requires a certification by the National Ready-Mix Concrete Association (NRMCA). A copy of that Certificate shall be submitted to WSDOT's Construction Representative prior to placement of cement concrete.

- **CONCRETE MIX DESIGN**
  Prior to any placement of cement concrete, the Agency shall submit WSDOT approved Mix Design(s) for use on this Project to WSDOT's Construction Representative.

☐ **17. UNSUITABLE MATERIALS** *(Applicable to ALL Projects)*
If determined necessary by WSDOT, unsuitable material encountered during any excavation shall be removed and replaced to the satisfaction of WSDOT at the Agency's expense. The replacement material shall be free-draining and granular, or other materials as determined by WSDOT's Construction Representative in accordance with the Standard Specifications.

☐ **18. DRAINAGE AND UTILITY CONSTRUCTION (***Applicable to Counties and Limited Access in All Cities)*

- **PIPE END TREATMENT.**
  All culvert pipes shall have beveled end sections and quarry spalls shall be placed around end of pipes in the bottom of the ditch, and on the side of the slopes.

- **UTILITY COVER ELEVATION.**
  All manholes, valve covers, and like appurtenances shall be constructed at such an elevation to conform to the shoulder slope from the edge of pavement or as directed by WSDOT.

- **DRAINAGE STRUCTURES**
  Only structures stamped APPROVED by WSDOT's Fabrication Inspection Office shall be used on this project.

☒ **19. RIGHT-OF-WAY PRESERVATION, MAINTENANCE, AND RESTORATION** *(Applicable to Counties and Limited Access in All Cities)*
The Agency shall preserve, maintain, establish and augment vegetation on the roadsides and within mitigation or sundry site areas. This includes vegetation preservation, weed and pest control, furnishing and placing topsoil, compost, and soil amendments, and furnishing and planting seed, sod and plants of all forms and container types. This also includes performing plant establishment activities and soil bioengineering. Work shall be performed in accordance with WSDOT Specifications and as shown in the Plans or as designated by the Construction Representative. Trees, whips, shrubs, ground covers, cuttings, live stakes, live poles, live branches, rhizomes, tubers, rootstock, and seedlings will hereinafter be referred to collectively as "plants" or "plant material". Grass, wildflowers, and other plant materials installed in seed form will hereinafter be referred to collectively as "seed".

Upon completion of all Improvement's, the Agency shall immediately remove all rubbish, scraps, brush, timber, waste materials, or other debris etc. from State highway right of way, leaving the right of way in a safe, neat, and presentable condition to the WSDOT's sole satisfaction. The aesthetics of the right-of-way shall be as it was before the work started, or better. In addition, all WSDOT owned and maintained drainage systems must be, cleared of obstructions, restored, and fully operational. Any work-related clean up, restoration, necessary slope treatment / protection, or drainage restoration of WSDOT-owned right of way not completed within seven (7) calendar days of work completion, unless WSDOT approves otherwise in writing, will be performed by WSDOT at the Agency's expense. The Agency agrees to reimburse WSDOT's actual direct and related indirect costs and expenses for performing the Improvements pursuant to the provisions of Section 7.0 – Payment.

☒ **20. EROSION CONTROL and WATER POLLUTION CONTROL** *(Applicable to Counties and Limited Access in All Cities)*

- **BEST MANAGEMENT PRACTICES (BMP'S)**
  During construction of this project, the Agency shall furnish, install, maintain, remove and dispose of best management practices (BMPs), as defined in the Washington Administrative Code (WAC) 173-201A, to manage erosion and water quality in accordance with these Specifications and as shown in the Plans, or as designated by the Construction Representative. The Contracting Agency may have a National Pollution Discharge Elimination System Construction Stormwater General Permit (CSWGP) as identified in the Contract Special Provisions. The Contracting Agency may or may not transfer coverage of the CSWGP to the Contractor when a CSWGP has been obtained. The Contracting Agency may not have a CSWGP for the project but may have another water quality related permit as identified in the Contract Special Provisions or the Contracting Agency may not have water quality related permits but the project is subject to applicable laws for the Work.

☒ **21. LANDSCAPING ON WSDOT RIGHT-OF-WAY** *(Applicable to Counties and Limited Access in All Cities)*

- **PLANTINGS.**
  If the Agency desires to plant and/or cultivate any shrubs, trees, hedges, or other domestic or native ornamental growth on WSDOT-owned highway right-of-way that is more extensive than regular WSDOT vegetation, the Agency shall obtain a Roadside Vegetation Permit (DOT Form 220-018) from WSDOT for the maintenance of the plantings.

- **IRRIGATION SYSTEMS.**
  If the Agency desires to install an irrigation system, the Agency may be required to obtain additional approval. The Agency shall be responsible for water and electrical costs.

☒ **22. DISTURBANCE OF EXISTING RIGHT-OF-WAY VEGETATION** *(Applicable to Counties and Limited Access in All Cities)*
Unless otherwise authorized by WSDOT's representative in writing prior to the start of any Improvements, this Agreement does not authorize the Agency, its' employees, contractors, or agents, any right to cut, spray, retard, remove, destroy, disfigure, or in any way modify the physical condition of any vegetative or landscaping material located on WSDOT-owned highway right-of-way or upon state highway right of way under WSDOT jurisdiction. Should the Agency anticipate that its' Improvements will alter the appearance of WSDOT-owned Highway right-of-way vegetation or landscaping, the Agency shall notify the Department Representative listed in Special Provision 1 to obtain WSDOT's prior written approval of the Agency's proposed Improvements. If WSDOT allows the Agency to modify WSDOT-owned highway right-of-way vegetation, it agrees that any vegetation cutting and/or trimming activities shall be conducted in such a manner that WSDOT-owned Highway right-of-way vegetation and landscaping appearance or functionality will not be altered or damaged. Should the Agency damage or alter the appearance of WSDOT-owned Highway right-of-way vegetation or landscaping without WSDOT's prior written approval, the Agency is subject to penalties provided for in RCW's 47.40.070, 47.40.080, and 4.24.630, as applicable.

☒ **23. ILLUMINATION CONSTRUCTION / INSPECTION** *(Applicable to Counties and Limited Access in All Cities)*

- **CONSTRUCTION**
  The Agency shall assure that the construction of all illumination installed within WSDOT-owned highway right-of-way or highway right-of-way under WSDOT jurisdiction meets all requirements of WSDOT.

- **ILLUMINATION DURING CONSTRUCTION**
  Pre-existing illumination shall be maintained and functional at all times during construction until the new illumination is operational.

☒ **24. TRAFFIC SIGNAL CONSTRUCTION / INSPECTION** *(Applicable to City Projects within Limited Access Areas, Projects within Cities < 27,500 Population, and all County Projects)*

- **DESIGN/CONSTRUCTION**
  The Agency shall assure that the design and construction of Traffic Signals and illumination on signal poles installed within WSDOT Highway right-of-way meets all requirements of WSDOT.

- **PERMITTING and INSPECTIONS**

Electrical installations are subject to electrical inspection in accordance with RCW 19.28.101. Electrical inspections may only be performed by an electrical inspector meeting the requirements of RCW 19.28.321. Electrical installations will not be accepted until they have been inspected and approved by an electrical inspector as required by this Section. This inspection is required even if there is no new electrical service or new electrical meter being installed in the Contract. Installations within WSDOT right of way are subject to a minimum of a final inspection by a WSDOT certified electrical inspector as allowed by RCW 19.28.141. A separate permit is not required for electrical installations within WSDOT right of way. Additional inspections may be required at the discretion of the Engineer. Installations outside of WSDOT right of way are subject to permitting and inspection by the Washington State Department of Labor and Industries (L&I) or a local jurisdiction approved for that location by L&I. Approved local jurisdictions and their contacts can be found on the L&I website at www.lni.wa.gov/TradesLicensing/Electrical/FeePermInsp/CityInspectors.

- **TRAFFIC SIGNAL STANDARDS – APPROVAL**
  Traffic signal standards shall be furnished and installed in accordance with the methods and materials noted in the applicable Standard Plans, pre-approved plans, or special design plans. If the proposed signal standards are not on WSDOT's PRE-APPROVED LIST (http://www.wsdot.wa.gov/eesc/bridge/lightsignalstandards/index.cfm), Signal Pole Shop Drawings (Electronic) shall be submitted to WSDOT's Construction Representative for transmittal to HQ for approval.

- **FOUNDATIONS**
  Foundation concrete shall conform to the requirements for the specified class, be cast- in-place concrete and be constructed in accordance with Standard Specifications Sections 6-02.2 and 6-02.3. Concrete for Type II, III, IV, V, and CCTV signal standards and light standard foundations shall be Class 4000P and does not require air entrainment. Concrete for pedestals and cabinets, Type PPB, PS, I, FB, and RM signal standards and other foundations shall be Class 3000. Concrete placed into an excavation where water is present shall be placed using an approved tremie. If water is not present, the concrete shall be placed such that the free-fall is vertical down the center of the shaft without hitting the sides, the steel reinforcing bars, or the steel reinforcing bar cage bracing. The Section 6-02.3(6) restriction for 5-feet maximum free-fall shall not apply to placement of Class 4000P concrete into a shaft. Steel reinforcing bars for foundations shall conform to Section 9-07. The bottom of concrete foundations shall rest on firm ground. If the portion of the foundation beneath the existing ground line is formed or cased instead of being cast against the existing soil forming the sides of the excavation, then all gaps between the existing soil and the completed foundation shall be backfilled and compacted in accordance with Section 2-09.3(1)E. Foundations shall be cast in one operation where practicable. The exposed portions shall be formed to present a neat appearance.

- **ILLUMINATION DURING CONSTRUCTION.**
  Existing electrical systems, traffic signal or illumination, or approved temporary replacements, shall be kept in effective operation during the progress of the Work, except when shutdown is permitted to allow for alterations or final removal of the system.

  If a portion of an existing communication conduit system is damaged due to the Contractor's activities, the affected system shall be restored to original condition. Conduit shall be repaired. Communication cables shall be replaced, and the communication system shall be made fully operational within 24 hours of being damaged.

- **TEMPORARY DETECTION SYSTEM.**
  If any traffic detection loop is scheduled to be disabled, an approved temporary detection system shall be completely installed and made operational prior to any associated induction loop being disabled. Detection loops damaged due to the Contractor's activities shall be replaced and signal detection shall be fully operational within 48 hours of being damaged; or – temporary detection shall be installed and operational.

- **TRAFFIC DETECTION LOOPS.**
  The Contractor shall notify the Area Traffic Engineer through WSDOT's Construction Representative a minimum of five working days in advance of pavement removal or grinding in areas with existing loops.

  All new traffic detection loops shall be installed after grinding or prior to paving the final lift of asphalt unless otherwise approved in writing by WSDOT's Construction Representative.

  If WSDOT's Construction Representative suspects that damage to any traffic detection loop, not identified in the Plans as being replaced, may have resulted from Contractor's operations or is not operating adequately, WSDOT's Construction Representative may order the Contractor to perform the field tests specified in Section 8 20.3(14)D. The test results shall be recorded and submitted to WSDOT's Construction Representative. Loops that fail any of these tests shall be replaced and operational.

  Traffic detection loops that fail the tests, as described above, and are replaced shall be installed in accordance with current WSDOT design standards and Standard Plans, as determined by WSDOT's Construction Representative.

  If traffic detection loops that fail the tests, as described above, are not replaced and operational within 48 hours, the Contractor shall install and maintain interim video detection until the replacement loops are operational. The type of interim video detection furnished shall be approved by WSDOT's Construction Representative prior to installation.

- **TRAFFIC SIGNAL HEADS**
  Unless ordered otherwise in writing by WSDOT's Construction Representative, signal heads shall not be installed at any intersection until all other signal equipment is installed and the controller is in place, inspected, and ready for operation at that intersection, except that the signal heads may be mounted if the faces are covered with Signal Head Covering Material to clearly indicate the signal is not in operation.

- **SIGNAL HEAD COVERING**
  The signal head covering material shall be manufactured from a durable fabric material, black in color with a mesh front, and designed to fit the signal head configuration properly. The covers shall have an attachment method that will hold the cover securely to the signal in heavy wind. The covers shall be provided with a drain to expel any accumulated water.

- **TRAFFIC SIGNAL PRE-TURN-ON COORDINATION MEETING AND TESTING.**
  Prior to a Traffic Signal Turn-on event, the Agency/Contractor shall conduct a Pre-Turn-on coordination meeting with the following Contracting Agency personnel included as invited attendees: WSDOT's Construction Representative, Electrical Inspector, Signal Operations Engineer, and Signal Maintenance Technician. The Agency/Contractor shall provide the Engineer a minimum of 5 days written notice of the proposed Pre-Turn-on coordination meeting date and time. Prior to the Pre-Turn-on coordination meeting, the Agency/Contractor shall complete the items of Improvements detailed in the Traffic Signal Turn-on Checklist and submit the completed checklist to WSDOT's Construction Representative. The Traffic Signal Turn-on Checklist form will be furnished to the Agency/Contractor by WSDOT's Construction Representative.

  Unless approved by WSDOT's Construction Representative, the permitted hours for Pre-Turn-On coordination and testing shall be per the Approved Traffic Control Plan(s) for the specific operation.

- **TRAFFIC SIGNAL TURN-ON AND/OR SWITCHOVER OPERATIONS.**
  The Agency shall contact WSDOT's Construction Representative at least five (5) working days prior to scheduling a signal turn-on in order to assure that all appropriate items on WSDOT's "Traffic Signal Turn-On Checklist" are satisfactorily addressed. The Signal Turn-On or Switchover shall not occur until all applicable Checklist items are installed and/or connected. This Checklist can be located on WSDOT's web site at**:** http://www.wsdot.wa.gov/Northwest/DevelopmentServices/LocalAgency.htm *(Go to: "What is needed to turn on a traffic signal?")*.

  Prior to scheduling a turn-on date, the Agency/Contractor shall provide verification to WSDOT Construction Representative that all required testing has been satisfactorily completed.

  The traffic signal turn-on procedure shall not begin until all required channelization, pavement markings, illumination, signs, and sign lights are substantially complete and operational unless otherwise allowed by WSDOT's Construction Representative.

  If the Contractor is directed to turn off the traffic signal, the Contractor shall schedule a new turn-on date with the Engineer in accordance with the previously mentioned procedures.

- **PERMITTED HOURS FOR SIGNAL TURN-ON AND/OR SWITCH-OVER OPERATIONS.**
  Unless approved by WSDOT's Construction Representative, the permitted hours for Traffic Signal Turn-on or Switch-Over shall be per the Approved Traffic Control Plan(s) for the specific operation. Signal Switchover and Turn-On operations are permitted only on Tuesday, Wednesday, or Thursday – except in the case of an emergency. No Switchover or Turn-On operations will be permitted on Monday, Friday, weekends, holidays, or the day preceding a holiday.

- **NEW SIGNAL AHEAD/SIGNAL REVISION WARNING SIGNING.**
  Whenever a new signal is constructed or an existing traffic signal is modified, Class A Construction Signs with the message "NEW SIGNAL AHEAD" (W20-902) or "SIGNAL REVISION AHEAD" (W20-903) shall be installed in advance of all affected directions of travel on the Project when a new traffic signal system is installed or when modifications to and existing signal are made. The location of the signs shall be per Section 2C.05 of the MUTCD, or as directed by WSDOT's Construction Representative. These signs shall be 48" X 48;" black letters on orange background and shall be post mounted. The bottom of the sign shall be mounted five (5) to seven (7) feet above the pavement elevation. Each sign shall have three (3) 12" by 12" Fluorescent Orange flags or Flag Signs mounted on both sides and on top of the sign. The flags signs shall be made of aluminum, durable cloth, or plastic. The signs and flags shall stay erect for six to eight weeks or as directed by WSDOT's Construction Representative.

☒ **25. INTELLIGENT TRANSPORTATION SYSTEM CONSTRUCTION/INSPECTION** *(Applicable to City Projects within Limited Access Areas, Projects within Cities < 27,500 Population, and all County Projects)*
The Agency shall assure that the construction of Intelligent Transportation Systems owned by WSDOT meets all requirements of WSDOT.

If a portion of an existing communication conduit system is damaged due to the Contractor's activities, the affected system shall be restored to original condition. Conduit shall be repaired. Communication cables shall be replaced, and the communication system shall be made fully operational within 24 hours of being damaged.

☒ **26. SLIP-RESISTANT SURFACING FOR JUNCTION BOXES, CABLE VAULTS, AND PULL BOXES** *(Applicable to City Projects within Limited Access Areas, Projects within Cities < 27,500 Population, and all County Projects)*
Where slip-resistant junction boxes, cable vaults, or pull boxes are required, each box or vault 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 ½ inch wide 30 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

☐ **27. SIGN FABRICATION, INSTALLATION, AND MAINTENANCE** *(Applicable to ALL Projects)*
All Directional, Regulatory, and Stop Signs as well as Route Markers shall be installed as per the Approved Plans, WSDOT Standard Plans, or as directed by WSDOT's Construction Representative. The DEPARTMENT shall own and maintain these signs- unless the Agency signs a Contract or Maintenance Agreement with WSDOT to perform sign maintenance.

All STOP, YIELD, DO NOT ENTER, WRONG WAY, FREEWAY ENTRANCE, HIGHWAY ENTRANCE and ROUTE MARKER signs shall be constructed entirely of Type III or IV reflective sheeting. All M series, I series, and D-10 series signs and all signs with blue or brown backgrounds shall be constructed entirely of Type II reflective sheeting unless otherwise specified. Background reflective sheeting for all other signs shall be as noted in the Plans. Sign legends for all other signs shall be constructed of Type III or IV reflective sheeting. Sign legends include borders, letters, numerals, symbols, shields, and arrows. Reflective legend sheeting types shall not be mixed on individual signs.

All signs shall show the manufacturer's name and date of manufacture on the back. In addition, the width and height dimension, in inches, the Contract number, and the number of the sign as it appears in the Plans shall be placed using 3-inch series C black letters on the back of destination, distance, and large special signs. Hand painted numbers are not permitted.

☒ **28. TRAFFIC REVISION WARNING SIGNING** *(Applicable to ALL Projects)*
When the permanent channelization of the highway is changed, Class A Construction Signs with the message "TRAFFIC REVISION AHEAD" (W20-901) signs shall be installed in advance of all affected directions of travel of the Project. The location of the signs shall be per Section 2C.05 of the MUTCD, or as directed by WSDOT's Construction Representative. These signs shall be 48" X 48" black letters on orange background and shall be post mounted. The bottom of the sign shall be mounted five (5) to seven (7) feet above the pavement elevation.

☒ **29. REMOVAL OF PAVEMENT MARKINGS** *(Applicable to ALL Projects)*
Pavement markings to be removed shall be obliterated until all blemishes caused by the pavement marking removal conform to the coloration of the adjacent pavement. Grinding to remove pavement markings in their entirety is allowed in areas designated for applications of either Hot Mix Asphalt (HMA) or Bituminous Surface Treatment (BST). Pavement marking removal shall be performed from April 1st through September 30th and only in those areas that shall be paved within the same time window as the grinding, unless otherwise allowed by the Engineer in writing. For all cement concrete pavement and areas that will not be overlaid with hot mix asphalt or BST, grinding is allowed to a depth just above the pavement surface and then Water blasting or shot blasting shall be required to remove the remaining pavement markings. If in the opinion of the Engineer, the pavement is materially damaged by pavement marking removal, such damage shall be repaired by the Contractor in accordance with Section 1-07.13(1). Sand or other material deposited on the pavement as a result of removing lines and markings shall be removed as the Work progresses to avoid hazardous conditions. Accumulation of sand or other material which might interfere with drainage will not be permitted.

☒ **30. APPLICATION OF CHANNELIZATION PAVEMENT MARKINGS** *(Applicable to City Projects within Limited Access Areas, Projects within Cities < 27,500 Population, and all County Projects).*
Two applications of paint shall be required for all paint stripe markings as per the WSDOT Standard Specifications. Plastic Pavement Markings shall also be applied per the WSDOT Standard Specifications.

☒ **31. PROTECTION OF NEWLY APPLIED PAVEMENT MARKINGS** *(Applicable to ALL Projects)*
The Agency shall not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Any portion of the pavement markings damaged by passing traffic or from any other cause shall be removed and replaced. Tracked pavement marking material shall be sufficiently removed from the roadway.

☒ **32. ADVERTISING SIGNS** *(Applicable to Counties and Limited Access in All Cities)*
Any advertising adjacent to WSDOT Highways must be in compliance with the Scenic Vistas Act of 1971, Chapter 47.42 RCW and Chapter 468-66 WAC. Violation of this section of the statutes will be sufficient cause for cancellation of this Agreement. Advertising signs are allowed off WSDOT Highway right-of-way, subject to Local Codes and Regulations.

shulerf | 06/30/2004 | 07:43:02 AM | PLOT8 | C:\AAWork\Sr 405\NE40th_NE145th\2969rw27-39_C.dgn

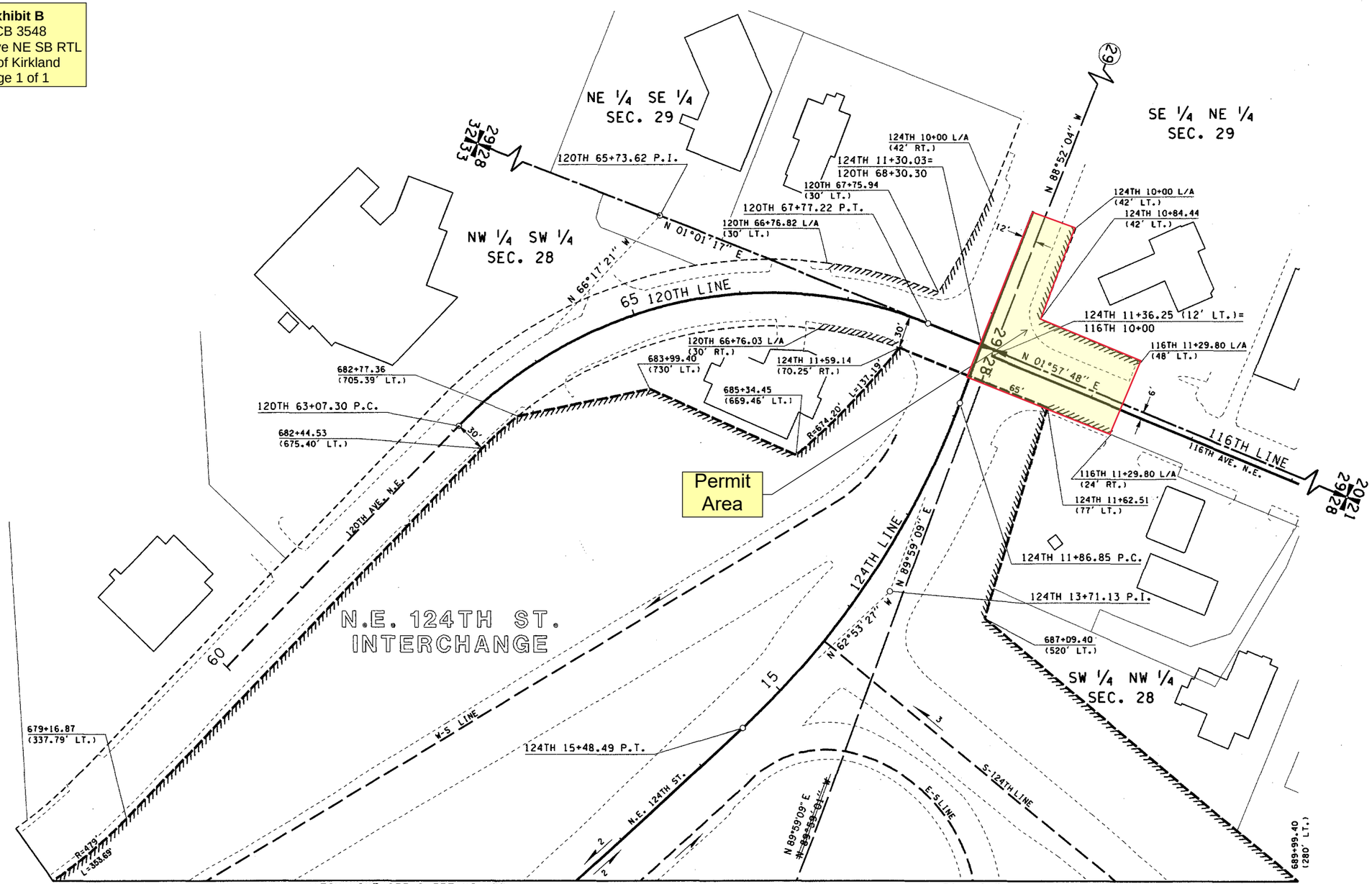
CURVE DATA

P.I. STATION	DELTA	RADIUS	TANGENT	LENGTH
120TH 65+73.62	67°18'38" RT.	400'	266.32'	469.92'
124TH 13+71.13	27°07'24" RT.	763.94'	184.28'	361.64'

Exhibit B
GCB 3548
116th Ave NE SB RTL
City of Kirkland
Page 1 of 1

T.26N. R.5E. W.M.

CITY OF KIRKLAND



THE BASIS OF BEARINGS AND DISTANCES ARE DETERMINED FROM WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (NAD 83/91).

THE DISTANCES SHOWN ARE GROUND DISTANCES. FOR SURVEY INFORMATION SEE RECORD OF SURVEY FOR WASHINGTON STATE DEPARTMENT OF TRANSPORTATION RECORDED SEPTEMBER 2, 2003 AFN 2003090290007.

CENTERLINE ALIGNMENT AND CADASTRAL TIES SHOWN ON THIS PLAN MAY DIFFER SLIGHTLY FROM THE ABOVE REFERENCED SURVEY.

THIS PLAN SUPERSEDES SHEETS 4 THROUGH 11 OF 13 SHEETS OF SR 405, NORTHRUP INTERCHANGE TO N.E. 140TH ST., DATED APRIL 12, 1967.

OWNERSHIP SHOULD BE VERIFIED. PROPERTY RIGHTS SHOWN MAY NOT HAVE BEEN ACQUIRED BY WSDOT.

ACCESS NOTE:
TYPE A APPROACH IS AN OFF AND ON APPROACH IN LEGAL MANNER, NOT TO EXCEED 14 FEET IN WIDTH, FOR SOLE PURPOSE OF SERVING A SINGLE FAMILY RESIDENCE. IT MAY BE RESERVED BY ABUTTIN OWNER FOR SPECIFIED USE AT A POINT SATISFACTORY TO THE STATE AT OR BETWEEN DESIGNATED HIGHWAY STATIONS.

ALL PLANS ARE SUBJECT TO CHANGE. PARTIES SEEKING PRECISE, CURRENT INFORMATION SHOULD CONSULT THE OFFICIAL PLAN ON FILE IN THE DEPT. OF TRANSPORTATION IN OLYMPIA.

MICHAEL G. YEOMAN STATE OF WASHINGTON 19864 REGISTERED PROFESSIONAL LAND SURVEYOR
EXPIRES FEBRUARY 19, 2006
7/20/04

SR 405
N.E. 40TH ST. VIC.
TO N.E. 124TH ST.
INTERCHANGE VIC.

KING COUNTY

RIGHT OF WAY AND LIMITED ACCESS PLAN
FULL CONTROL
MP 20.27 TO MP 20.49
STATION 678+49.28 TO STATION 689+99.40

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIA, WASHINGTON

KEVIN E. WEEK STATE OF WASHINGTON 29742 REGISTERED PROFESSIONAL ENGINEER
7/20/04
EXPIRE 2/16/06

APPROVED AND ADOPTED JULY 30, 2004

RIGHT OF WAY PLANS ENGINEER

SHEET 34 OF 39 SHEETS

Limited Access Established by Commission Findings and Order Issued July 24, 1967.

PARCEL NO.	NAME	TOTAL AREA	R/W	LT. REMAINDER RT.	EASM'T
TOTAL AREA IS FROM ASSESSOR'S RECORDS UNLESS OTHERWISE NOTED.		OWNERSHIPS		ALL AREAS ARE SHOWN IN SQUARE FEET UNLESS OTHERWISE NOTED.	

LEGEND

ACCESS TO BE PROHIBITED SHOWN THUS //////////

PROPERTY OWNERSHIP NUMBERS (1-)

PROPERTY LINES .....

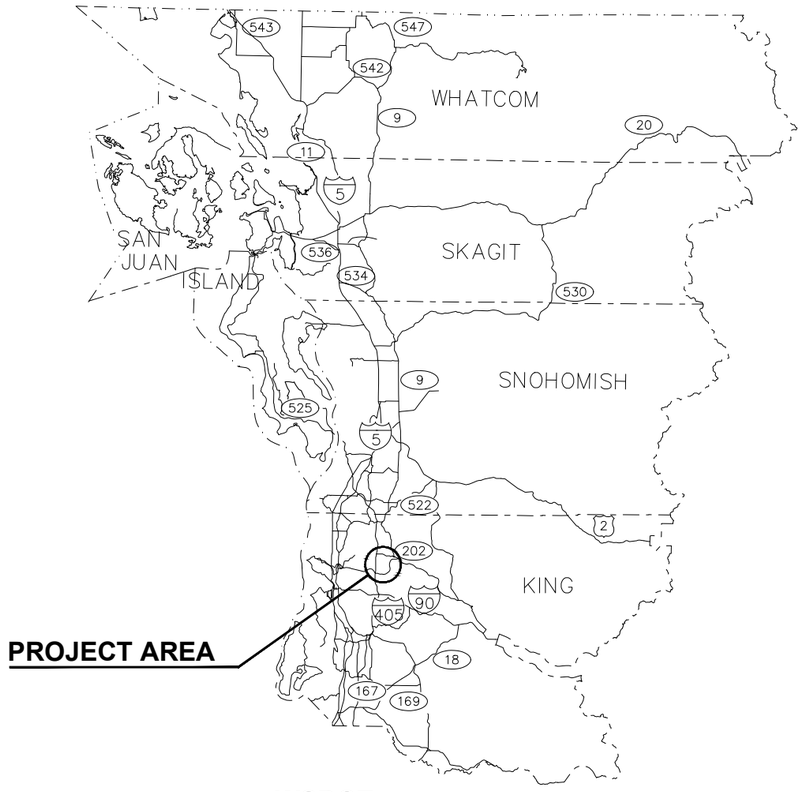
0 50 100
SCALE IN FEET

Reference	Approval	Revision Description	By
Letter 4-19-05	4-29-05	Revised Plan Title	FLS
Letter 2-2-05	2-4-05	Revised Bearing on Quarter Section Line	FLS

Drawer V092 Sequence 05

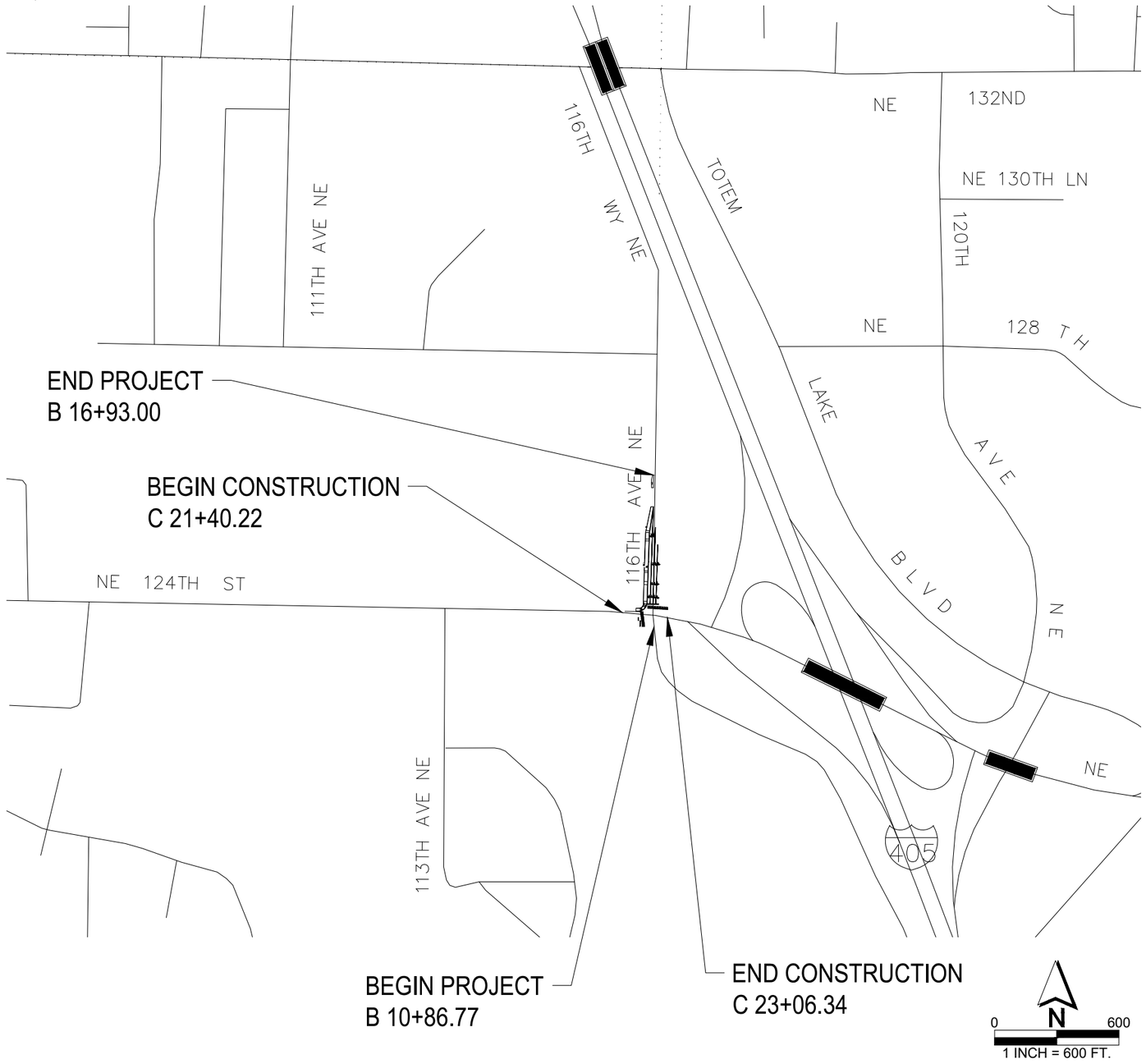
SR 405/422

SEC 28, T. 26N. R. 5E. W.M.



WSDOT
NORTHWEST REGION

Exhibit CGCB
3548116th Ave NE SB
RTLCity of
KirklandPage 1 of 3



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FILE NAME				REGION NO.	STATE	FED.AID PROJ.NO.
TIME				10	WASH	
DATE				JOB NUMBER		
PLOTTED BY						
DESIGNED BY M. TSUN				CONTRACT NO.		LOCATION NO.
ENTERED BY P. EPPERSON						
CHECKED BY C. CLARK						
PROJ. ENGR. C. CLARK						
REGIONAL ADM.	REVISION	DATE	BY			

CYNTHIA MARIE CLARK
STATE OF WASHINGTON
36016
REGISTERED PROFESSIONAL ENGINEER
6/1/2021
DATE
P.E. STAMP BOX

DATE
P.E. STAMP BOX

CITY OF KIRKLAND WASHINGTON

I-405 **SRMP 20.31 TO SRMP 20.31**

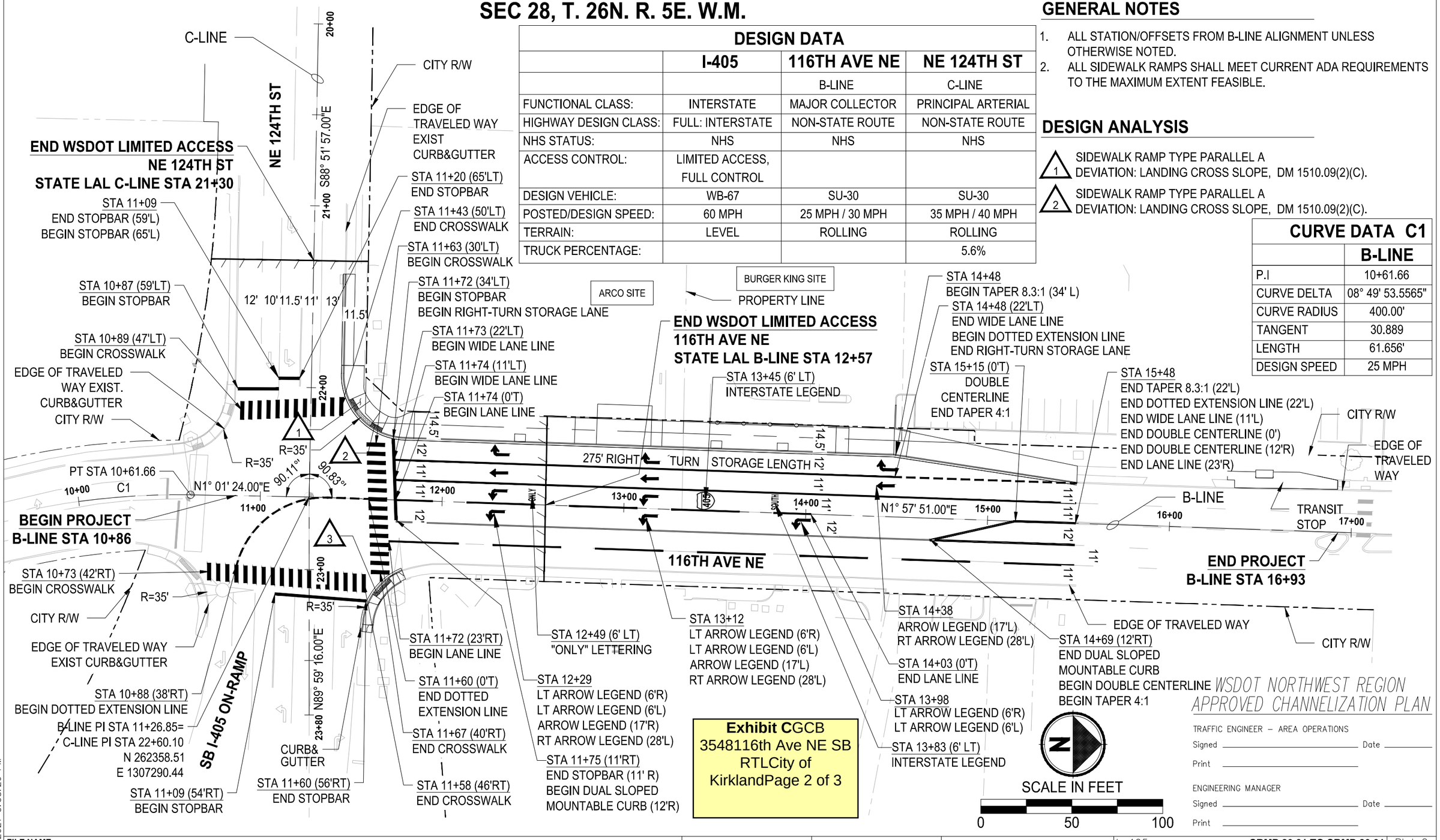
116TH AVE NE IMPROVEMENTS

KING COUNTY **JUNE 2021**

VICINITY MAP

Plot 1
PLAN REF NO VM1
SHEET 1 OF 3 SHEETS

SEC 28, T. 26N. R. 5E. W.M.



DESIGN DATA

	I-405	116TH AVE NE	NE 124TH ST
		B-LINE	C-LINE
FUNCTIONAL CLASS:	INTERSTATE	MAJOR COLLECTOR	PRINCIPAL ARTERIAL
HIGHWAY DESIGN CLASS:	FULL: INTERSTATE	NON-STATE ROUTE	NON-STATE ROUTE
NHS STATUS:	NHS	NHS	NHS
ACCESS CONTROL:	LIMITED ACCESS, FULL CONTROL		
DESIGN VEHICLE:	WB-67	SU-30	SU-30
POSTED/DESIGN SPEED:	60 MPH	25 MPH / 30 MPH	35 MPH / 40 MPH
TERRAIN:	LEVEL	ROLLING	ROLLING
TRUCK PERCENTAGE:			5.6%

GENERAL NOTES

1. ALL STATION/OFFSETS FROM B-LINE ALIGNMENT UNLESS OTHERWISE NOTED.
2. ALL SIDEWALK RAMPS SHALL MEET CURRENT ADA REQUIREMENTS TO THE MAXIMUM EXTENT FEASIBLE.

DESIGN ANALYSIS

1 SIDEWALK RAMP TYPE PARALLEL A
DEVIATION: LANDING CROSS SLOPE, DM 1510.09(2)(C).

2 SIDEWALK RAMP TYPE PARALLEL A
DEVIATION: LANDING CROSS SLOPE, DM 1510.09(2)(C).

CURVE DATA C1

	B-LINE
P.I	10+61.66
CURVE DELTA	08° 49' 53.5565"
CURVE RADIUS	400.00'
TANGENT	30.889
LENGTH	61.656'
DESIGN SPEED	25 MPH

Exhibit CGCB
3548116th Ave NE SB
RTLCity of
KirklandPage 2 of 3

WSDOT NORTHWEST REGION
APPROVED CHANNELIZATION PLAN

TRAFFIC ENGINEER – AREA OPERATIONS
Signed _____ Date _____
Print _____

ENGINEERING MANAGER
Signed _____ Date _____
Print _____

Thursday, May 27, 2021 3:58:26 PM

FILE NAME				REGION NO.	STATE	FED.AID PROJ.NO.
TIME				10	WASH	
DATE				JOB NUMBER		
PLOTTED BY						
DESIGNED BY	M. TSUN			CONTRACT NO.	LOCATION NO.	
ENTERED BY	P. EPPERSON					
CHECKED BY	C. CLARK					
PROJ. ENGR.	C. CLARK					
REGIONAL ADM.		REVISION	DATE	BY		

CYNTHIA MARIE CLARK STATE OF WASHINGTON 36016 REGISTERED PROFESSIONAL ENGINEER
6/1/2021
DATE
P.E. STAMP BOX

DATE
P.E. STAMP BOX

CITY OF KIRKLAND WASHINGTON

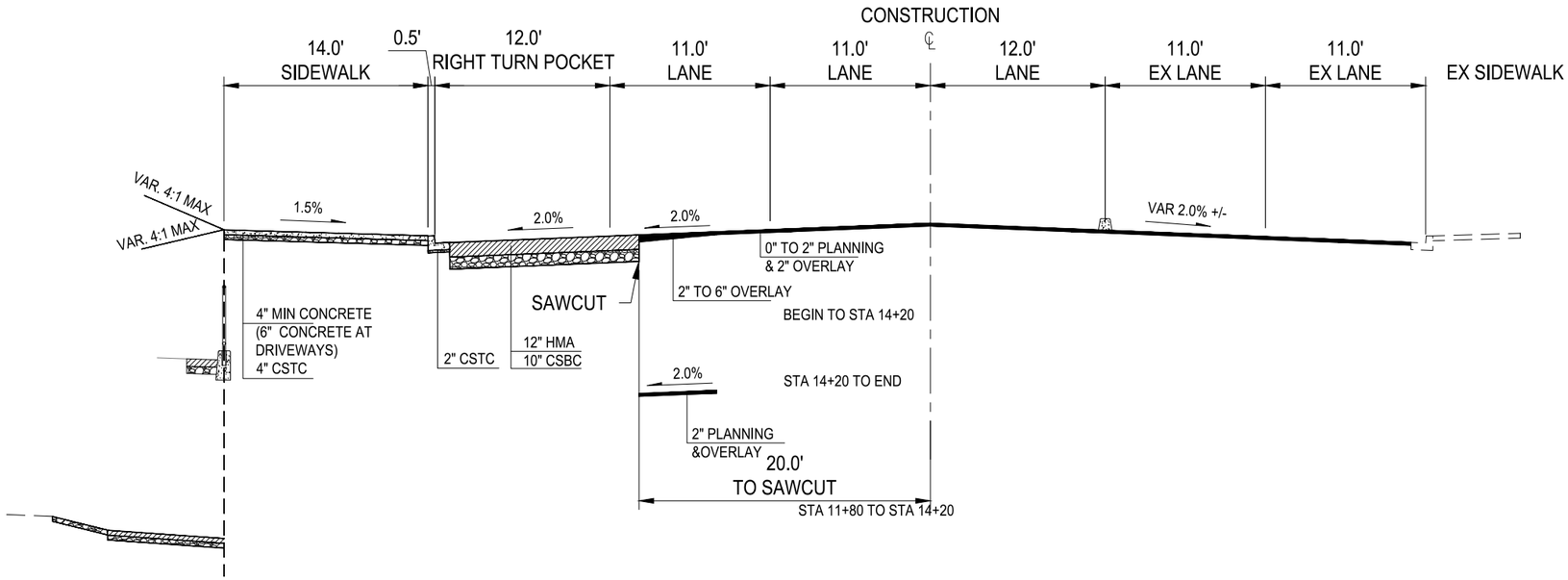
I-405 **SRMP 20.31 TO SRMP 20.31**

116TH AVE NE IMPROVEMENTS

KING COUNTY **JUNE 2021**

CHANNELIZATION

Plot 2
PLAN REF NO CH1
SHEET 2 OF 3 SHEETS



TYPICAL ROADWAY SECTION

Exhibit CGCB
3548116th Ave NE SB
RTLCity of
KirklandPage 3 of 3

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FILE NAME				REGION NO. 10	STATE WASH	FED.AID PROJ.NO.
TIME						
DATE						
PLOTTED BY				JOB NUMBER		
DESIGNED BY	M. TSUN					
ENTERED BY	P. EPPERSON					
CHECKED BY	C. CLARK			CONTRACT NO.		LOCATION NO.
PROJ. ENGR.	C. CLARK					
REGIONAL ADM.		**REVISION**	**DATE**	**BY**		

CYNTHIA MARIE CLARK — STATE OF WASHINGTON — 36019 — REGISTERED PROFESSIONAL ENGINEER
6/1/2021
DATE
P.E. STAMP BOX

DATE
P.E. STAMP BOX

CITY OF KIRKLAND WASHINGTON

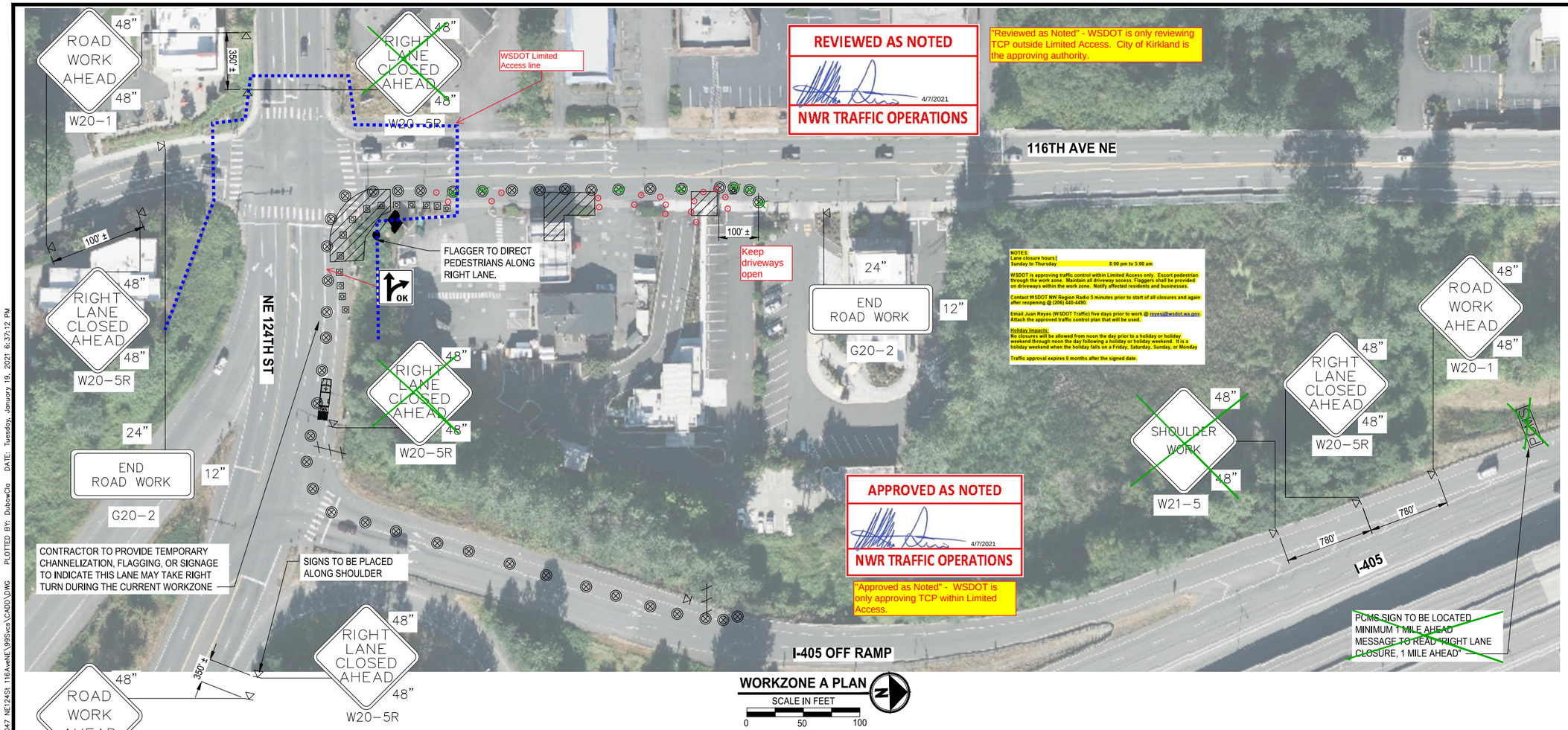
I-405 **SRMP 20.31 TO SRMP 20.31**

116TH ST NE IMPROVEMENTS

KING COUNTY **JUNE 2021**

TYPICAL ROADWAY SECTION

Plot 3
PLAN REF NO CS1
SHEET 3 OF 3 SHEETS



WORKZONE A PLAN

SCALE IN FEET

0 50 100

GENERAL NOTES:

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2. UNIFORMED POLICE OFFICER TO BE PRESENT AT ALL TIMES DURING ANY WORK IMPACTING SIGNALIZED INTERSECTION MOVEMENTS.
3. SEE WSDOT STANDARD TRAFFIC CONTROL PLANS TC5 (SHOULDER CLOSURE - LOW SPEEDS), TC-3 (SINGLE-LANE CLOSURE FOR MULTI-LANE ROADWAYS), TC-11 (LEFT LANE AND CENTER TURN LANE CLOSURE - 5 LANE ROADWAY), AND TC-16 (INTERSECTION PEDESTRIAN TRAFFIC CONTROL) FOR STANDARD TRAFFIC CONTROL DESIGN REFERENCES.
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6. CONTRACTOR SHALL MAINTAIN PEDESTRIAN ACCESS DURING CONSTRUCTION.
7. SEE SPECIAL PROVISIONS FOR WORK HOUR RESTRICTIONS.
8. ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

LEGEND:

- FLAGGING STATION
- TEMPORARY SIGN LOCATION
- CHANNELIZATION DEVICE
- WORK ZONE
- TYPE 3 BARRICADE
- TRAFFIC SAFETY DRUM
- SEQUENTIAL ARROW SIGN
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN
- TRANSPORTABLE ATTENUATOR
- PROTECTIVE VEHICLE
- PEDESTRIAN CHANNELIZING DEVICES

WSDOT STANDARD TRAFFIC CONTROL REFERENCE TABLES

BUFFER DATA

LONGITUDINAL BUFFER SPACE = B

SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (FT)	155	200	250	305	360	425	495	570	645	730

TRANSPORTABLE ATTENUATOR ROLL AHEAD DISTANCE = R

HOST VEHICLE WEIGHT 9,900 TO 22,000 lbs.			HOST VEHICLE WEIGHT > 22,000 lbs.		
< 45 MPH	45-55 MPH	> 55 MPH	< 45 MPH	45-55 MPH	> 55 MPH
100'	123'	172'	74'	100'	150'

PROTECTIVE VEHICLE (WORK VEHICLE) = R

NO SPECIFIED DISTANCE REQUIRED

MINIMUM LANE CLOSURE TAPER LENGTH = L (FT)

LANE WIDTH (FT)	POSTED SPEED (MPH)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	550	-	-	-
11	115	165	225	295	495	550	605	660	-	-
12	125	180	245	320	540	600	660	720	780	840

MINIMUM SHOULDER TAPER LENGTH = L/3 (FT)

SHOULDER WIDTH (FT)	POSTED SPEED (MPH)									
	25	30	35	40	45	50	55	60	65	70
8'	40	40	60	90	-	-	-	-	-	-
10'	40	60	90	90	-	-	-	-	-	-

USE A 3 DEVICES TAPER FOR SHOULDERS LESS THEN 8'

SIGN SPACING = X (1)

RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350' ±
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH	200' ± (2)
URBAN STREETS	25 MPH OR LESS	100' ± (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERSECTIONS AND DRIVEWAYS.
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

CHANNELIZATION DEVICE SPACING (FT)

MPH	TAPER	TANGENT
35/40	30	60
25/30	20	40

Exhibit D
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City of Kirkland
Page 1 of 5

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DEPARTMENT OF PUBLIC WORKS
123 FIFTH AVENUE KIRKLAND, WA 98033
(425) 587-3800 www.kirklandwa.gov

NO.	DATE	BY	APPR.	REVISION

CYNTHIA MARIE CLARK — STATE OF WASHINGTON — 36016 — REGISTERED PROFESSIONAL ENGINEER

APPROVED BY:

DATE:

D. SUSLIKOV — DESIGNED BY: — 1/2021 DATE
C. DUBOW — DRAWN BY: — 1/2021 DATE
D. SCHNEIDER — CHECKED BY: — 1/2021 DATE

TEMPORARY TRAFFIC CONTROL WORKZONE A

NE 124TH ST / 116TH AVE NE INTERSECTION IMPROVEMENTS
CITY OF KIRKLAND, WA

Parametrix
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SHEET: 30 OF 34
SCALE: 1" = 20'
JOB NO.: 214-1802-047
FILENAME:

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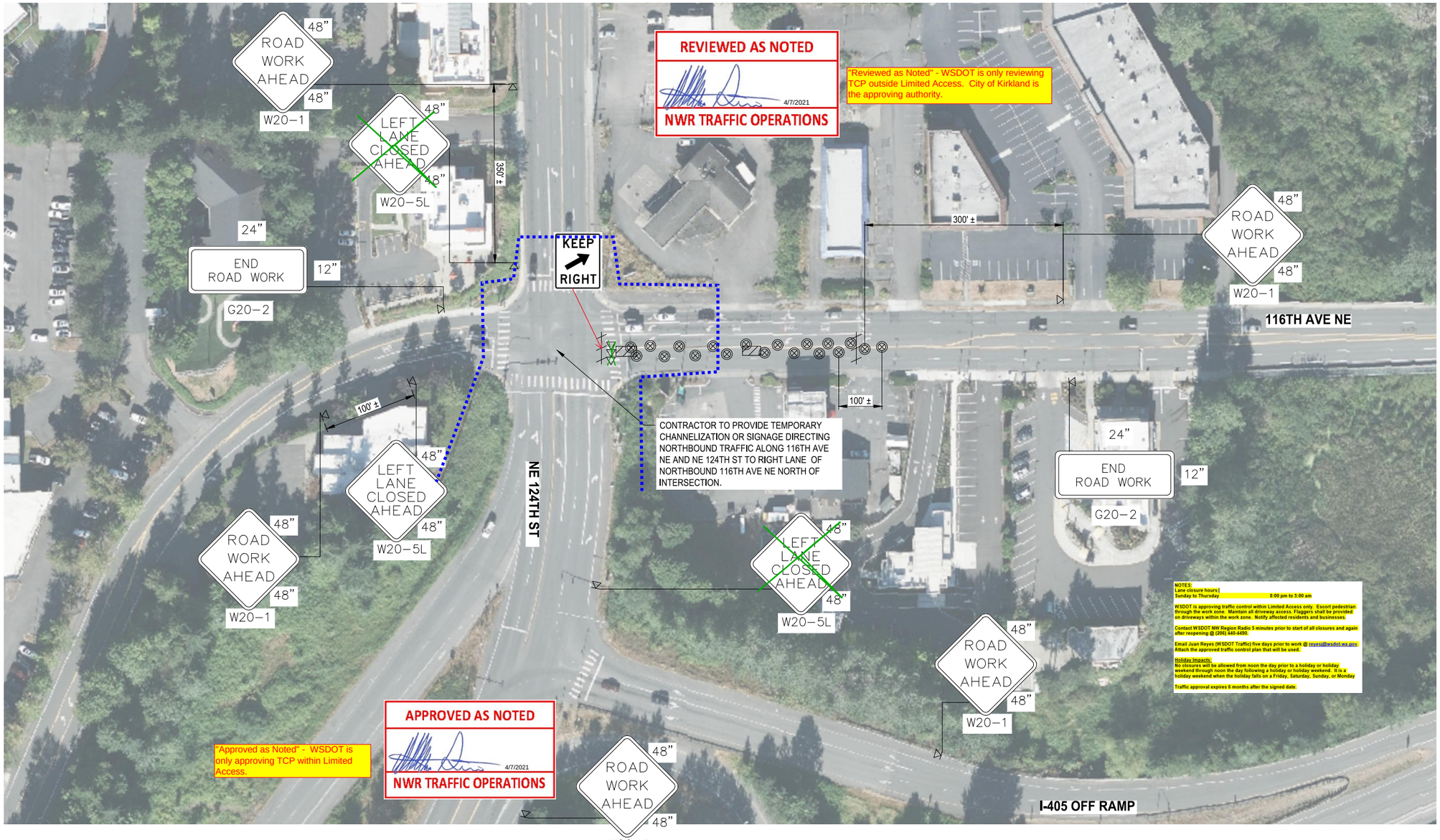

Exhibit D
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Page 2 of 5

WORKZONE B PLAN
SCALE IN FEET
0 50 100

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TEMPORARY TRAFFIC CONTROL WORKZONE B

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NE 124TH ST / 116TH AVE NE INTERSECTION IMPROVEMENTS
CITY OF KIRKLAND, WA

SHEET: 31 OF 34
SCALE: 1" = 20'
JOB NO.: 214-1802-047
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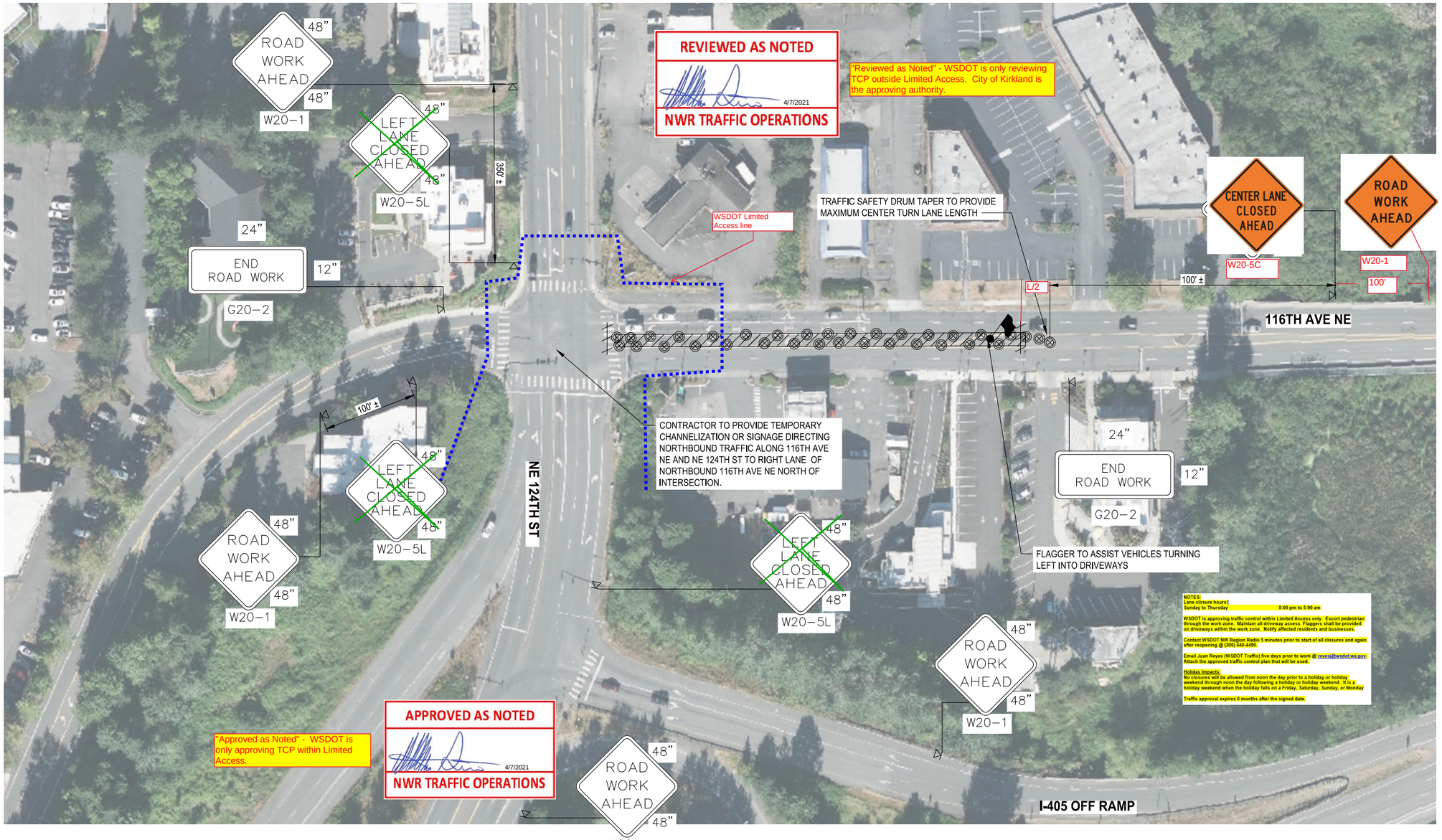

Exhibit D
GCB 3548
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WORKZONE C PLAN
SCALE IN FEET
0 50 100

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NO.	DATE	BY	APPR.	REVISION

CYNTHIA MARIE CLARK — STATE OF WASHINGTON — 36016 — REGISTERED PROFESSIONAL ENGINEER

APPROVED BY:

DATE:

D. SUSLIKOV 1/2021 DESIGNED BY: DATE
C. DUBOW 1/2021 DRAWN BY: DATE
D. SCHNEIDER 1/2021 CHECKED BY: DATE

TEMPORARY TRAFFIC CONTROL WORKZONE C

Parametrix — ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

NE 124TH ST / 116TH AVE NE INTERSECTION IMPROVEMENTS
CITY OF KIRKLAND, WA

SHEET: 32 OF 34
SCALE: 1" = 20'
JOB NO.: 214-1802-047
FILENAME:

FILE: PS1802047TTC-01 LAYOUT: WORKZONE C PATH: U:\PSO\Projects\Clients\1802-City\OfKirkland\214-1802-047 NE124St 116AveNE\99Svcs\CADD\DWG PLOTTED BY: DubowCla DATE: Tuesday, January 19, 2021 6:37:15 PM

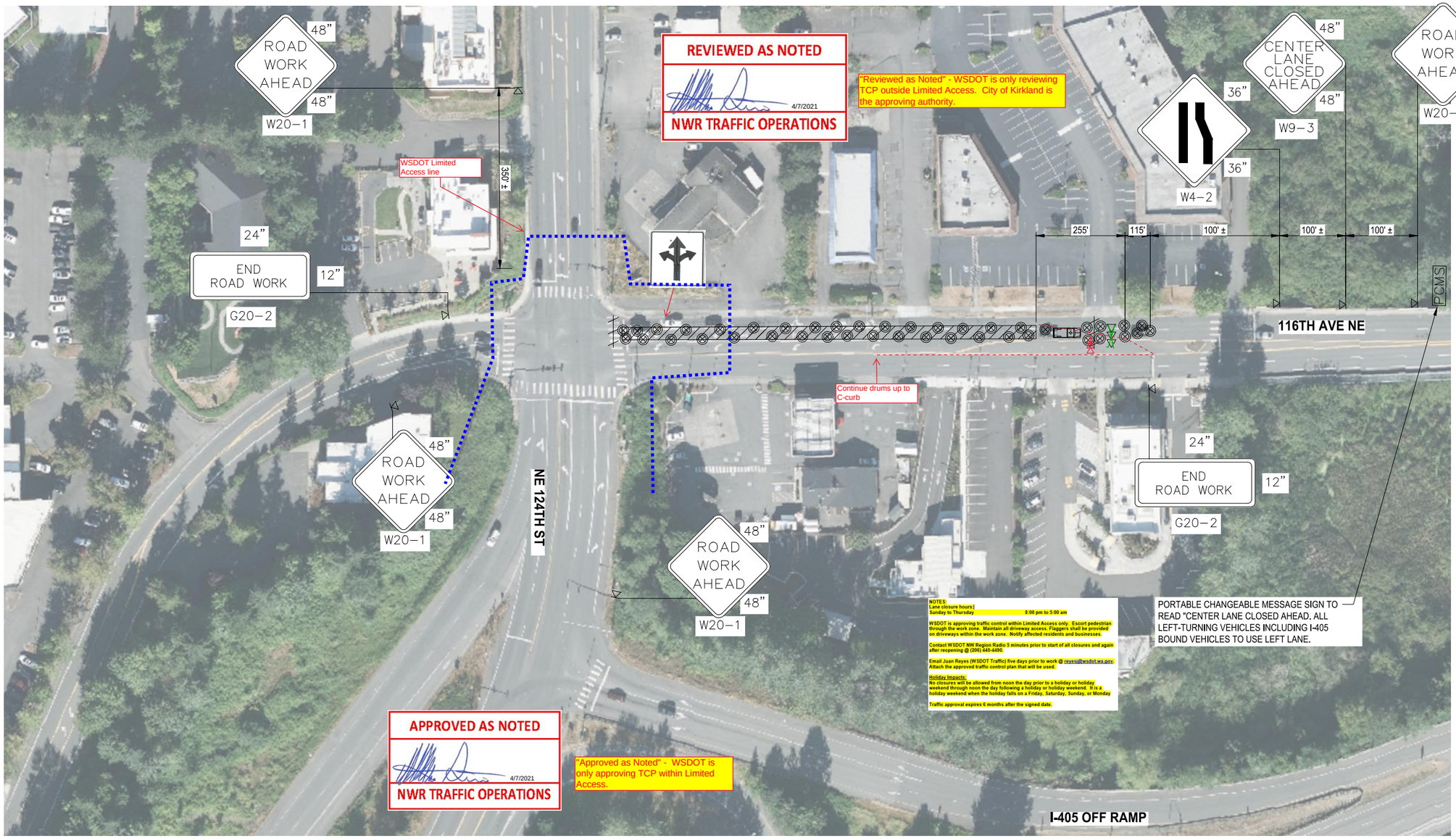

Exhibit D
GCB 3548
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City of Kirkland
Page 4 of 5

WORKZONE D PLAN
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CYNTHIA MARIE CLARK — STATE OF WASHINGTON — 36016 — REGISTERED PROFESSIONAL ENGINEER

APPROVED BY:

DATE:

D. SUSLIKOV DESIGNED BY: 1/2021 DATE
C. DUBOW DRAWN BY: 1/2021 DATE
D. SCHNEIDER CHECKED BY: 1/2021 DATE

TEMPORARY TRAFFIC CONTROL WORKZONE D

NE 124TH ST / 116TH AVE NE INTERSECTION IMPROVEMENTS
CITY OF KIRKLAND, WA

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SHEET: 33 OF 34
SCALE: 1" = 20'
JOB NO.: 214-1802-047
FILENAME:

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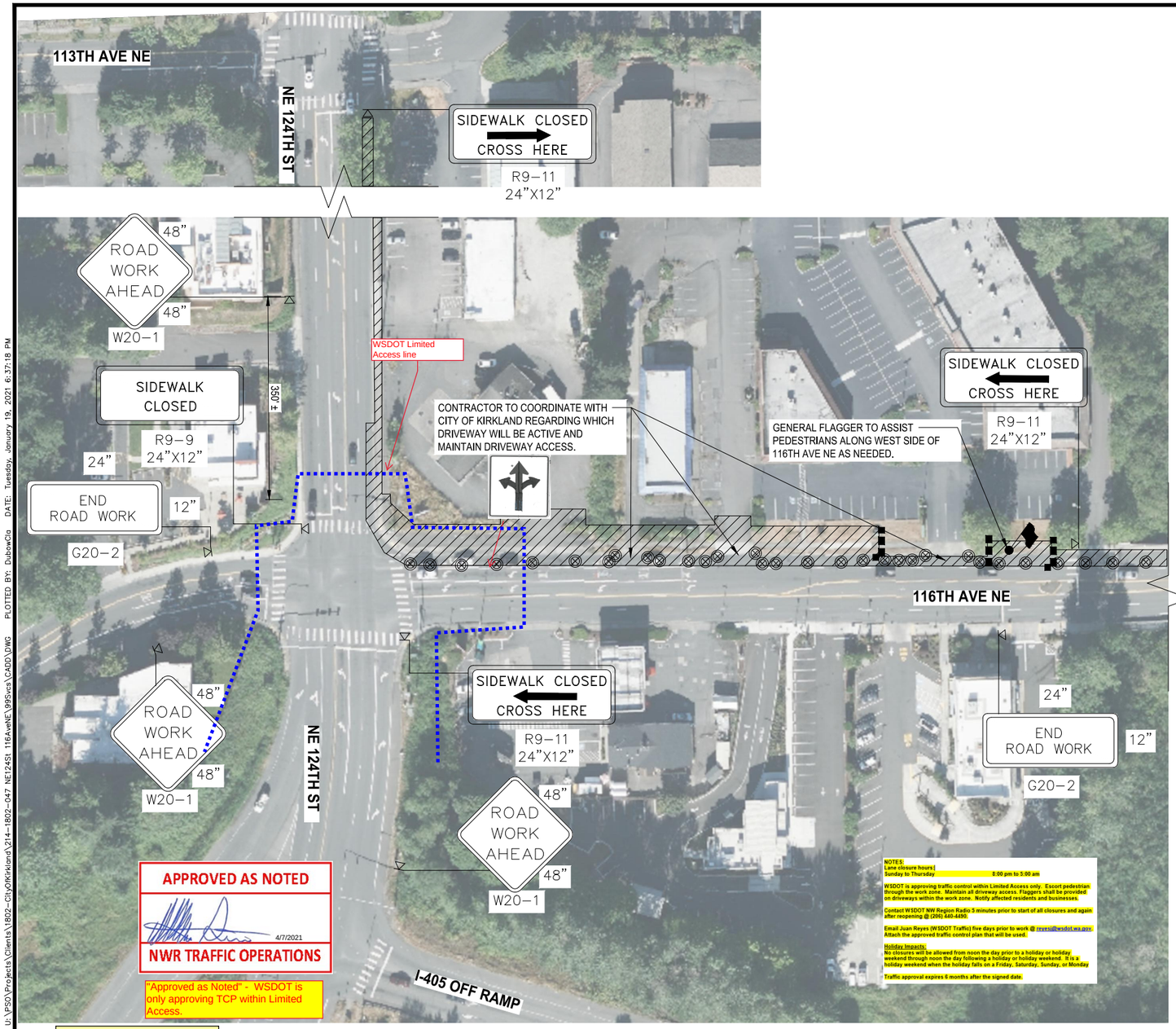

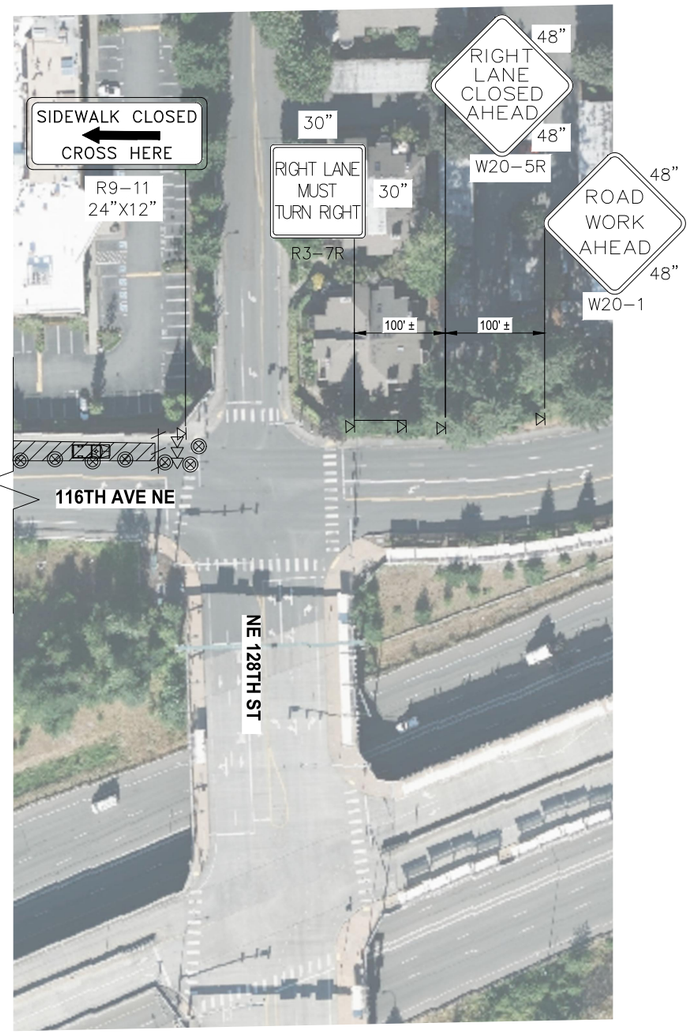

Exhibit D
GCB 3548
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City of Kirkland
Page 5 of 5

WORKZONE E PLAN
SCALE IN FEET
0 50 100

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NO.	DATE	BY	APPR.	REVISION

CYNTHIA MARIE CLARK — STATE OF WASHINGTON — 36016 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

APPROVED BY:

DATE:

D. SUSLIKOV 1/2021 DESIGNED BY: DATE
C. DUBOW 1/2021 DRAWN BY: DATE
D. SCHNEIDER 1/2021 CHECKED BY: DATE

TEMPORARY TRAFFIC CONTROL WORKZONE E

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NE 124TH ST / 116TH AVE NE INTERSECTION IMPROVEMENTS
CITY OF KIRKLAND, WA

SHEET: 34 OF 34
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JOB NO.: 214-1802-047
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