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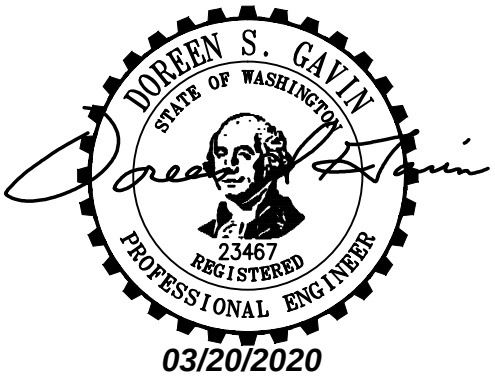
CONTRACT PROVISIONS AND PLANS

Rainier St. Regional Stormwater



I hereby affix my stamp, date and signature as testament that I have reviewed and approved the plans and specifications contained herein.

I. – Information for Bidders

Call for Bids

Call for Bids

City of Port Townsend
Rainier Street Regional Stormwater Facility

Project Name: Rainier Street Regional Stormwater

Project Description: The Regional Stormwater Facility will provide stormwater detention and filtration for commercial properties and public rights-of-way along the Rainier Street corridor from Discovery Road to the south side of Sims Way (SR 20). The facility will be a constructed pond, located just outside the city limits and adjacent to Mill Road, that will be connected by pipes from the overflow of an existing stormwater pond on Rainier Street, south of SR 20.

Schedule: The Project shall be substantially completed within **seventy-five (75)** working days.

Engineer's Estimate: $636,000 Base Bid
$122,000 Bid Alternative

Bid Date: Sealed Bids will be received by the City of Port Townsend, at the City Clerk's Office located at City of Port Townsend, 250 Madison St., Suite 2, Port Townsend, WA 98368 until 2:00pm on Wednesday **April 22, 2020.**

The City of Port Townsend reserves the right to reject any and all Bids and to waive minor informalities in the Bidding.

Bid Bond: All Bid Proposals shall be accompanied by a Bid Proposal deposit in cash, certified check, cashier's check, or surety bond in an amount equal to five percent (5%) of the amount of such Bid Proposal. Should the successful Bidder fail to enter into such contract and furnish satisfactory bonds to perform the Work within the time stated in the Specifications, the Bid Proposal deposit shall be forfeited to the City of Port Townsend.

Bid Documents: Plans, specifications, addenda, and plan holders list for this project will be available on-line through Builders Exchange of Washington, Inc. by going to **www.bxwa.com.** Click on **"Posted Projects", "Public Works," "City of Port Townsend," "Projects Bidding,"** and **"Project Bid Date."** Bidders must **"Register as a Bidder,"** in order to receive automatic e-mail notification of future addenda and to be placed on the **"Bidders List."** This service is provided free of charge to Prime Bidders, Subcontractors, and Vendors bidding this project. Please contact Builders Exchange of Washington at (425) 258-1303 should you require assistance.

BXWA is not the Public Records Officer for the City of Port Townsend. Any requests for Public Records of the City of Port Townsend should be directed to the Port Townsend City Clerk, at 250 Madison Street, Suite 2, Port Townsend, WA 98368, or by phone at (360) 379-5083. A request form is also available at www.cityofpt.us

Call for Bids

By signing the Bid Proposal, the Bidder is aware and has read the City of Port Townsend's Title VI Non-Discrimination Assurances, **Exhibit I**.

Technical Questions: Technical questions should be directed to David L. Peterson, P.E, Deputy Public Works Director - City Engineer, at dpeterson@cityofpt.us

John Mauro, City Manager
City of Port Townsend, WA

End of Text

II. – Contract Specifications

Amendments and Special Provisions

INTRO.AP1

INTRODUCTION

The following Amendments and Special Provisions shall be used in conjunction with the 2018 Standard Specifications for Road, Bridge, and Municipal Construction.

AMENDMENTS TO THE STANDARD SPECIFICATIONS

The following Amendments to the Standard Specifications are made a part of this contract and supersede any conflicting provisions of the Standard Specifications. For informational purposes, the date following each Amendment title indicates the implementation date of the Amendment or the latest date of revision.

Each Amendment contains all current revisions to the applicable section of the Standard Specifications and may include references which do not apply to this particular project.

1-02.AP1

1-02 Bid Procedures and Conditions

June 3, 2019

1-02.4(1) General

This section is supplemented with the following:

Prospective Bidders are advised that the Contracting Agency may include a partially completed Washington State Department of Ecology (Ecology) Transfer of Coverage (Ecology Form ECY 020-87a) for the Construction Stormwater General Permit (CSWGP) as part of the Bid Documents. When the Contracting Agency requires the transfer of coverage of the CSWGP to the Contractor, an informational copy of the Transfer of Coverage and the associated CSWGP will be included in the appendices. As a condition of Section 1-03.3, the Contractor is required to complete sections I, III, and VIII of the Transfer of Coverage and return the form to the Contracting Agency.

The Contracting Agency is responsible for compliance with the CSWGP until the end of day that the Contract is executed. Beginning on the day after the Contract is executed, the Contractor shall assume complete legal responsibility for compliance with the CSWGP and full implementation of all conditions of the CSWGP as they apply to the Contract Work.

1-02.9 Delivery of Proposal

The last sentence of the third paragraph is revised to read:

The Contracting Agency will not open or consider any Proposal when the Proposal or Bid deposit is received after the time specified for receipt of Proposals or received in a location other than that specified for receipt of Proposals unless an emergency or unanticipated event interrupts normal work processes of the Contracting Agency so that Proposals cannot be received.

The following new paragraph is inserted before the last paragraph:

If an emergency or unanticipated event interrupts normal work processes of the

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

1-02.5 Proposal Forms

The first sentence of the first paragraph is revised to read:

At the request of a Bidder, the Contracting Agency will provide a physical Proposal Form for any project on which the Bidder is eligible to Bid.

1-02.6 Preparation of Proposal

Item number 1 of the second paragraph is revised to read:

1. A unit price for each item (omitting digits more than two places to the right of the decimal point),

In the third sentence of the fourth paragraph, “WSDOT Form 422-031” is revised to read “WSDOT Form 422-031U”.

The following new paragraph is inserted before the last paragraph:

The Bidder shall submit with their Bid a completed Contractor Certification Wage Law Compliance form (WSDOT Form 272-009). 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.

1-02.13 Irregular Proposals

Item 1(h) is revised to read:

h. The Bidder fails to submit Underutilized Disadvantaged Business Enterprise 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;

Item 1(i) is revised to read the following three items:

i. The Bidder fails to submit a UDBE 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;

j. The Bidder fails to submit UDBE 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; or

k. The Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation.

1-06.AP1

1-06 Control of Material

January 7, 2019

1-06.6 Recycled Materials

The first three sentences of the second paragraph are revised to read:

> The Contractor shall submit a Recycled Material Utilization Plan on WSDOT Form 350-075A within 30 calendar days after the Contract is executed. The plan shall provide the Contractor's anticipated usage of recycled concrete aggregates for meeting the requirements of these Specifications. The quantity of recycled concrete aggregate will be provided in tons and as a percentage of the Plan quantity for eligible material listed in Section 9-03.21(1)E Table on Maximum Allowable percent (By Weight) of Recycled Material.

The last paragraph is revised to read:

> Within 30 calendar days after Physical Completion, the Contractor shall report the quantity of recycled concrete aggregates that were utilized in the construction of the project for each eligible item listed in Section 9-03.21(1)E. The Contractor's report shall be provided on WSDOT Form 350-075A, Recycled Materials Reporting.

1-07.AP1

1-07 Legal Relations and Responsibilities to the Public

April 1, 2019

1-07.5 Environmental Regulations

This section is supplemented with the following new subsections:

1-07.5(5) U.S. Army Corps of Engineers

When temporary fills are permitted, the Contractor shall remove fills in their entirety and the affected areas returned to pre-construction elevations.

If a U.S. Army Corps of Engineers permit is noted in Section 1-07.6 of the Special Provisions, the Contractor shall retain a copy of the permit or the verification letter (in the case of a Nationwide Permit) on the worksite for the life of the Contract. The Contractor shall provide copies of the permit or verification letter to all subcontractors involved with the authorized work prior to their commencement of any work in waters of the U.S.

1-07.5(6) U.S. Fish/Wildlife Services and National Marine Fisheries Service

The Contracting Agency will provide fish exclusion and handling services if the Work dictates. However, if the Contractor discovers any fish stranded by the project and a Contracting Agency biologist is not available, they shall immediately release the fish into a flowing stream or open water.

1-07.5(1) General

The first sentence is deleted and replaced with the following:

No Work shall occur within areas under the jurisdiction of resource agencies unless authorized in the Contract.

The third paragraph is deleted.

1-07.5(2) State Department of Fish and Wildlife

This section is revised to read:

In doing the Work, the Contractor shall:

1. Not degrade water in a way that would harm fish, wildlife, or their habitat.

2. Not place materials below or remove them from the ordinary high water line except as may be specified in the Contract.

3. Not allow equipment to enter waters of the State except as specified in the Contract.

4. Revegetate in accordance with the Plans, unless the Special Provisions permit otherwise.

5. Prevent any fish-threatening silt buildup on the bed or bottom of any body of water.

6. Ensure continuous stream flow downstream of the Work area.

7. Dispose of any project debris by removal, burning, or placement above high-water flows.

8. Immediately notify the Engineer and stop all work causing impacts, if at any time, as a result of project activities, fish are observed in distress or a fish kill occurs.

If the Work in (1) through (3) above differs little from what the Contract requires, the Contracting Agency will measure and pay for it at unit Contract prices. But if Contract items do not cover those areas, the Contracting Agency will pay pursuant to Section 1-09.4. Work in (4) through (8) above shall be incidental to Contract pay items.

1-07.5(3) State Department of Ecology

This section is revised to read:

In doing the Work, the Contractor shall:

1. Comply with Washington State Water Quality Standards.

2. Perform Work in such a manner that all materials and substances not specifically identified in the Contract documents to be placed in the water do not enter waters of the State, including wetlands. These include, but are not limited to, petroleum products, hydraulic fluid, fresh concrete, concrete wastewater, process wastewater, slurry materials and waste from shaft drilling, sediments, sediment-laden water, chemicals, paint, solvents, or other toxic or deleterious materials.

3. Use equipment that is free of external petroleum-based products.

4. Remove accumulations of soil and debris from drive mechanisms (wheels, tracks, tires) and undercarriage of equipment prior to using equipment below the ordinary high water line.

5. Clean loose dirt and debris from all materials placed below the ordinary high water line. No materials shall be placed below the ordinary high water line without the Engineer's concurrence.

6. When a violation of the Construction Stormwater General Permit (CSWGP) occurs, immediately notify the Engineer and fill out WSDOT Form 422-011, Contractor ECAP Report, and submit the form to the Engineer within 48 hours of the violation.

7. Once Physical Completion has been given, prepare a Notice of Termination (Ecology Form ECY 020-87) and submit the Notice of Termination electronically to the Engineer in a PDF format a minimum of 7 calendar days prior to submitting the Notice of Termination to Ecology.

8. Transfer the CSWGP coverage to the Contracting Agency when Physical Completion has been given and the Engineer has determined that the project site is not stabilized from erosion.

9. Submit copies of all correspondence with Ecology electronically to the Engineer in a PDF format within four calendar days.

1-07.5(4) Air Quality

This section is revised to read:

The Contractor shall comply with all regional clean air authority and/or State Department of Ecology rules and regulations.

The air quality permit process may include additional State Environment Policy Act (SEPA) requirements. Contractors shall contact the appropriate regional air pollution control authority well in advance of beginning Work.

When the Work includes demolition or renovation of any existing facility or structure that contains Asbestos Containing Material (ACM) and/or Presumed Asbestos-Containing Material (PACM), the Contractor shall comply with the National Emission Standards for Hazardous Air Pollutants (NESHAP).

Any requirements included in Federal and State regulations regarding air quality that applies to the "owner or operator" shall be the responsibility of the Contractor.

1-07.7(1) General

The first sentence of the third paragraph is revised to read:

When the Contractor moves equipment or materials on or over Structures, culverts or pipes, the Contractor may operate equipment with only the load-limit restrictions in Section 1-07.7(2).

The first sentence of the last paragraph is revised to read:

Unit prices shall cover all costs for operating over Structures, culverts and pipes.

1-07.9(1) General

The last sentence of the sixth paragraph is revised to read:

Generally, the Contractor initiates the request by preparing standard form 1444 Request for Authorization of Additional Classification and Rate, available at https://www.dol.gov/whd/recovery/dbsurvey/conformance.htm, and submitting it to the Engineer for further action.

1-07.9(2) Posting Notices

The second sentence of the first paragraph (up until the colon) is revised to read:

The Contractor shall ensure the most current edition of the following are posted:

The revision dates are deleted from all items in the numbered list.

The following new items are inserted after item number 1:

2. **Mandatory Supplement to EEOC P/E-1** published by US Department of Labor. Post for projects with federal-aid funding.

3. **Pay Transparency Nondiscrimination Provision** published by US Department of Labor. Post for projects with federal-aid funding.

Item number 2 through 12 are renumbered to 4 through 14, respectively.

1-07.11(2) Contractual Requirements

In this section, “creed” is revised to read “religion”.

Item numbers 1 through 9 are revised to read 2 through 10, respectively.

After the preceding Amendment is applied, the following new item number 1 is inserted:

1. The Contractor shall maintain a Work site that is free of harassment, humiliation, fear, hostility and intimidation at all times. Behaviors that violate this requirement include but are not limited to:

    a. Persistent conduct that is offensive and unwelcome.

    b. Conduct that is considered to be hazing.

    c. Jokes about race, gender, or sexuality that are offensive.

    d. Unwelcome, unwanted, rude or offensive conduct or advances of a sexual nature which interferes with a person’s ability to perform their job or creates an intimidating, hostile, or offensive work environment.

e. Language or conduct that is offensive, threatening, intimidating or hostile based on race, gender, or sexual orientation.

f. Repeating rumors about individuals in the Work Site that are considered to be harassing or harmful to the individual's reputation.

1-07.11(5) Sanctions

This section is supplemented with the following:

Immediately upon the Engineer's request, the Contractor shall remove from the Work site any employee engaging in behaviors that promote harassment, humiliation, fear or intimidation including but not limited to those described in these specifications.

1-07.11(6) Incorporation of Provisions

The first sentence is revised to read:

The Contractor shall include the provisions of Section 1-07.11(2) Contractual Requirements (1) through (5) and the Section 1-07.11(5) Sanctions in every subcontract including procurement of materials and leases of equipment.

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

The last sentence of the first paragraph is revised to read:

An SPCC Plan template and guidance information is available at http://www.wsdot.wa.gov/environment/technical/disciplines/hazardous-materials/spill-prevent-report.

1-07.16(2)A Wetland and Sensitive Area Protection

The first sentence of the first paragraph is revised to read:

Existing wetland and other sensitive areas, where shown in the Plans or designated by the Engineer, shall be saved and protected through the life of the Contract.

1-07.18 Public Liability and Property Damage Insurance

Item number 1 is supplemented with the following new sentence:

This policy shall be kept in force from the execution date of the Contract until the Physical Completion Date by Washington State Employment Security Department. Post on all projects.

1-08.AP1

1-08 Prosecution and Progress

January 7, 2019

1-08.1 Subcontracting

The first sentence of the seventh paragraph is revised to read:

All Work that is not performed by the Contractor will be considered as subcontracting except: (1) purchase of sand, gravel, crushed stone, crushed slag, batched concrete aggregates, ready-mix concrete, off-site fabricated structural steel, other off-site

fabricated items, and any other materials supplied by established and recognized commercial plants; or (2) delivery of these materials to the Work site in vehicles owned or operated by such plants or by recognized independent or commercial hauling companies hired by those commercial plants.

The following new paragraph is inserted after the seventh paragraph:

The Contractor shall not use businesses (material suppliers, vendors, subcontractors, etc.) with federal purchasing exclusions. Businesses with exclusions are identified using the System for Award Management web page at www.SAM.gov.

1-08.5 Time for Completion

Item number 2 of the sixth paragraph is supplemented with the following:

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).

1-08.7 Maintenance During Suspension

The fifth paragraph is revised to read:

The Contractor shall protect and maintain all other Work in areas not used by traffic. All costs associated with protecting and maintaining such Work shall be the responsibility of the Contractor.

1-09.AP1

1-09 Measurement and Payment

August 6, 2018

1-09.2(1) General Requirements for Weighing Equipment

The last paragraph is supplemented with the following:

When requested by the Engineer, the Contractor's representative shall collect the tickets throughout the day and provide them to the Engineer's designated receiver, not later than the end of shift, for reconciliation. Tickets for loads not verified as delivered will receive no pay.

1-09.2(2) Specific Requirements for Batching Scales

The last sentence of the first paragraph is revised to read:

Batching scales used for concrete or hot mix asphalt shall not be used for batching other materials.

1-09.10 Payment for Surplus Processed Materials

The following sentence is inserted after the first sentence of the second paragraph:

For Hot Mix Asphalt, the Plan quantity and quantity used will be adjusted for the quantity of Asphalt and quantity of RAP or other materials incorporated into the mix.

8-01.AP8

8-01 Erosion Control and Water Pollution Control

April 1, 2019

8-01.1 Description

This section is revised to read:

> This Work consists of furnishing, installing, maintaining, removing and disposing 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 Engineer.
>
> 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. Section 8-01 covers all of these conditions.

This section is supplemented with the following new subsection:

8-01.1(1) Definitions

1. pH Affected Stormwater

a. Stormwater contacting green concrete (concrete that has set/stiffen but is still curing), recycled concrete, or engineered soils (as defined in the Construction Stormwater General Permit (CSWGP)) as a natural process

b. pH monitoring shall be performed in accordance with the CSWGP, or Water Quality Standards (WQS in accordance with WAC 173-201A (surface) or 173-200C (ground)) when the CSWGP does not apply

c. May be neutralized and discharged to surface waters or infiltrated

2. pH Affected Non-Stormwater

a. Conditionally authorized in accordance with CSWGP Special Condition S.1.C., uncontaminated water contacting green concrete, recycled concrete, or engineered soils (as defined in the CSWGP)

b. Shall not be categorized as cementitious wastewater/concrete wastewater, as defined below

c. Shall be managed and treated in accordance with the CSWGP, or WQS when the CSWGP does not apply

d. pH adjustment and dechlorination may be necessary, as specified in the CSWGP or in accordance with WQS when the CSWGP does not apply

e. May be neutralized, treated, and discharged to surface waters in accordance with the CSWGP, with the exception of water-only shaft drilling slurry. Water-only shaft drilling slurry may be treated, neutralized, and infiltrated but not discharged to surface waters (Refer to Special Conditions S1.C. Authorized Discharges and S1.d Prohibited Discharges of the CSWGP)

3. Cementitious Wastewater/Concrete Wastewater

a. Any water that comes into contact with fine cementitious particles or slurry; any water used in the production, placement and/or clean-up of cementitious products; any water used to cut, grind, wash, or otherwise modify cementitious products

b. When any water, including stormwater, commingles with cementitious wastewater/concrete wastewater, the resulting water is considered cementitious wastewater/concrete wastewater and shall be managed to prevent discharge to waters of the State, including ground water

c. CSWGP Examples include water used for or resulting from concrete truck/mixer/pumper/tool/chute rinsing or washing, concrete saw cutting and surfacing (sawing, coring, grinding, roughening, hydro-demolition, bridge and road surfacing)

d. Cannot be neutralized and discharged or infiltrated

8-01.2 Materials

The first paragraph is revised to read:

Materials shall meet the requirements of the following sections:

Corrugated Polyethylene Drain Pipe	9-05.1(6)
Quarry Spalls and Permeable Ballast	9-13
Erosion Control and Roadside Planting	9-14
Construction Geotextile	9-33

The second paragraph is deleted.

8-01.3(1) General

This section is revised to read:

Adaptive management shall be employed throughout the duration of the project for the implementation of erosion and water pollution control permit requirements for the current condition of the project site. The adaptive management includes the selection and utilization of BMPs, scheduling of activities, prohibiting unacceptable practices, implementing maintenance procedures, and other managerial practices that when used singularly or in combination, prevent or reduce the release of pollutants to waters of the State. The adaptive management shall use the means and methods identified in this section and means and methods identified in the Washington State Department of Transportation's Temporary Erosion and Sediment Control Manual or the Washington State Department of Ecology's Stormwater Management Manuals for construction stormwater.

The Contractor shall install a high visibility fence along the lines shown in the Plans or as instructed by the Engineer.

Throughout the life of the project, the Contractor shall preserve and protect the delineated preservation area, acting immediately to repair or restore any high visibility fencing damaged or removed.

All discharges to surface waters shall comply with surface water quality standards as defined in Washington Administrative Code (WAC) Chapter 173-201A. All discharges to groundwater shall comply with groundwater quality standards WAC Chapter 173-200. The Contractor shall comply with the CSWGP when the project is covered by the CSWGP.

Work, at a minimum, shall include the implementation of:

1. Sediment control measures prior to ground disturbing activities to ensure all discharges from construction areas receive treatment prior to discharging from the site.

2. Flow control measures to prevent erosive flows from developing.

3. Water management strategies and pollution prevention measures to prevent contamination of waters that will be discharged to surface waters or the ground.

4. Erosion control measures to stabilize erodible earth not being worked.

5. Maintenance of BMPs to ensure continued compliant performance.

6. Immediate corrective action if evidence suggests construction activity is not in compliance. Evidence includes sampling data, olfactory or visual evidence such as the presence of suspended sediment, turbidity, discoloration, or oil sheen in discharges.

To the degree possible, the Contractor shall coordinate this Work with permanent drainage and roadside restoration Work the Contract requires.

Clearing, grubbing, excavation, borrow, or fill within the Right of Way shall never expose more erodible earth than as listed below:

Western Washington (West of the Cascade Mountain Crest)	
May 1 through September 30	17 Acres
October 1 through April 30	5 Acres

Eastern Washington (East of the Cascade Mountain Crest)	
April 1 through October 31	17 Acres
November 1 through March 31	5 Acres

The Engineer may increase or decrease the limits based on project conditions.

Erodible earth is defined as any surface where soils, grindings, or other materials may be capable of being displaced and transported by rain, wind, or surface water runoff.

Erodible earth not being worked, whether at final grade or not, shall be covered within the specified time period (see the table below), using BMPs for erosion control.

Western Washington (West of the Cascade Mountain Crest)	
October 1 through April 30	2 days maximum
May 1 to September 30	7 days maximum

Eastern Washington (East of the Cascade Mountain Crest)	
October 1 through June 30	5 days maximum
November 1 through March 31	10 days maximum

When applicable, the Contractor shall be responsible for all Work required for compliance with the CSWGP including annual permit fees.

If the Engineer, under Section 1-08.6, orders the Work suspended, the Contractor shall continue to comply with this division during the suspension.

8-01.3(1)A Submittals

This section's content is deleted.

This section is supplemented with the following new subsection:

8-01.3(1)A1 Temporary Erosion and Sediment Control Plan

Temporary Erosion and Sediment Control (TESC) Plans consist of a narrative section and plan sheets that meets the Washington State Department of Ecology's Stormwater Pollution Prevention Plan (SWPPP) requirement in the CSWGP. For projects that do not require a CSWGP but have the potential to discharge to surface waters of the state, an abbreviated TESC plan shall be used, which may consist of a narrative and/or plan sheets and shall demonstrate compliance with applicable codes, ordinances and regulations, including the water quality standards for surface waters; Chapter 173-201A of the Washington Administrative Code (WAC) and water quality standards for groundwaters in accordance with Chapter 173-200 WAC.

The Contractor shall either adopt the TESC Plan in the Contract or develop a new TESC Plan. If the Contractor adopts the TESC Plan in scenarios in which the CSWGP is transferred to the Contractor, the Contractor shall modify the TESC Plan to match the Contractor's schedule, method of construction, and to include all areas that will be used to directly support construction activity such as equipment staging yards, material storage areas, or borrow areas. TESC Plans shall include all high visibility fence shown in the Plans. All TESC Plans shall meet the requirements of the current edition of the WSDOT Temporary Erosion and Sediment Control Manual M 3109 and be adaptively managed throughout construction based on site inspections and required sampling to maintain compliance with the CSWGP, or WQS when no CSWGP applies. The Contractor shall develop a schedule for implementation of the TESC work and incorporate it into the Contractor's progress schedule.

The Contractor shall submit their TESC Plan (either the adopted plan or new plan) as Type 2 Working Drawings. At the request of the Engineer, updated TESC Plans shall be submitted as Type 1 Working Drawings.

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

This section is revised to read:

The Contractor shall identify the ESC Lead at the preconstruction discussions and in the TESC Plan. The ESC Lead shall have, for the life of the Contract, a current Certificate of Training in Construction Site Erosion and Sediment Control from a course approved by the Washington State Department of Ecology. The ESC Lead must be onsite or on call at all times throughout construction. The ESC Lead shall be listed on the Emergency Contact List required under Section 1-05.13(1).

The ESC Lead shall implement the TESC Plan. Implementation shall include, but is not limited to:

1. Installing, adaptively managing, and maintaining temporary erosion and sediment control BMPs to assure continued performance of their intended function. Damaged or inadequate BMPs shall be corrected immediately.

2. Updating the TESC Plan to reflect current field conditions.

3. Discharge sampling and submitting Discharge Monitoring Reports (DMRs) to the Washington State Department of Ecology in accordance with the CSWGP.

4. Develop and maintain the Site Log Book as defined in the CSWGP. When the Site Log Book or portion thereof is electronically developed, the electronic documentation must be accessible onsite. As a part of the Site Log Book, the Contractor shall develop and maintain a tracking table to show that identified TESC compliance issues are fully resolved within 10 calendar days. The table shall include the date an issue was identified, a description of how it was resolved, and the date the issue was fully resolved.

The ESC Lead shall also inspect all areas disturbed by construction activities, all on-site erosion and sediment control BMPs, and all stormwater discharge points at least once every calendar week and within 24-hours of runoff events in which stormwater discharges from the site. Inspections of temporarily stabilized, inactive sites may be reduced to once every calendar month. The Washington State Department of Ecology's Erosion and Sediment Control Site Inspection Form, located at https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit, shall be completed for each inspection and a copy shall be submitted to the Engineer no later than the end of the next working day following the inspection.

8-01.3(1)C Water Management

This section is supplemented with the following new subsections:

8-01.3(1)C5 Water Management for In-Water Work Below Ordinary High Water Mark (OHWM)

Work over surface waters of the state (defined in WAC 173-201A-010) or below the OHWM (defined in RCW 90.58.030) shall comply with water quality standards for surface waters of the State of Washington.

8-01.3(1)C6 Environmentally Acceptable Hydraulic Fluid

All equipment containing hydraulic fluid that extends from a bridge deck over surface waters of the state or below the OHWM, shall be equipped with a biodegradable hydraulic fluid. The fluid shall achieve either a Pw1 Environmental Persistence Classification stated in ASTM D6046 (≥60% biodegradation in 28 days) or equivalent standard. Alternatively, hydraulic fluid that meets International Organization for Standardization (ISO 15380), the European Union Ecolabel, or equivalent certification will also be accepted.

The Contractor shall submit a Type 1 Working Drawing consisting of a manufacturer catalog cut of the hydraulic fluid used.

The designation of biodegradable hydraulic fluid does not mean fluid spills are acceptable. The Contractor shall respond to spills to land or water in accordance with the Contract, the associated SPCC Plan, and all applicable local, state, and federal regulations.

8-01.3(1)C7 Turbidity Curtain

All Work for the turbidity curtain shall be in accordance with the manufacturer's recommendations for the site conditions. Removal procedures shall be developed and used to minimize silt release and disturbance of silt. The Contractor shall submit a Type 2 Working Drawing, detailing product information, installation and removal procedures, equipment and workforce needs, maintenance plans, and emergency repair/replacement plans.

Turbidity curtain materials, installation, and maintenance shall be sufficient to comply with water quality standards.

The Contractor shall notify the Engineer 10 days in advance of removing the turbidity curtain. All components of the turbidity curtain shall be removed from the project.

8-01.3(1)C1 Disposal of Dewatering Water

This section is revised to read:

When uncontaminated groundwater is encountered in an excavation on a project it may be infiltrated within vegetated areas of the right of way not designated as Sensitive Areas or incorporated into an existing stormwater conveyance system at a rate that will not cause erosion or flooding in any receiving surface water.

Alternatively, the Contractor may pursue independent disposal and treatment alternatives that do not use the stormwater conveyance system provided it is in compliance with the applicable WACs and permits.

8-01.3(1)C2 Process Wastewater

This section is revised to read:

Wastewater generated on-site as a byproduct of a construction process shall not be discharged to surface waters of the State. Some sources of process wastewater may be infiltrated in accordance with the CSWGP. Some sources of process wastewater may be disposed via independent disposal and treatment alternatives in compliance with the applicable WACs and permits.

8-01.3(1)C3 Shaft Drilling Slurry Wastewater

This section is revised to read:

Wastewater generated on-site during shaft drilling activity shall be managed and disposed of in accordance with the requirements below. No shaft drilling slurry wastewater shall be discharged to surface waters of the State. Neither the sediment nor liquid portions of the shaft drilling slurry wastewater shall be contaminated, as detectable by visible or olfactory indication (e.g., chemical sheen or smell).

1. Water-only shaft drilling slurry or water slurry with accepted flocculants may be infiltrated on-site. Flocculants used shall meet the requirements of Section 9-14.5(1) or shall be chitosan products listed as General Use Level Designation (GULD) on the Washington State Department of Ecology's stormwater treatment technologies webpage for construction treatment. Infiltration is permitted if the following requirements are met:

    a. Wastewater shall have a pH of 6.5 – 8.5 prior to discharge.

    b. The amount of flocculant added to the slurry shall be kept to the minimum needed to adequately settle out solids. The flocculant shall be thoroughly mixed into the slurry.

    c. The slurry removed from the shaft shall be contained in a leak proof cell or tank for a minimum of 3 hours.

    d. The infiltration rate shall be reduced if needed to prevent wastewater from leaving the infiltration location. The infiltration site shall be monitored regularly during infiltration activity. All wastewater discharged to the ground shall fully infiltrate and discharges shall stop before the end of each workday.

    e. Drilling spoils and settled sediments remaining in the containment cell or tank shall be disposed of in accordance with Section 6-19.3(4)F.

    f. Infiltration locations shall be in upland areas at least 150 feet away from surface waters, wells, on-site sewage systems, aquifer sensitive recharge areas, sole source aquifers, well head protection areas, and shall be marked on the plan sheets before the infiltration activity begins.

    g. Prior to infiltration, the Contractor shall submit a Shaft Drilling Slurry Wastewater Management and Infiltration Plan as a Type 2 Working Drawing. This Plan shall be kept on-site, adapted if needed to meet the construction requirements, and updated to reflect what is being done in the field. The Working Drawing shall include, at a minimum, the following information:

i. Plan sheet showing the proposed infiltration location and all surface waters, wells, on-site sewage systems, aquifer-sensitive recharge areas, sole source aquifers, and well-head protection areas within 150 feet.

ii. The proposed elevation of soil surface receiving the wastewater for infiltration and the anticipated phreatic surface (i.e., saturated soil).

iii. The source of the water used to produce the slurry.

iv. The estimated total volume of wastewater to be infiltrated.

v. The accepted flocculant to be used (if any).

vi. The controls or methods used to prevent surface wastewater runoff from leaving the infiltration location.

vii. The strategy for removing slurry wastewater from the shaft and containing the slurry wastewater once it has been removed from the shaft.

viii. The strategy for monitoring infiltration activity and adapting methods to ensure compliance.

ix. A contingency plan that can be implemented immediately if it becomes evident that the controls in place or methods being used are not adequate.

x. The strategy for cleaning up the infiltration location after the infiltration activity is done. Cleanup shall include stabilizing any loose sediment on the surface within the infiltration area generated as a byproduct of suspended solids in the infiltrated wastewater or soil disturbance associated with BMP placement and removal.

2. Shaft drilling mineral slurry, synthetic slurry, or slurry with polymer additives not allowed for infiltration shall be contained and disposed of by the Contractor at an accepted disposal facility in accordance with Section 2-03.3(7)C. Spoils that have come into contact with mineral slurry shall be disposed of in accordance with Section 6-19.3(4)F.

8-01.3(1)C4 Management of Off-Site Water

This section is revised to read:

Prior to clearing and grubbing, the Contractor shall intercept all sources of off-site surface water and overland flow that will run-on to the project. Off-site surface water run-on shall be diverted through or around the project in a way that does not introduce construction related pollution. It shall be diverted to its preconstruction discharge location in a manner that does not increase preconstruction flow rate and velocity and protects contiguous properties and waterways from erosion. The Contractor shall submit a Type 2 Working Drawing consisting of the method for performing this Work.

8-01.3(1)E Detention/Retention Pond Construction

This section is revised to read:

Permanent or temporary ponds shall be constructed before beginning other grading and excavation Work in the area that drains into that pond. Detention/retention ponds may be constructed concurrently with grading and excavation when allowed by the Engineer. Temporary conveyances shall be installed concurrently with grading in accordance with the TESC Plan so that newly graded areas drain to the pond as they are exposed.

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

This section's title is revised to read:

8-01.3(2) Temporary Seeding and Mulching

8-01.3(2)A Preparation for Application

This section is revised to read:

A cleated roller, crawler tractor, or similar equipment, which forms longitudinal depressions at least 2 inches deep shall be used for compaction and preparation of the surface to be seeded. The entire area shall be uniformly covered with longitudinal depressions formed perpendicular to the natural flow of water on the slope. The soil shall be conditioned with sufficient water so the longitudinal depressions remain in the soil surface until completion of the seeding.

8-01.3(2)A1 Seeding

This section is deleted in its entirety.

8-01.3(2)A2 Temporary Seeding

This section is deleted in its entirety.

8-01.3(2)B Seeding and Fertilizing

This section, including title, is revised to read:

8-01.3(2)B Temporary Seeding

Temporary grass seed shall be a commercially prepared mix, made up of low growing grass species that will grow without irrigation at the project location, and accepted by the Engineer. The application rate shall be two pounds per 1000 square feet.

The Contractor shall notify the Engineer not less than 24 hours in advance of any seeding operation and shall not begin the Work until areas prepared or designated for seeding have been accepted. Following the Engineer's acceptance, seeding of the accepted slopes shall begin immediately.

Temporary seeding may be sown at any time allowed by the Engineer. Temporary seeding shall be sown by one of the following methods:

1. A hydro seeder that utilizes water as the carrying agent and maintains continuous agitation through paddle blades. It shall have an operating capacity sufficient to agitate, suspend, and mix into a homogeneous slurry the specified amount of seed and water or other material. Distribution and discharge lines shall be large enough to prevent stoppage and shall be equipped with a set of

hydraulic discharge spray nozzles that will provide a uniform distribution of the slurry.

2. Blower equipment with an adjustable disseminating device capable of maintaining a constant, measured rate of material discharge that will ensure an even distribution of seed at the rates specified.

3. Power-drawn drills or seeders.

4. Areas in which the above methods are impractical may be seeded by hand methods.

When seeding by hand, the seed shall be incorporated into the top ¼ inch of soil by hand raking or other method that is allowed by the Engineer.

Seed applied using a hydroseeder shall have a tracer added to visibly aid uniform application. This tracer shall not be harmful to plant, aquatic, or animal life. If Short-Term Mulch is used as a tracer, the application rate shall not exceed 250 pounds per acre.

Seed and fertilizer may be applied in one application provided that the fertilizer is placed in the hydroseeder tank no more than 1 hour prior to application.

8-01.3(2)D Mulching

This section, including title, is revised to read:

8-01.3(2)D Temporary Mulching

Temporary mulch shall be straw, wood strand, or HECP mulch and shall be used for the purpose of erosion control by protecting bare soil surface from particle displacement. Mulch shall not be applied below the anticipated water level of ditch slopes, pond bottoms, and stream banks. HECP mulch shall not be used within the Ordinary High Water Mark. Non-HECP mulches applied below the anticipated water level shall be removed or anchored down so that it cannot move or float, at no additional expense to the Contracting Agency.

Straw or wood strand mulch shall be applied at a rate to achieve at least 95 percent visual blockage of the soil surface.

Short Term Mulch shall be hydraulically applied at the rate of 2500 pounds per acre and may be applied in one lift.

Moderate Term Mulch and Long Term Mulch shall be hydraulically applied at the rate of 3500 pounds per acre with no more than 2000 pounds applied in any single lift.

Mulch sprayed on signs or sign Structures shall be removed the same day.

Areas not accessible by mulching equipment shall be mulched by accepted hand methods.

8-01.3(2)F Dates for Application of Final Seed, Fertilizer, and Mulch

This section is deleted in its entirety.

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

This section is deleted in its entirety.

8-01.3(2)H Inspection

This section is deleted in its entirety.

8-01.3(2)I Mowing

This section is deleted in its entirety.

8-01.3(3) Placing Biodegradable Erosion Control Blanket

This section's title is revised to read:

8-01.3(3) Placing Erosion Control Blanket

The first sentence of the first paragraph is revised to read:

Erosion Control Blankets are used as an erosion prevention device and to enhance the establishment of vegetation.

The second paragraph is revised to read:

When used to enhance the establishment of seeded areas, seeding and fertilizing shall be done prior to blanket installation.

8-01.3(4) Placing Compost Blanket

This section is revised to read:

Compost blankets are used for erosion control. Compost blanket shall be only be placed on ground surfaces that are steeper than 3-foot horizontal and 1-foot vertical though steeper slopes shall be broken by wattles or compost socks placed according to the Standard Plans. Compost shall be placed to a depth of 3 inches over bare soil. An organic tackifier shall be placed over the entire composted area when dry or windy conditions are present or expected. The tackifier shall be applied immediately after the application of compost to prevent compost from leaving the composted area.

Medium compost shall be used for the compost blanket. Compost may serve the purpose of soil amendment as specified in Section 8-02.3(6).

8-01.3(5) Plastic Covering

The first paragraph is revised to read:

Erosion Control – Plastic coverings used to temporarily cover stockpiled materials, slopes or bare soils shall be installed and maintained in a way that prevents water from intruding under the plastic and prevents the plastic cover from being damaged by wind. Plastic coverings shall be placed with at least a 12-inch overlap of all seams and be a minimum of 6 mils thick. Use soil stabilization and energy dissipation BMPs to minimize the erosive energy flows coming off sloped areas of plastic (e.g., toe of slope). When feasible, prevent the clean runoff from plastic from hitting bare soil. Direct flows from plastic to stabilized outlet areas.

8-01.3(7) Stabilized Construction Entrance

The first paragraph is revised to read:

Temporary stabilized construction entrance shall be constructed in accordance with the *Standard Plans*, prior to construction vehicles entering the roadway from locations that generate sediment track out on the roadway. Material used for stabilized construction entrance shall be free of extraneous materials that may cause or contribute to track out.

8-01.3(8) Street Cleaning

This section is revised to read:

Self-propelled pickup street sweepers shall be used to remove and collect dirt and other debris from the Roadway. The street sweeper shall effectively collect these materials and prevent them from being washed or blown off the Roadway or into waters of the State. Street sweepers shall not generate fugitive dust and shall be designed and operated in compliance with applicable air quality standards. Material collected by the street sweeper shall be disposed of in accordance with Section 2-03.3(7)C.

When allowed by the Engineer, power broom sweepers may be used in non-sensitive areas. The broom sweeper shall sweep dirt and other debris from the roadway into the work area. The swept material shall be prevented from entering or washing into waters of the State.

Street washing with water will require the concurrence of the Engineer.

8-01.3(12) Compost Socks

The first two sentences of the first paragraph are revised to read:

Compost socks are used to disperse flow and sediment. Compost socks shall be installed as soon as construction will allow but before flow conditions create erosive flows or discharges from the site. Compost socks shall be installed prior to any mulching or compost placement.

8-01.3(13) Temporary Curb

The last two sentences of the second paragraph are revised to read:

Temporary curbs shall be a minimum of 4 inches in height. Temporary curb shall be installed so that ponding does not occur in the adjacent roadway.

8-01.3(14) Temporary Pipe Slope Drain

The third and fourth paragraphs are revised to read:

The pipe fittings shall be watertight and the pipe secured to the slope with metal posts, wood stakes, or sandbags.

The water shall be discharged to a stabilized conveyance, sediment trap, stormwater pond, rock splash pad, or vegetated strip, in a manner to prevent erosion and maintain water quality compliance.

The last paragraph is deleted.

8-01.3(15) Maintenance

This section is revised to read:

Erosion and sediment control BMPs shall be maintained or adaptively managed as required by the CSWGP until the Engineer determines they are no longer needed. When deficiencies in functional performance are identified, the deficiencies shall be rectified immediately.

The BMPs shall be inspected on the schedule outlined in Section 8-01.3(1)B for damage and sediment deposits. Damage to or undercutting of BMPs shall be repaired immediately.

In areas where the Contractor's activities have compromised the erosion control functions of the existing grasses, the Contractor shall overseed at no additional cost to the Contracting Agency.

The quarry spalls of construction entrances shall be refreshed, replaced, or screened to maintain voids between the spalls for collecting mud and dirt.

Unless otherwise specified, when the depth of accumulated sediment and debris reaches approximately ⅓ the height of the BMP the deposits shall be removed. Debris or contaminated sediment shall be disposed of in accordance with Section 2-03.3(7)C. Clean sediments may be stabilized on-site using BMPs as allowed by the Engineer.

8-01.3(16) Removal

This section is revised to read:

The Contractor shall remove all temporary BMPs, all associated hardware and associated accumulated sediment deposition from the project limits prior to Physical Completion unless otherwise allowed by the Engineer. When the temporary BMP materials are made of natural plant fibers unaltered by synthetic materials the Engineer may allow leaving the BMP in place.

The Contractor shall remove BMPs and associated hardware in a way that minimizes soil disturbance. The Contractor shall permanently stabilize all bare and disturbed soil after removal of BMPs. If the installation and use of the erosion control BMPs have compacted or otherwise rendered the soil inhospitable to plant growth, such as construction entrances, the Contractor shall take measures to rehabilitate the soil to facilitate plant growth. This may include, but is not limited to, ripping the soil, incorporating soil amendments, or seeding with the specified seed.

At the request of the Contractor and at the sole discretion of the Engineer the CSWGP may be transferred back to the Contracting Agency. Approval of the Transfer of Coverage request will require the following:

1. All other Work required for Contract Completion has been completed.

2. All Work required for compliance with the CSWGP has been completed to the maximum extent possible. This includes removal of BMPs that are no longer needed, and the site has undergone all Stabilization identified for meeting the requirements of Final Stabilization in the CSWGP.

3. An Equitable Adjustment change order for the cost of Work that has not been completed by the Contractor.

4. Submittal of the Washington State Department of Ecology Transfer of Coverage form (Ecology form ECY 020-87a) to the Engineer.

If the Engineer approves the transfer of coverage back to the Contracting Agency, the requirement in Section 1-07.5(3) for the Contractor's submittal of the Notice of Termination form to the Washington State Department of Ecology will not apply.

8-01.4 Measurement

This section's content is deleted and replaced with the following new subsections:

8-01.4(1) Lump Sum Bid for Project (No Unit Items)

When the Bid Proposal contains the item "Erosion Control and Water Pollution Prevention" there will be no measurement of unit or force account items for Work defined in Section 8-01 except as described in Sections 8-01.4(3) and 8-01.4(4). Also, except as described in Section 8-01.4(3), all of Sections 8-01.4(2) and 8-01.5(2) are deleted.

8-01.4(2) Item Bids

When the Proposal does not contain the items "Erosion Control and Water Pollution Prevention", Section 8-01.4(1) and 8-01.5(1) are deleted and the Bid Proposal will contain some or all of the following items measured as noted.

ESC lead will be measured per day for each day that an inspection is made and a report is filed.

Erosion control blanket and plastic covering will be measured by the square yard along the ground slope line of surface area covered and accepted.

Turbidity curtains will be measured by the linear foot along the ground line of the installed curtain.

Check dams will be measured per linear foot one time only along the ground line of the completed check dam. No additional measurement will be made for check dams that are required to be rehabilitated or replaced due to wear.

Stabilized construction entrances will be measured by the square yard by ground slope measurement for each entrance constructed.

Tire wash facilities will be measured per each for each tire wash installed.

Street cleaning will be measured by the hour for the actual time spent cleaning pavement, refilling with water, dumping and transport to and from cleaning locations within the project limits, as authorized by the Engineer. Time to mobilize the equipment to or from the project limits on which street cleaning is required will not be measured.

Inlet protections will be measured per each for each initial installation at a drainage structure.

Silt fence, gravel filter, compost berms, and wood chip berms will be measured by the linear foot along the ground line of the completed barrier.

Wattles and compost socks will be measured by the linear foot.

Temporary curbs will be measured by the linear foot along the ground line of the completed installation.

Temporary pipe slope drains will be measured by the linear foot along the flow line of the pipe.

Coir logs will be measured by the linear foot along the ground line of the completed installation.

Outlet protections will be measured per each initial installation at an outlet location.

Temporary seeding, temporary mulching, and tackifiers will be measured by the acre by ground slope measurement.

Compost blanket will be measured by the square yard by ground slope surface area covered and accepted.

8-01.4(3) Reinstating Unit Items with Lump Sum Erosion Control and Water Pollution Prevention

The Contract Provisions may establish the project as lump sum, in accordance with Section 8-01.4(1) and also include one or more of the items included above in Section 8-01.4(2). When that occurs, the corresponding measurement provision in Section 8-01.4(2) is not deleted and the Work under that item will be measured as specified.

8-01.4(4) Items not included with Lump Sum Erosion Control and Water Pollution Prevention

Compost blanket will be measured by the square yard by ground slope surface area covered and accepted.

Temporary mulch will be measured by the acre by ground slope surface area covered and accepted.

High visibility fence will be measured by the linear foot along the ground line of the completed fence.

8-01.5 Payment

This section's content is deleted and replaced with the following new subsections:

8-01.5(1) Lump Sum Bid for Project (No Unit Items)

Payment will be made for the following Bid item when it is included in the Proposal:

"Erosion Control and Water Pollution Prevention", lump sum.

The lump sum Contract price for "Erosion Control and Water Pollution Prevention" shall be full pay to perform the Work as described in Section 8-01 except for costs compensated by Bid Proposal items inserted through Contract Provisions as

described in Section 8-01.4(2). Progress payments for the lump sum item “Erosion Control and Water Pollution Prevention” will be made as follows:

1. The Contracting Agency will pay 15 percent of the bid amount for the initial set up for the item. Initial set up includes the following:

   a. Acceptance of the TESC Plan provided by the Contracting Agency or submittal of a new TESC Plan,

   b. Submittal of a schedule for the installation of the BMPs, and

   c. Identifying water quality sampling locations.

2. 70 percent of the bid amount will be paid in accordance with Section 1-09.9.

3. Once the project is physically complete and copies of the all reports submitted to the Washington State Department of Ecology have been submitted to the Engineer, and, if applicable, transference of the CSWGP back to the Contracting Agency is complete, the remaining 15 percent of the bid amount shall be paid in accordance with Section 1-09.9.

8-01.5(2) Item Bids

“ESC Lead”, per day.

“Turbidity Curtain”, per linear foot.

“Erosion Control Blanket”, per square yard.

“Plastic Covering”, per square yard.

“Check Dam”, per linear foot.

“Inlet Protection”, per each.

“Gravel Filter Berm”, per linear foot.

“Stabilized Construction Entrance”, per square yard.

“Street Cleaning”, per hour.

“Silt Fence”, per linear foot.

“Wood Chip Berm”, per linear foot.

“Compost Berm”, per linear foot.

“Wattle”, per linear foot.

“Compost Sock”, per linear foot.

“Coir Log”, per linear foot.

“Temporary Curb”, per linear foot.

“Temporary Pipe Slope Drain”, per linear foot.

“Temporary Seeding”, per acre.

“Temporary Mulching”, per acre.

“Compost Blanket”, per square yard.

“Outlet Protection”, per each.

“Tackifier”, per acre.

“Erosion/Water Pollution Control”, by force account as provided in Section 1-09.6.

Maintenance and removal of erosion and water pollution control devices including removal and disposal of sediment, stabilization and rehabilitation of soil disturbed by these activities, and any additional Work deemed necessary by the Engineer to control erosion and water pollution will be paid by force account in accordance with Section 1-09.6.

To provide a common Proposal for all Bidders, the Contracting Agency has entered an amount in the Proposal to become a part of the Contractor’s total Bid.

8-01.5(3) Reinstating Unit Items with Lump Sum Erosion Control and Water Pollution Prevention

The Contract may establish the project as lump sum, in accordance with Section 8-01.4(1) and also reinstate the measurement of one or more of the items described in Section 8-01.4(2), except for Erosion/Water Pollution Control, by force account. When that occurs, the corresponding payment provision in Section 8-01.5(2) is not deleted and the Work under that item will be paid as specified.

8-01.5(4) Items not included with Lump Sum Erosion Control and Water Pollution Prevention

Payment will be made for the following Bid item when it is included in the Proposal:

“High Visibility Fence”, per linear foot.

8-22.AP8

8-22 Pavement Marking

January 4, 2016

8-22.4 Measurement

The first two sentences of the fourth paragraph are revised to read:

The measurement for "Painted Wide Lane Line", “Plastic Wide Lane Line”, “Profiled Plastic Wide Lane Line", “Painted Barrier Center Line", “Plastic Barrier Center Line“, “Painted Stop Line", “Plastic Stop Line”, “Painted Wide Dotted Entry Line”, or "Plastic

Wide Dotted Entry Line“ will be based on the total length of each painted, plastic or profiled plastic line installed. No deduction will be made for the unmarked area when the marking includes a broken line such as, wide broken lane line, drop lane line, wide dotted lane line or wide dotted entry line.

END OF SECTION

INTRODUCTION TO THE SPECIAL PROVISIONS

(August 14, 2013 APWA GSP)

The work on this project shall be accomplished in accordance with the *Standard Specifications for Road, Bridge and Municipal Construction*, 2018 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 the Amendments to the Standard Specifications and these Special Provisions, all of which are made a part of the Contract Documents, shall govern all of the Work.

These Special Provisions are made up of both General Special Provisions (GSPs) from various sources, which may have project-specific fill-ins; and project-specific Special Provisions. Each Provision 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 project-specific Special Provisions are not labeled as such. The GSPs are labeled under the headers of each GSP, with the effective date of the GSP and its source. For example:

(March 8, 2013 APWA GSP)
(April 1, 2013 WSDOT GSP)

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
- APWA General Special Provisions to the 2016 WSDOT Standard Plans for Road, Bridge and Municipal Construction
- City of Port Townsend Engineering Design Standards, current edition

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

Division 1
General Requirements

DESCRIPTION OF WORK

(March 13, 1995 WSDOT GSP)

This contract provides for the proposed Rainier Street Regional Stormwater facility. All work shall be done in accordance with the attached Contract Plans, these Contract Provisions, and the Standard Specifications.

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

Section 1-02 is supplemented with the following:

(April 5, 2004 WSDOT GSP)

Protest Procedures

All protests regarding any contents or portion of the bid proposal must be submitted to the Contracting Agency as soon as possible after the protestant becomes aware of the reason(s) for the protest. All protests must be in writing and signed by the protestant or an authorized agent. Such writing must state all facts and arguments on which the protestant is relying as the basis for its action. Such protestant shall also attach, or supply on demand by the Contracting Agency, any relevant exhibits referenced in the writing. Copies of all protests and exhibits shall be mailed or delivered by the protestant to the bidder against whom the protest is made (if any) at the same time such protest and exhibits are submitted to the Contracting Agency. All protests shall be directed to:

City of Port Townsend
Clerk's Office
250 Madison St., Suite 2
Port Townsend, WA 98368

Pre-award Protests
To allow sufficient response time, all pre-award protests must be received by the contracting agency no later than 5:00 pm. of the second business day after the bid opening date. If the protest is mailed after the bid opening date and before the pre-award protest deadline, the protestant shall immediately notify Samantha Trone at the Port Townsend Public Works Department by telephone, or some other means of rapid communication, that a protest has been made.

The Contracting Agency shall consider all the facts available to it, and issue a decision in writing within five (5) business days after receipt of the protest, unless, in the Contracting Agency's sole discretion, more time is needed. The protestant and the bidder(s) against whom the protest is made will be notified if additional time is necessary; and if the additional time required affects the bid opening date or the award date, all bidders shall be notified.

The Contracting Agency's decision shall be final and conclusive. Selection of the successful bidder, if one is to be made, will be postponed until after the Contracting Agency has issued its decision. The Contracting Agency shall provide the protestant with written notice of this decision no later than two full working days prior to execution of the contract.

Post-award Protests
The Contracting Agency shall immediately notify all unsuccessful bidders of the Contracting Agency's award decision. 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 the judicial review permitted under Washington Law Such review, if any, shall be timely filed in the Superior Court of Jefferson County, Washington.

Protests which do not comply with the above-specified procedures will not be considered.

1-02.1 Prequalification of Bidders

Delete this section and replace it with the following:

1-02.1 Qualifications of Bidder

(January 24, 2011 APWA GSP)

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

1-02.2 Plans and Specifications

(June 27, 2011 APWA GSP)

Delete this section and replace it with the following:

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

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

To Prime Contractor	No. of Sets	Basis of Distribution
Reduced plans (11”x17”)	8	Furnished automatically upon award.
Contract Provisions	8	Furnished automatically upon award.
Large plans (e.g., 22” x 34”)	2	Furnished automatically upon award.

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

Section 1-02.4(1) is supplemented with the following:

(January 5, 2015 WSDOT GSP)

The Contracting Agency has included a partially filled in Washington State Department of Ecology (Ecology) Transfer of Coverage (Ecology form ECY 020-87a) for the Construction Stormwater General Permit (CSWGP) as part of the Bid Documents. As a condition of Section 1-03.3, Execution of Contract, the Contractor is required to complete sections I, III, and VIII of the Transfer of Coverage and return the form to the Contracting Agency.

The Contracting Agency is responsible for compliance with the CSWGP until the end of day that the contract is executed. Beginning on the day after the Contract is executed the Contractor shall assume complete legal responsibility for compliance with the CSWGP and full implementation of all conditions of the CSWGP as they apply to the contract Work.

1-02.4(2) Subsurface Information

(March 8, 2013 APWA GSP)

The second sentence in the first paragraph is revised to read:

The Summary of Geotechnical Conditions and the boring logs, if and when included as an appendix to the Special Provisions, shall be considered as part of the Contract.

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

(July 11, 2018 APWA GSP)

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:

If no Subcontractor is listed, the Bidder acknowledges that it does not intend to use any Subcontractor to perform those items of work.

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.

The fourth paragraph of Section 1-02.6 is revised to read:

(May 7, 2012 WSDOT GSP)
The Bidder shall submit with the Bid a completed Disadvantaged Business Enterprise (DBE) Utilization Certification, when required by the Special Provisions. For each and every DBE firm listed on the Bidder's completed Disadvantaged Business Enterprise Utilization Certification, the Bidder shall submit written confirmation from that DBE firm that the DBE is in agreement with the DBE participation commitment that the Bidder has made in the Bidder's completed Disadvantaged Business Enterprise Utilization Certification. WSDOT Form 422 031 EF (Disadvantaged Business Enterprise Written Confirmation Document) is to be used for this purpose. Bidder must submit good faith effort documentation only in the event the bidder's efforts to solicit sufficient DBE participation have been unsuccessful. Directions for delivery of the Disadvantaged Business Enterprise Written Confirmation Documents and Disadvantaged Business Enterprise Good Faith Effort documentation are included in Sections 1-02.9.

(August 2, 2004 WSDOT GSP)
The fifth and sixth paragraphs of Section 1-02.6 are deleted.

Section 1-02.6 is supplemented with the following:

(August 7, 2006 WSDOT GSP)
Progress Schedule Minimum Bid
A minimum bid of $10,000.00 lump sum has been established for the item "Type B Progress Schedule." The Contractor‘s bid shall equal or exceed that amount. If the Contractors bid is less than the minimum specified amount, the Contracting Agency will unilaterally revise the bid amount to the minimum specified amount and recalculate the Contractor’s total bid amount. The corrected total bid amount will be used by the Contracting Agency for award purposes and to fix the amount of the contract bond.

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 oblige;

4. The amount of the bid bond stated either as a dollar figure or as a percentage which represents five percent of the maximum bid amount that could be awarded;

5. Signature of the bidder's officer empowered to sign official statements. The signature of the person authorized to submit the bid should agree with the signature on the bond, and the title of the person must accompany the said signature.

6. The signature of the surety's officer empowered to sign the bond and the power of attorney.

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

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

1-02.9 Delivery of Proposal

(August 15, 2012 APWA GSP, Option A)

Delete this section and replace it with the following:

Each proposal shall be submitted 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 as otherwise required in the Bid Documents, to ensure proper handling and delivery.

If the project has FHWA funding and requires DBE Written Confirmation Documents or Good Faith Effort Documentation, then to be considered responsive, the Bidder shall submit with their Bid Proposal, written Confirmation Documentation from each DBE firm listed on the Bidder's completed DBE Utilization Certification, form 272-056A EF, as required by Section 1-02.6.

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.

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

(June 20, 2017 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 an Underutilized Disadvantaged Business Enterprise Certification, if applicable, as required in Section 1-02.6;
   i. The Bidder fails to submit written confirmation from each UDBE firm listed on the Bidder's completed UDBE Utilization Certification that they are in agreement with the bidder's UDBE 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 UDBE 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 Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation; or

l. 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

(March 8, 2013 APWA GSP, Option B)

Delete this section and replace it with the following:

A Bidder will be deemed not responsible if the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1), as amended; or does not meet the following Supplemental Criteria:

1. **Delinquent State Taxes**

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

B. Documentation: The Bidder shall not be listed on the Washington State Department of Revenue's "Delinquent Taxpayer List" website: http://dor.wa.gov/content/fileandpaytaxes/latefiling/dtlwestaspx , or if they are so listed, they must submit a written payment plan approved by the Department of Revenue, to the Contracting Agency by the deadline listed below.

2. **Federal Department**

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

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

3. **Subcontractor Responsibility**

A. Criterion: The Bidder's standard subcontract form shall include the subcontractor responsibility language required by RCW 39.06.020, and the Bidder shall have an established procedure which it utilizes to validate the responsibility of each of its subcontractors. The Bidder's subcontract form

shall also include a requirement that each of its subcontractors shall have and document a similar procedure to determine whether the sub-tier subcontractors with whom it contracts are also “responsible" subcontractors as defined by RCW 39.06.020.

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

4. **Prevailing Wages**

A. Criterion: The Bidder shall not have a record of prevailing wage violations as determined by WA Labor & Industries in the five years prior to the bid submittal date that demonstrates a pattern of failing to pay workers prevailing wages, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

B. Documentation: The Bidder, if and when required as detailed below, shall submit a list of all prevailing wage violations in the five years prior to the bid submittal date, along with an explanation of each violation and how it was resolved. The Contracting Agency will evaluate these explanations and the resolution of each complaint to determine whether the violation demonstrate a pattern of failing to pay its workers prevailing wages as required.

5. **Claims Against Retainage and Bonds**

A. Criterion: The Bidder shall not have a record of excessive claims filed against the retainage or payment bonds for public works projects in the three years prior to the bid submittal date, that demonstrate a lack of effective management by the Bidder of making timely and appropriate payments to its subcontractors, suppliers, and workers, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

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

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

6. **Public Bidding Crime**

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

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

7. **Termination for Cause / Termination for Default**

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

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

8. **Lawsuits**

A. Criterion: The Bidder shall not have lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date that demonstrate a pattern of failing to meet the terms of contracts, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency

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

As evidence that the Bidder meets the mandatory and supplemental responsibility criteria stated above, the apparent two lowest Bidders must submit to the Contracting Agency by 12:00 PM. (noon) of the second business day following the bid submittal deadline, a written statement verifying that the Bidder meets all of the mandatory and supplemental criteria together with supporting documentation including but not limited to that detailed above (sufficient in the sole judgment of the Contracting Agency) demonstrating compliance with all mandatory and supplemental responsibility criteria. The Contracting Agency reserves the right to request such documentation from other Bidders as well, and to request further documentation as needed to assess Bidder responsibility. The Contracting Agency also reserves the right to obtain information from third parties and independent sources of information concerning a Bidder's compliance with the mandatory and supplemental criteria, and to use that information in their evaluation. The Contracting Agency may (but is not required to) consider mitigating

factors in determining whether the Bidder complies with the requirements of the supplemental criteria.

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

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

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

1-02.15 Pre Award Information

(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.

1-03.2 Award of Contract

The first sentence of Section 1-03.2 is revised to read:

(April 7, 2008 WSDOT GSP)
It is the Contracting Agency's intent to award the Contract within 30 days of the bid opening.

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 10 calendar days after the award date, the successful bidder shall return the signed Contracting Agency-prepared contract, an insurance certification as required by Section 1-07.18, 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 10 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

(July 23, 2015 APWA GSP)

Delete the first paragraph and replace it with the following:

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

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

1-03.5 Failure to Execute Contract

Section 1-03.5 is supplemented with the following:

(January 5, 2015 WSDOT GSP)

Failure to return the completed Transfer of Coverage for the Construction Stormwater General Permit to the Contracting Agency shall result in forfeiture of the proposal bond or deposit of this Bidder.

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, Specification, and Addenda

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. Amendments to the Standard Specifications,
6. Standard Specifications,
7. WSDOT Standard Plans for Road, Bridge, and Municipal Construction.
8. Contracting Agency's Standard Plans or Details (if any)

1-05 Control of Work

1-05.4 Conformity with and Deviations from Plans and Stakes

Section 1-05.4 is supplemented with the following:

Roadway and Utility Surveys

(July 23, 2015 APWA GSP, Option 1)

The Engineer shall furnish to the Contractor one time only all principal lines, grades, and measurements the Engineer deems necessary for completion of the work. These shall generally consist of one initial set of:

1. Slope stakes for establishing grading;
2. Curb grade stakes;
3. Centerline finish grade stakes for pavement sections wider than 25 feet; and
4. Offset points to establish line and grade for underground utilities such as water, sewers, and storm drains.

On alley construction projects with minor grade changes, the Engineer shall provide only offset hubs on one side of the alley to establish the alignment and grade.

1-05.7 Removal of Defective and Unauthorized Work

(October 1, 2005 APWA GSP)

Supplement this section with the following:

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

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

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

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

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

1-05.11 Final Inspection

Delete this section and replace it with the following:

1-05.11 Final Inspections and Operational Testing

(October 1, 2005 APWA GSP)

1-05.11(1) Substantial Completion Date

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

If, after this inspection, the Engineer concurs with the Contractor that the work is substantially complete and ready for its intended use, the Engineer, by written notice to the Contractor, will set the Substantial Completion Date. If, after this inspection the

Engineer does not consider the work substantially complete and ready for its intended use, the Engineer will, by written notice, so notify the Contractor giving the reasons therefor.

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

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

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

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

If action to correct the listed deficiencies is not initiated within 7 days after receipt of the written notice listing the deficiencies, the Engineer may, upon written notice to the Contractor, take whatever steps are necessary to correct those deficiencies pursuant to Section 1-05.7.
The Contractor will not be allowed an extension of contract time because of a delay in the performance of the work attributable to the exercise of the Engineer's right hereunder.

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

1-05.11(3) Operational Testing

It is the intent of the Contracting Agency to have at the Physical Completion Date a complete and operable system. Therefore when the work involves the installation of machinery or other mechanical equipment; street lighting, electrical distribution or signal systems; irrigation systems; buildings; or other similar work it may be desirable for the Engineer to have the Contractor operate and test the work for a period of time after final inspection but prior to the physical completion date. Whenever items of work are listed in the Contract Provisions for operational testing, they shall be fully tested under operating conditions for the time period specified to ensure their acceptability prior to

the Physical Completion Date. During and following the test period, the Contractor shall correct any items of workmanship, materials, or equipment which prove faulty, or that are not in first class operating condition. Equipment, electrical controls, meters, or other devices and equipment to be tested during this period shall be tested under the observation of the Engineer, so that the Engineer may determine their suitability for the purpose for which they were installed. The Physical Completion Date cannot be established until testing and corrections have been completed to the satisfaction of the Engineer.

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

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

1-05.13 Superintendents, Labor and Equipment of Contractor

(August 14, 2013 APWA GSP)

Delete the sixth and seventh paragraphs of this section.

1-05.15 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. All correspondence from the Contractor constituting any notification, notice of protest, notice of dispute, or other correspondence constituting notification required to be furnished under the Contract, must be in paper format, hand delivered or sent via mail delivery service to the Project Engineer's office. Electronic copies such as e-mails or electronically delivered copies of correspondence will not constitute such notice and will not comply with the requirements of the Contract.

Add the following new section:

1-05.16 Water and Power

(October 1, 2005 APWA GSP)

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

Add the following new section:

1-05.18 Record Drawings

(March 8, 2013 APWA GSP)

The Contractor shall maintain one set of full-size plans for Record Drawings, updated with clear and accurate redlined field revisions on a daily basis, and within 2 business

days after receipt of information that a change in Work has occurred. The Contractor shall not conceal any work until the required information is recorded.

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

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

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

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

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

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

	Vertical	Horizontal
As-built sanitary & storm invert and grate elevations	± 0.01 foot	± 0.01 foot
As-built monumentation	± 0.001 foot	± 0.001 foot
As-built waterlines, inverts, valves, hydrants	± 0.10 foot	± 0.10 foot
As-built ponds/swales/water features	± 0.10 foot	± 0.10 foot
As-built buildings (fin. Floor elev.)	± 0.01 foot	± 0.10 foot
As-built gas lines, power, TV, Tel, Com	± 0.10 foot	± 0.10 foot
As-built signs, signals, etc.	N/A	± 0.10 foot

Making Entries on the Record Drawings:

- Use erasable colored pencil (not ink) for all markings on the Record Drawings, conforming to the following color code:

- Additions - Red
- Deletions - Green
- Comments - Blue
- Dimensions - Graphite
- Provide the applicable reference for all entries, such as the change order number, the request for information (RFI) number, or the approved shop drawing number.
- Date all entries.
- Clearly identify all items in the entry with notes similar to those in the Contract Drawings (such as pipe symbols, centerline elevations, materials, pipe joint abbreviations, etc.).

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

Payment will be made for the following bid item:

Record Drawings Minimum Bid $2,000.00	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

Section 1-06 is supplemented with the following:

Buy America

(August 6, 2012 WSDOT GSP)

In accordance with Buy America requirements contained in 23 CFR 635.410, the major quantities of steel and iron construction material that is permanently incorporated into the project shall consist of American-made materials only. Buy America does not apply to temporary steel items, e.g., temporary sheet piling, temporary bridges, steel scaffolding and falsework.

Minor amounts of foreign steel and iron may be utilized in this project provided the cost of the foreign material used does not exceed one-tenth of one percent of the total contract cost or $2,500.00, whichever is greater.

American-made material is defined as material having all manufacturing processes occurring domestically. To further define the coverage, a domestic product is a manufactured steel material that was produced in one of the 50 States, the District of Columbia, Puerto Rico, or in the territories and possessions of the United States.

If domestically produced steel billets or iron ingots are exported outside of the area of coverage, as defined above, for any manufacturing process then the resulting product does not conform to the Buy America requirements. Additionally, products manufactured domestically from foreign source steel billets or iron ingots do not conform to the Buy America requirements because the initial melting and mixing of alloys to create the material occurred in a foreign country.

Manufacturing begins with the initial melting and mixing, and continues through the coating stage. Any process which modifies the chemical content, the physical size or shape, or the final finish is considered a manufacturing process. The processes include rolling, extruding, machining, bending, grinding, drilling, welding, and coating. The action of applying a coating to steel or iron is deemed a manufacturing process. Coating includes epoxy coating, galvanizing, aluminizing, painting, and any other coating that protects or enhances the value of steel or iron. Any process from the original reduction from ore to the finished product constitutes a manufacturing process for iron.

Due to a nationwide waiver, Buy America does not apply to raw materials (iron ore and alloys), scrap (recycled steel or iron), and pig iron or processed, pelletized, and reduced iron ore.

The following are considered to be steel manufacturing processes:

1. Production of steel by any of the following processes:
   a. Open hearth furnace.
   b. Basic oxygen.
   c. Electric furnace.
   d. Direct reduction.

2. Rolling, heat treating, and any other similar processing.

3. Fabrication of the products.
   a. Spinning wire into cable or strand.
   b. Corrugating and rolling into culverts.
   c. Shop fabrication.

A certification of materials origin will be required for any items comprised of, or containing, steel or iron construction materials prior to such items being incorporated into the permanent work. The certification shall be on DOT Form 350-109EF provided by the Engineer, or such other form the Contractor chooses, provided it contains the same information as DOT Form 350-109EF.

1-06.1 Approval of Material Prior to Use

The first paragraph of Section 1-06 is deleted and replaced with the following:

(******)
Prior to use, the Contractor shall notify the Engineer of all proposed materials. The Contractor shall use the Request for Approval of Material (RAM) form (WSDOT Form 350- 071) to submit all materials to the Engineer for approval, regardless if the material is found on the Qualified Product List (QPL) and/or the Aggregate Source Approval (ASA) Database.

1-06.1(4) Fabrication Inspection Expense

(June 27, 2011 AWPA GSP)

Delete this section in its entirety.

1-07 Legal Relations and Responsibilities to the Public

1-07.1 Laws to be Observed

(October 1, 2005 APWA GSP)

Supplement this section with the following:

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

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

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

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

1-07.2 State Taxes

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

1-07.2 State Sales Tax

(June 27, 2011 APWA GSP)

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

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

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

1-07.2(1) State Sales Tax — Rule 171

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

1-07.2(2) State Sales Tax — Rule 170

WAC 458-20-170, and its related rules, apply to the constructing and repairing of new or existing buildings, or other structures, upon real property. This includes, but is not limited to, the construction of streets, roads, highways, etc., owned by the state of Washington; water mains and their appurtenances; sanitary sewers and sewage disposal systems unless such sewers and disposal systems are within, and a part of, a street or road drainage system; telephone, telegraph, electrical power distribution lines, or other conduits or lines in or above streets or roads, unless such power lines become a part of a street or road lighting system; and installing or attaching of any article of tangible personal property in or to real property, whether or not such personal property becomes a part of the realty by virtue of installation.

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

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

1-07.2(3) Services

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

1-07.9(5) Required Documents

(January 3, 2020 APWA GSP)

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).

1-07.11 Requirements for Nondiscrimination

(December 19, 2019 APWA GSP, Option B)

Supplement this section with the following:

Disadvantaged Business Enterprise Participation

The Disadvantaged Business Enterprise (DBE) requirements of 49 CFR Part 26 and USDOT's official interpretations (i.e., Questions & Answers) apply to this Contract. Demonstrating compliance with these Specifications is a Condition of Award (COA) of this Contract. Failure to comply with the requirements of this Specification may result in your Bid being found to be nonresponsive resulting in rejection or other sanctions as provided by Contract.

DBE Abbreviations and Definitions

Broker – A business firm that provides a bona fide service, such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, or supplies required for the performance of the Contract; or, persons/companies who arrange or expedite transactions.

Certified Business Description – Specific descriptions of work the DBE is certified to perform, as identified in the Certified Firm Directory, under the Vendor Information page.

Certified Firm Directory – A database of all Minority, Women, and Disadvantaged Business Enterprises, including those identified as a UDBE, currently certified by Washington State. The on-line Directory is available to Bidders for their use in identifying and soliciting interest from DBE firms. The database is located under the Firm Certification section of the Diversity Management and Compliance System web page at: https://omwbe.diversitycompliance.com.

Commercially Useful Function (CUF) – 49 CFR 26.55(c)(1) defines commercially useful function as: "*A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, you must evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.*"

Disadvantaged Business Enterprise (DBE) – A business firm certified by the Washington State Office of Minority and Women's Business Enterprises, as meeting the criteria outlined in 49 CFR 26 regarding DBE certification. An Underutilized Disadvantaged Business Enterprise (UDBE) firm is a subset of DBE.

Force Account Work – Work measured and paid in accordance with Section 1-09.6.

Good Faith Efforts – Efforts to achieve the UDBE COA Goal or other requirements of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

Manufacturer (DBE) – A DBE firm that operates or maintains a factory or establishment that produces on the premises the materials, supplies, articles, or equipment required under the Contract. A DBE Manufacturer shall produce finished goods or products from raw or unfinished material or purchase and substantially alters goods and materials to make them suitable for construction use before reselling them.

Reasonable Fee (DBE) – For purposes of Brokers or service providers a reasonable fee shall not exceed 5% of the total cost of the goods or services brokered.

Regular Dealer (DBE) – A DBE firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of a Contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a Regular Dealer, the DBE firm must be an established regular business that engages in as its principal business and in its own name the purchase and sale of the products in question. A Regular Dealer in such items as steel, cement, gravel, stone, and petroleum products need not own, operate or maintain a place of business if it both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by long-term formal lease agreements and not on an ad-hoc basis. Brokers, packagers, manufacturers' representatives, or other persons who arrange or expedite transactions shall not be regarded as Regular Dealers within the meaning of this definition.

Underutilized Disadvantaged Business Enterprise (UDBE) – A DBE Firm that is underutilized based on WSDOT's Disparity Study.

UDBE Commitment – The dollar amount the Bidder indicates they will be subcontracting to be applied towards the UDBE Condition of Award Goal as shown on the UDBE Utilization Certification Form for each UDBE Subcontractor. This UDBE Commitment amount will be incorporated into the Contract and shall be considered a Contract requirement. Any changes to the UDBE Commitment require the Engineer's approval.

UDBE Condition of Award (COA) Goal – An assigned numerical amount specified as a percentage of the Contract. Initially, this is the minimum amount that the Bidder must commit to by submission of the Utilization Certification Form and/or by Good Faith Effort (GFE).

Crediting DBE Participation

Subcontractors proposed as COA must be certified prior to the due date for bids on the Contract. All non-COA DBE Subcontractors shall be certified before the subcontract on which they are participating is executed.

DBE participation is only credited upon payment to the DBE.

The following are some definitions of what may be counted as DBE participation.

DBE Prime Contractor
Only take credit for that portion of the total dollar value of the Contract equal to the distinct, clearly defined portion of the Work that the DBE Prime Contractor performs with its own forces and is certified to perform.

DBE Subcontractor
Only take credit for that portion of the total dollar value of the subcontract that is equal to the distinct, clearly defined portion of the Work that the DBE performs with its own forces and is certified to perform. The value of work performed by the DBE includes the cost of supplies and materials purchased by the DBE and equipment leased by the DBE, for its work on the contract. Supplies, materials or equipment obtained by a DBE that are not utilized or incorporated in the contract work by the DBE will not be eligible for DBE credit.

The supplies, materials, and equipment purchased or leased from the Contractor or its affiliate, including any Contractor's resources available to DBE subcontractors at no cost, shall not be credited.

DBE credit will not be given in instances where the equipment lease includes the operator. The DBE is expected to operate the equipment used in the performance of its work under the contract with its own forces. Situations where equipment is leased and used by the DBE, but payment is deducted from the Contractor's payment to the DBE is not allowed.

When the subcontractor is part of a UDBE Commitment, the following apply:

1. If a UDBE subcontracts a portion of the Work of its contract to another firm, the value of the subcontracted Work may be counted toward the UDBE COA Goal only if the Lower-Tier Subcontractor is also a UDBE.

2. Work subcontracted to a Lower-Tier Subcontractor that is a DBE, but not a UDBE, may be counted as DBE participation but not counted toward the UDBE COA Goal.

3. Work subcontracted to a non-DBE does not count towards the UDBE COA Goal nor DBE participation.

DBE Subcontract and Lower Tier Subcontract Documents
There must be a subcontract agreement that complies with 49 CFR Part 26 and fully describes the distinct elements of Work committed to be performed by the DBE.

DBE Service Provider
The value of fees or commissions charged by a DBE firm behaving in a manner of a Broker, or another service provider for providing a bona fide service, such as professional, technical, consultant, managerial services, or for providing bonds or insurance specifically required for the performance of the contract will only be credited as DBE participation, if the fee/commission is

determined by the Contracting Agency to be reasonable and the firm has performed a CUF.

Force Account Work

When the Bidder elects to utilize force account Work to meet the UDBE COA Goal, as demonstrated by listing this force account Work on the UDBE Utilization Certification Form, for the purposes of meeting UDBE COA Goal, only 50% of the Proposal amount shall be credited toward the Bidder's Commitment to meet the UDBE COA Goal.

One hundred percent of the actual amounts paid to the DBE for the force account Work shall be credited towards UDBE COA Goal or DBE participation.

Temporary Traffic Control

If the DBE firm is being utilized in the capacity of only "Flagging", the DBE firm must provide a Traffic Control Supervisor (TCS) and flagger, which are under the direct control of the DBE. The DBE firm shall also provide all flagging equipment (e.g. paddles, hard hats, and vests).

If the DBE firm is being utilized in the capacity of "Traffic Control Services", the DBE firm must provide a TCS, flaggers, and traffic control items (e.g., cones, barrels, signs, etc.) and be in total control of all items in implementing the traffic control for the project.

Trucking

DBE trucking firm participation may only be credited as DBE participation for the value of the hauling services, not for the materials being hauled unless the trucking firm is also certified as a supplier of those materials. In situations where the DBE's work is priced per ton, the value of the hauling service must be calculated separately from the value of the materials in order to determine DBE credit for hauling

The DBE trucking firm must own and operate at least one licensed, insured and operational truck on the contract. The truck must be of the type that is necessary to perform the hauling duties required under the contract. The DBE receives credit for the value of the transportation services it provides on the Contract using trucks it owns or leases, licenses, insures, and operates with drivers it employs.

The DBE may lease additional trucks from another DBE firm. The DBE who leases additional trucks from another DBE firm receives credit for the value of the transportation services the lessee DBE provides on the Contract.

The trucking Work subcontracted to any non-DBE trucking firm will not receive credit for Work done on the project.

The DBE may lease trucks from a truck leasing company (recognized truck rental center), but can only receive credit towards DBE participation if the DBE uses its own employees as drivers.

DBE Manufacturer and DBE Regular Dealer

One hundred percent (100%) of the cost of the manufactured product obtained from a DBE manufacturer can count as DBE participation. If the DBE manufacturer is a UDBE, participation may count towards the UDBE COA Goal.

Sixty percent (60%) of the cost of materials or supplies purchased from a DBE Regular Dealer may be credited as DBE Participation. If the role of the DBE Regular Dealer is determined to be that of a Broker, then DBE credit shall be limited to the fee or commission it receives for its services. Regular Dealer status and the amount of credit is determined on a Contract-by-Contract basis. If the DBE regular dealer is a UDBE, participation may count towards the UDBE COA Goal.

DBE firms proposed to be used as a Regular Dealer must be approved before being listed as a COA/used on a project. The WSDOT Approved Regular Dealer list published on WSDOT's Office of Equal Opportunity (OEO) web site must include the specific project for which approval is being requested. For purposes of the UDBE COA Goal participation, the Regular Dealer must submit the Regular Dealer Status Request form a minimum of five calendar days prior to bid opening.

Purchase of materials or supplies from a DBE which is neither a manufacturer nor a regular dealer, (i.e. Broker) only the fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, can count as DBE participation provided the fees are not excessive as compared with fees customarily allowed for similar services. Documentation will be required to support the fee/commission charged by the DBE. The cost of the materials and supplies themselves cannot be counted toward as DBE participation.

Note: Requests to be listed as a Regular Dealer will only be processed if the requesting firm is a material supplier certified by the Office of Minority and Women's Business Enterprises in a NAICS code that falls within the 42XXXX NAICS Wholesale code section.

Underutilized Disadvantaged Business Enterprise Utilization

The requirements of this section apply to projects with a UDBE COA Goal. To be eligible for award of the Contract, the Bidder shall properly complete and submit an Underutilized Disadvantaged Business Enterprise (UDBE) Utilization Certification with the Bidder's sealed Bid Proposal, as specified in Section 1-02.9 Delivery of Proposal. The Bidder's UDBE Utilization Certification must clearly demonstrate how the Bidder intends to meet the UDBE COA Goal. A UDBE Utilization Certification (WSDOT Form 272-056U) is included in the Proposal package for this purpose as well as instructions on how to properly fill out the form.

The Bidder is advised that the items listed below when listed in the Utilization Certification must have their amounts reduced to the percentages shown and those reduced amounts will be the amount applied towards meeting the UDBE COA Goal.

- Force account at 50%

- Regular dealer at 60%

In the event of arithmetic errors in completing the UDBE Utilization Certification, the amount listed to be applied towards the UDBE COA Goal for each UDBE shall govern and the UDBE total amount shall be adjusted accordingly.

Note: The Contracting Agency shall consider as non-responsive and shall reject any Bid Proposal submitted that does not contain a UDBE Utilization Certification Form that accurately demonstrates how the Bidder intends to meet the UDBE COA Goal.

Underutilized Disadvantaged Business Enterprise Written Confirmation Document(s)

The requirements of this section apply to projects with a UDBE COA Goal. The Bidder shall submit an Underutilized Disadvantaged Business Enterprise (UDBE) Written Confirmation Document (completed and signed by the UDBE) for each UDBE firm listed in the Bidder's completed UDBE Utilization Certification submitted with the Bid. Failure to do so will result in the associated participation being disallowed, which may cause the Bid to be determined to be nonresponsive resulting in Bid rejection.

The Confirmation Documents provide confirmation from the UDBEs that they are participating in the Contract as provided in the Bidder's Commitment. The Confirmation Documents must be consistent with the Utilization Certification.

A UDBE Written Confirmation Document (WSDOT Form 422-031U) is included in the Proposal package for this purpose.

The form(s) shall be received as specified in the special provisions for Section 1-02.9 Delivery of Proposal.

It is prohibited for the Bidder to require a UDBE to submit a Written Confirmation Document with any part of the form left blank. Should the Contracting Agency determine that an incomplete Written Confirmation Document was signed by a UDBE, the validity of the document comes into question. The associated UDBE participation may not receive credit.

Selection of Successful Bidder/Good Faith Efforts (GFE)

The requirements of this section apply to projects with a UDBE COA Goal. The successful Bidder shall be selected on the basis of having submitted the lowest responsive Bid, which demonstrates a good faith effort to achieve the UDBE COA Goal. The Contracting Agency, at any time during the selection process, may request a breakdown of the bid items and amounts that are counted towards the overall contract goal for any of the UDBEs listed on the UDBE Utilization Certification.

Achieving the UDBE COA Goal may be accomplished in one of two ways:

1. <u>By meeting the UDBE COA Goal</u>
   Submission of the UDBE Utilization Certification, supporting UDBE Written Confirmation Document(s) showing the Bidder has obtained enough

UDBE participation to meet or exceed the UDBE COA Goal, the UDBE Bid Item Breakdown and the UDBE Trucking Credit Form, if applicable.

2. By documentation that the Bidder made adequate GFE to meet the UDBE COA Goal
   The Bidder may demonstrate a GFE in whole or part through GFE documentation ONLY IN THE EVENT a Bidder's efforts to solicit sufficient UDBE participation have been unsuccessful. The Bidder must supply GFE documentation in addition to the UDBE Utilization Certification, supporting UDBE Written Confirmation Document(s), the UDBE Bid Item Breakdown form and the UDBE Trucking Credit Form, if applicable.

Note: In the case where a Bidder is awarded the contract based on demonstrating adequate GFE, the advertised UDBE COA Goal will not be reduced. The Bidder shall demonstrate a GFE during the life of the Contract to attain the advertised UDBE COA Goal.

GFE documentation, the UDBE Bid Item Breakdown form, and the UDBE Trucking Credit Form, if applicable, shall be submitted as specified in Section 1-02.9.

The Contracting Agency will review the GFE documentation and will determine if the Bidder made an adequate good faith effort.

Good Faith Effort (GFE) Documentation
GFE is evaluated when:

1. Determining award of a Contract that has COA goal,

2. When a COA UDBE is terminated and substitution is required, and

3. Prior to Physical Completion when determining whether the Contractor has satisfied its UDBE commitments.

49 CFR Part 26, Appendix A is intended as general guidance and does not, in itself, demonstrate adequate good faith efforts. The following is a list of types of actions, which would be considered as part of the Bidder's GFE to achieve UDBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

1. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified UDBEs who have the capability to perform the Work of the Contract. The Bidder must solicit this interest within sufficient time to allow the UDBEs to respond to the solicitation. The Bidder must determine with certainty if the UDBEs are interested by taking appropriate steps to follow up initial solicitations.

2. Selecting portions of the Work to be performed by UDBEs in order to increase the likelihood that the UDBE COA Goal will be achieved. This includes, where appropriate, breaking out contract Work items into economically feasible units to facilitate UDBE participation, even when the

Bidder might otherwise prefer to perform these Work items with its own forces.

3. Providing interested UDBEs with adequate information about the Plans, Specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation.

   a. Negotiating in good faith with interested UDBEs. It is the Bidder's responsibility to make a portion of the Work available to UDBE subcontractors and suppliers and to select those portions of the Work or material needs consistent with the available UDBE subcontractors and suppliers, so as to facilitate UDBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of UDBEs that were considered; a description of the information provided regarding the Plans and Specifications for the Work selected for subcontracting; and evidence as to why additional agreements could not be reached for UDBEs to perform the Work.

   b. A Bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as the UDBE COA Goal into consideration. However, the fact that there may be some additional costs involved in finding and using UDBEs is not in itself sufficient reason for a Bidder's failure to meet the UDBE COA Goal, as long as such costs are reasonable. Also, the ability or desire of a Bidder to perform the Work of a Contract with its own organization does not relieve the Bidder of the responsibility to make Good Faith Efforts. Bidders are not, however, required to accept higher quotes from UDBEs if the price difference is excessive or unreasonable.

4. Not rejecting UDBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Bidder's efforts to meet the UDBE COA Goal.

5. Making efforts to assist interested UDBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Bidder.

6. Making efforts to assist interested UDBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

7. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, State, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of UDBEs.

8. Documentation of GFE must include copies of each UDBE and non-DBE subcontractor quotes submitted to the Bidder when a non-DBE

subcontractor is selected over a UDBE for Work on the Contract. (ref. updated DBE regulations – 26.53(b)(2)(vi) & App. A)

Administrative Reconsideration of GFE Documentation

A Bidder has the right to request reconsideration if the GFE documentation submitted with their Bid was determined to be inadequate.

- The Bidder must request within 48 hours of notification of being nonresponsive or forfeit the right to reconsideration.
- The reconsideration decision on the adequacy of the Bidder's GFE documentation shall be made by an official who did not take part in the original determination.
- Only original GFE documentation submitted as a supplement to the Bid shall be considered. The Bidder shall not introduce new documentation at the reconsideration hearing.
- The Bidder shall have the opportunity to meet in person with the official for the purpose of setting forth the Bidder's position as to why the GFE documentation demonstrates a sufficient effort.
- The reconsideration official shall provide the Bidder with a written decision on reconsideration within five working days of the hearing explaining the basis for their finding.

UDBE Bid Item Breakdown

The Bidder shall submit a UDBE Bid Item Breakdown Form (WSDOT Form 272-054) as specified in the Special Provisions for Section 1-02.9, Delivery of Proposal.

UDBE Trucking Credit Form

The Bidder shall submit a UDBE Trucking Credit Form (WSDOT Form 272-058), as specified in the Special Provisions for Section 1-02.9, Delivery of Proposal.

Note: The UDBE Trucking Credit Form is only required for a UDBE Firm listed on the UDBE Utilization Certification as a subcontractor for "Trucking" or "Hauling" and are performing a part of a bid item. For example, if the item of Work is Structure Excavation including Haul, and another firm is doing the excavation and the UDBE Trucking firm is doing the haul, the form is required. For a UDBE subcontractor that is responsible for an entire item of work that may require some use of trucks, the form is not required.

Procedures between Award and Execution

After Award and prior to Execution, the Contractor shall provide the additional information described below. Failure to comply shall result in the forfeiture of the Bidder's Proposal bond or deposit.

1. A list of all firms who submitted a bid or quote in attempt to participate in this project whether they were successful or not. Include the business name and mailing address.

Note: The firms identified by the Contractor may be contacted by the Contracting Agency to solicit general information as follows: age of the firm and average of its gross annual receipts over the past three years.

Procedures after Execution

Commercially Useful Function (CUF)

The Contractor may only take credit for the payments made for Work performed by a DBE that is determined to be performing a CUF. Payment must be commensurate with the work actually performed by the DBE. This applies to all DBEs performing Work on a project, whether or not the DBEs are COA, if the Contractor wants to receive credit for their participation. The Engineer will conduct CUF reviews to ascertain whether DBEs are performing a CUF. A DBE performs a CUF when it is carrying out its responsibilities of its contract by actually performing, managing, and supervising the Work involved. The DBE must be responsible for negotiating price; determining quality and quantity; ordering the material, installing (where applicable); and paying for the material itself. If a DBE does not perform "all" of these functions on a furnish-and-install contract, it has not performed a CUF and the cost of materials cannot be counted toward UDBE COA Goal. Leasing of equipment from a leasing company is allowed. However, leasing/purchasing equipment from the Contractor is not allowed. Lease agreements shall be provided prior to the Subcontractor beginning Work. Any use of the Contractor's equipment by a DBE may not be credited as countable participation.

The DBE does not perform a CUF if its role is limited to that of an extra participant in a transaction, contract, or project through which the funds are passed in order to obtain the appearance of DBE participation.

In order for a DBE traffic control company to be considered to be performing a CUF, the DBE must be in control of its work inclusive of supervision. The DBE shall employ a Traffic Control Supervisor who is directly involved in the management and supervision of the traffic control employees and services.

The following are some of the factors that the Engineer will use in determining whether a DBE trucking company is performing a CUF:

- The DBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on the contract. The owner demonstrates business related knowledge, shows up on site and is determined to be actively running the business.

- The DBE itself shall own and operate at least one fully licensed, insured, and operational truck used on the Contract. The drivers of the trucks owned and leased by the DBE must be exclusively employed by the DBE and reflected on the DBE's payroll.

- Lease agreements for trucks shall indicate that the DBE has exclusive use of and control over the truck(s). This does not preclude the leased truck from working for others provided it is with the consent of the DBE and the lease provides the DBE absolute priority for use of the leased truck.

- Leased trucks shall display the name and identification number of the DBE.

UDBE/DBE/FSBE Truck Unit Listing Log

In addition to the subcontracting requirements of Section 1-08.1, each DBE trucking firm shall submit supplemental information consisting of a completed Primary UDBE/DBE/FSBE Truck Unit Listing Log (WSDOT Form 350-077), copy of vehicle registrations, and all Rental/Lease agreements (if applicable). The supplemental information shall be submitted to the Engineer prior to any trucking services being performed for DBE credit. Incomplete or incorrect supplemental information will be returned for correction. The corrected Primary UDBE/DBE/FSBE Truck Unit Listing Log and any Updated Primary UDBE/DBE/FSBE Truck Unit Listing Logs shall be submitted and accepted by the Engineer no later than ten calendar days of utilizing applicable trucks. Failure to submit or update the DBE Truck Unit Listing Log may result in trucks not being credited as DBE participation.

Each DBE trucking firm shall complete a Daily UDBE/DBE/FSBE Trucking Unit Listing Log for each day that the DBE performs trucking services for DBE credit. The Daily UDBE/DBE/FSBE Trucking Unit Listing Log forms shall be submitted to the Engineer by Friday of the week after the work was performed.

Joint Checking

A joint check is a check between a Subcontractor and the Contractor to the supplier of materials/supplies. The check is issued by the Contractor as payer to the Subcontractor and the material supplier jointly for items to be incorporated into the project. The DBE must release the check to the supplier, while the Contractor acts solely as the guarantor.

A joint check agreement must be approved by the Engineer and requested by the DBE involved using the DBE Joint Check Request Form (form # 272-053) prior to its use. The form must accompany the DBE Joint Check Agreement between the parties involved, including the conditions of the arrangement and expected use of the joint checks.

The approval to use joint checks and the use will be closely monitored by the Engineer. To receive DBE credit for performing a CUF with respect to obtaining materials and supplies, a DBE must "be responsible for negotiating price, determining quality and quantity, ordering the material, installing and paying for the material itself." The Contractor shall submit DBE Joint Check Request Form for the Engineer approval prior to using a joint check.

Material costs paid by the Contractor directly to the material supplier are not allowed. If proper procedures are not followed or the Engineer determines that the arrangement results in lack of independence for the DBE involved, no DBE credit will be given for the DBE's participation as it relates to the material cost.

Prompt Payment

Prompt payment to all subcontractors shall be in accordance with Section 1-08.1. Prompt payment requirements apply to progress payments as well as return of retainage.

Reporting

The Contractor and all subcontractors/suppliers/service providers that utilize DBEs to perform work on the project, shall maintain appropriate records that will enable the Engineer to verify DBE participation throughout the life of the project.

Refer to Section 1-08.1 for additional reporting requirements associated with this contract.

Changes in COA Work Committed to UDBE

The Contractor shall utilize the COA UDBEs to perform the work and supply the materials for which each is committed unless approved by the Engineer. The Contractor shall not be entitled to any payment for work or material completed by the Contractor or subcontractors that was committed to be completed by the COA UDBEs.

Owner Initiated Changes

Where the Engineer makes changes that result in changes to Work that was committed to a COA UDBE. The Contractor may be directed to substitute for the Work in such instances.

Contractor Initiated Changes

The Contractor cannot reduce the amount of work committed to a COA UDBE without good cause. Reducing UDBE Commitment is viewed as partial UDBE termination, and therefore subject to the termination procedures below.

Original Quantity Underruns

In the event that Work committed to a UDBE firm as part of the COA underruns the original planned quantities the Contractor may be required to substitute other remaining Work to another UDBE.

Contractor Proposed DBE Substitutions

Requests to substitute a COA UDBE must be for good cause (see UDBE termination process below) and require prior written approval of the Engineer. After receiving a termination with good cause approval, the Contractor may only replace a UDBE with another certified UDBE. When any changes between Contract Award and Execution result in a substitution of COA UDBE, the substitute UDBE shall be certified prior to the bid opening on the Contract.

UDBE Termination

Termination of a COA UDBE (or an approved substitute UDBE) is only allowed in whole or in part with prior written approval of the Engineer. If the Contractor terminates a COA UDBE without the written approval of the Engineer, the Contractor shall not be entitled to credit towards the UDBE COA Goal for any payment for work or material performed/supplied by the COA UDBE. In addition, sanctions may apply as described elsewhere in this specification.

The Contractor must have good cause to terminate a COA UDBE.

Good cause typically includes situations where the UDBE Subcontractor is unable or unwilling to perform the work of its subcontract. Good cause may exist if:

- The UDBE fails or refuses to execute a written contract.
- The UDBE fails or refuses to perform the Work of its subcontract in a way consistent with normal industry standards.
- The UDBE fails or refuses to meet the Contractor's reasonable nondiscriminatory bond requirements.
- The UDBE becomes bankrupt, insolvent, or exhibits credit unworthiness.
- The UDBE is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to federal law or applicable State law.
- The UDBE voluntarily withdraws from the project and provides written notice of its withdrawal.
- The UDBE's work is deemed unsatisfactory by the Engineer and not in compliance with the Contract.
- The UDBE's owner dies or becomes disabled with the result that the UDBE is unable to complete its Work on the Contract.

Good cause does not exist if:

- The Contractor seeks to terminate a COA UDBE so that the Contractor can self-perform the Work.
- The Contractor seeks to terminate a COA UDBE so the Contractor can substitute another DBE contractor or non-DBE contractor after Contract Award.
- The failure or refusal of the COA UDBE to perform its Work on the subcontract results from the bad faith or discriminatory action of the Contractor (e.g., the failure of the Contractor to make timely payments or the unnecessary placing of obstacles in the path of the UDBE's Work).

Prior to requesting termination, the Contractor shall give notice in writing to the UDBE with a copy to the Engineer of its intent to request to terminate UDBE Work and the reasons for doing so. The UDBE shall have five (5) days to respond to the Contractor's notice. The UDBE's response shall either support the termination or advise the Engineer and the Contractor of the reasons it objects to the termination of its subcontract.

When a COA UDBE is terminated or fails to complete its work on the Contract for any reason, the Contractor shall substitute with another UDBE or provide documentation of GFE. A plan to achieve the COA UDBE Commitment shall be submitted to the Engineer within 2 days of the approval of termination or the Contract shall be suspended until such time the substitution plan is submitted.

Decertification

When a DBE is "decertified" from the DBE program during the course of the Contract, the participation of that DBE shall continue to count as DBE participation as long as the subcontract with the DBE was executed prior to the decertification notice. The Contractor is obligated to substitute when a DBE does not have an executed subcontract agreement at the time of decertification.

Consequences of Non-Compliance

Breach of Contract

Each contract with a Contractor (and each subcontract the Contractor signs with a Subcontractor) must include the following assurance clause:

The Contractor, subrecipient, or Subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

(1) Withholding monthly progress payments;

(2) Assessing sanctions;

(3) Liquidated damages; and/or

(4) Disqualifying the Contractor from future bidding as non-responsible.

Notice

If the Contractor or any Subcontractor, Consultant, Regular Dealer, or service provider is deemed to be in non-compliance, the Contractor will be informed in writing, by certified mail by the Engineer that sanctions will be imposed for failure to meet the UDBE COA Commitment and/or submit documentation of good faith efforts. The notice will state the specific sanctions to be imposed which may include impacting a Contractor or other entity's ability to participate in future contracts.

Sanctions

If it is determined that the Contractor's failure to meet all or part of the UDBE COA Commitment is due to the Contractor's inadequate good faith efforts throughout the life of the Contract, including failure to submit timely, required Good Faith Efforts information and documentation, the Contractor may be required to pay DBE penalty equal to the amount of the unmet Commitment, in addition to the sanctions outlined in Section 1-07.11(5).

Payment

Compensation for all costs involved with complying with the conditions of this Specification and any other associated DBE requirements is included in payment for the associated Contract items of Work, except otherwise provided in the Specifications.

1-07.18 Public Liability and Property Damage Insurance

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

1-07.18 Insurance

(January 4, 2016 APWA GSP)

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.

1-07.24 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

(May 25, 2006 APWA GSP)

1-08.0(1) Preconstruction Conference

(October 10, 2008 APWA GSP)

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

1. To review the initial progress schedule;
2. To establish a working understanding among the various parties associated or affected by the work;
3. To establish and review procedures for progress payment, notifications, approvals, submittals, etc.;
4. To establish normal working hours for the work;

5. To review safety standards and traffic control; and
6. To discuss such other related items as may be pertinent to the work.

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

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

1-08.0(2) Hours of Work

(December 8, 2014 APWA GSP)

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

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

If the Contractor wishes to deviate from the established working hours, the Contractor shall submit a written request to the Engineer for consideration. This request shall state what hours are being requested, and why. Requests shall be submitted for review no later than 7 days prior to the day(s) the Contractor is requesting to change the hours.

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

1. On non-Federal aid projects, requiring the Contractor to reimburse the Contracting Agency for the costs in excess of straight-time costs for Contracting Agency representatives who worked during such times. (The Engineer may require designated representatives to be present during the work. Representatives who may be deemed necessary by the Engineer include, but are not limited to: survey crews; personnel from the Contracting Agency's material testing lab; inspectors; and other Contracting Agency employees or third party consultants when, in the opinion of the Engineer, such work necessitates their presence.)
2. Considering the work performed on Saturdays, Sundays, and holidays as working days with regard to the contract time.
3. Considering multiple work shifts as multiple working days with respect to contract time even though the multiple shifts occur in a single 24-hour period.
4. If a 4-10 work schedule is requested and approved, the non-working day for the week will be charged as a working day.
5. If Davis Bacon wage rates apply to this Contract, all requirements must be met and recorded properly on certified payroll

1-08.1 Subcontracting

(December 19, 2019 APWA GSP, Option A)

Prior to any subcontractor or lower tier subcontractor beginning work, the Contractor shall submit to the Engineer a certification (WSDOT Form 420-004) that a written agreement between the Contractor and the subcontractor or between the subcontractor and any lower tier subcontractor has been executed. This certification shall also guarantee that these subcontract agreements include all the documents required by the Special Provision Federal Agency Inspection.

A Subcontractor or lower tier Subcontractor will not be permitted to perform any work under the contract until the following documents have been completed and submitted to the Engineer:

1. Request to Sublet Work (WSDOT Form 421-012), and
2. Contractor and Subcontractor or Lower Tier Subcontractor Certification for Federal-aid Projects (WSDOT Form 420-004).

The Contractor shall submit to the Engineer a completed Monthly Retainage Report (WSDOT Form 272-065) within 15 calendar days after receipt of every monthly progress payment until every Subcontractor and lower tier Subcontractor's retainage has been released.

The ninth paragraph, beginning with "On all projects, …" is revised to read:

The Contractor shall certify to the actual amount received from the Contracting Agency and amounts paid to all firms that were used as Subcontractors, lower tier subcontractors, manufacturers, regular dealers, or service providers on the Contract. This includes all Disadvantaged, Minority, Small, Veteran, or Women's Business Enterprise firms. This Certification shall be submitted to the Engineer on a monthly basis each month between Execution of the Contract and Physical Completion of the Contract using the application available at: https://wsdot.diversitycompliance.com. A monthly report shall be submitted for every month between Execution of the Contract and Physical Completion regardless of whether payments were made or work occurred.

1-08.3 Progress Schedule

1-08.3(2)B Type B Progress Schedule

(March 13, 2012 APWA GSP)

Revise the first paragraph to read:

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

Revise the first sentence of the second paragraph to read:

The Contractor shall submit 5 copies of a Type B Progress Schedule depicting the entire project no later than 21-calendar days after the preconstruction conference.

1-08.4 Prosecution of Work

Delete this section and replace it with the following:

1-08.4 Notice to Proceed and Prosecution of Work

(July 23, 2015 APWA GSP)

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

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

1-08.5 Time for Completion

(November 30, 2018 APWA GSP, Option A)

Revise the third and fourth paragraphs to read:

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

Each working day shall be charged to the contract as it occurs, until the contract work is physically complete. If substantial completion has been granted and all the authorized working days have been used, charging of working days will cease. Each week the Engineer will provide the Contractor a statement that shows the number of working days: (1) charged to the contract the week before; (2) specified for the physical completion of the contract; and (3) remaining for the physical completion of the contract. The statement will also show the nonworking days and 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

1-08.9 Liquidated Damages

(August 14, 2013 APWA GSP)

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(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.

1-09.9 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.

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.

1-09.13 Claims Resolution

1-09.13(3)A Administration of Arbitration

(November 30, 2018 APWA GSP)

Revise the third paragraph to read:

> The Contracting Agency and the Contractor mutually agree to be bound by the decision of the arbitrator, and judgment upon the award rendered by the arbitrator may be entered in the Superior Court of the county in which the Contracting Agency's headquarters is located, provided that where claims subject to arbitration are asserted against a county, RCW 36.01.050 shall control venue and jurisdiction of the Superior Court. The decision of the arbitrator and the specific basis for the decision shall be in writing. The arbitrator shall use the Contract as a basis for decisions.

1-10.5 Payment

1-10.5(1) Lump Sum Bid for Project (No Unit Items)

(January 23, 2006 APWA GSP)

Revise the pay item name to read:

> "Project Temporary Traffic Control, min. Bid $5,000.00, lump sum.

END OF SECTION

Division 7
Drainage Structures, Storm Structures, Sanitary Sewers, Water Mains, and Conduits

7-05 Manholes, Inlets, Catch Basins, and Drywells

7-05.1 Description

Section 7-05.1 is supplemented with the following:

Debris Barrier for Type 2 Catch Basin

This work shall also consist of furnishing and installing a galvanized steel debris cage to be attached to the top of a type 2 catch basin.

54 In. Control Structure

This work shall consist of furnishing and installing a 54” Catch Basin with flow control components as shown on the plans

7-05.2 Materials

Section 7-05.2 is supplemented with the following:

Debris Barrier for Type 2 Catch Basin

The debris cage shall include bar-frame, bars, nuts, bolts, and other hardware (anchor strips welded to bar-frame) required to fasten the cage to the precast concrete catch basin section. Steel for the debris cage and in grate, angles and bars shall conform to ASTM A36.

The top ring and bottom ring shall be constructed of ½ inch thick steel. Bars for the cage shall be equally spaced and no more than 4 inches in separation at the attachment point. Bas shall be equally spaced and a maximum spacing of 7 inches at the attachment point at the bottom ring. A hinged access gate with lock holes shall be on one side of the cage. Bar spacing over the access gate shall continue the equal spacing of the bars on the cage.

After fabrication, the steel shall be galvanized in accordance with AASHTO M111 or galvanized with a hot-sprayed (plasma flame applied) 6 mil minimum thickness plasma coating. After fabrication, the debris cage shall be powder coasted to fully coat all galvanized and zinc painted surfaces. The powder coating shall be grey in color and shall be in accordance with Section 6-07.2 and as supplemented in these Special Provisions.

54 In. Control Structure

The control structure shall include the catch basin and all furnishings as shown on the contract plans. The catch basin shall conform to the standards of section 7-05.

7-05.4 Measurement

Section 7-05.4 is supplemented with the following:

Debris Barrier will be measured per each. The debris barrier will include the conical cage and any hardware required to attach it to the catch basin. The catch basin will be paid separately under Catch Basin Type 2 item.

54 In. Control Structure per each. The 54 In. Control Structure will include the catch basin and all flow control components as detailed in the contract plans.

7-05.5 Payment

Section 7-05.5 is supplemented with the following:

"Debris Barrier", per each.
"54 In. Control Structure", per each

END OF SECTION

Division 8
Miscellaneous Construction

The Standard Specifications are supplemented with the following:

8-30 Flow Dispersion Trench

8-30.1 Description

This work shall consist of constructing a Flow Dispersal Trench as shown in detail on the contract plans. The Flow Dispersion Trench shall include the excavation of the trench, the supplying of the catch basin, notched grade board, perforated pipe, geosynthetic filter fabric, Type 1 Catch Basin, clean out and cleaned washed rock. The dispersal trench shall conform to the plans, these specifications or as established by the engineer.

8-30.2 Materials

Materials shall meet the requirements of the following sections:

Aggregates	9-03
Drainage Structure and Culverts	9-05
Concrete Patching Material, Grout and Mortar	9-20
Construction Geosynthetic	9-33

The filter fabric shall meet the standards and specifications for Construction Geosynthetic for Underground Drainage.

The washed rock shall be clean (<5% fines) and sized 1 ½" – ¾".

The notched grade board shall be constructed from pressure treated lumber.

8-30.3 Construction Requirements

Excavation shall be made to the required depth shown on the plans and to a width that will permit the installation of the pipe, catch basin, washed rock and filter fabric. The trench and notched grade board shall be level in order to prevent point discharges. 4"x4" support post may be used if deemed necessary by the engineer or contractor.

8-30.4 Measurement

Flow dispersion trench shall be measured per each.

8-30.5 Payment

Payment will be made for each of the following bid items that are include in the proposal, and shall be full compensation for all work associated with these items:

"Flow Dispersion Trench", per each.

8-31 Trash Rack

8-31.1 Description

This work shall consist of constructing a trash rack as shown in detail on the contract plans. The trash rack shall include materials and furnishings required to construct and install the trash rack. The trash rack shall conform to the plans, these specifications or as established by the engineer.

8-31.2 Materials

Materials shall meet the requirements of the following sections:

Galvanized Hardware	9-00
Safety Bars for Culvert Pipe	9-05
Drainage Structure and Culverts	9-05

The nuts and bolts shall be galvanized and asphalt coated.

Safety bars shall have a 3/4-inch diameter and shall have a maximum spacing of 3 inches. Safety bars shall be galvanized and asphalt coated.

Safety bars shall be welded to a 3/4-inch galvanized and asphalt coated frame.

8-31.3 Construction Requirements

The pipe end that is to receive the trash rack shall be clean and free of defects. The trash rack shall be securely bolted to the end of pipe. Backfill shall be placed to the end of the exposed pipe and compacted to 95% of the maximum compaction rate.

8-31.4 Measurement

Trash Racks shall be measured per each.

8-31.5 Payment

Payment will be made for each of the following bid items that are include in the proposal, and shall be full compensation for all work associated with these items:

“Trash Rack”, per each.

END OF SECTION

Division 9
Materials

9-00 Definitions and Tests

January 7, 2019

9-00.4 Sieves for Testing Purposes

This section is revised to read:

Test sieves shall be made of either: (1) woven wire cloth conforming to ASTM E11, or (2) square-hole, perforated plates conforming to ASTM E323.

9-03 Aggregates

9-03.8 Aggregates for Hot Mix Asphalt

9-03.8(1) General Requirements

The first paragraph (up until the colon) is revised to read:

Aggregates for Hot Mix Asphalt shall meet the following test requirements:

9-03.8(2) HMA Test Requirements

The two tables in the second paragraph are replaced with the following three tables:

Mix Criteria	HMA Class							
	⅜ inch		½ inch		¾ inch		1 inch	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Voids in Mineral Aggregate (VMA), %	15.0		14.0		13.0		12.0	
Voids Filled with Asphalt (VFA), %								
ESAL's (millions)	VFA							
< 0.3	70	80	70	80	70	80	67	80
0.3 to < 3	65	78	65	78	65	78	65	78
≥ 3	73	76	65	75	65	75	65	75
Dust/Asphalt Ratio	0.6	1.6	0.6	1.6	0.6	1.6	0.6	1.6

Test Method	ESAL's (millions)	Number of Passes
Hamburg Wheel-Track Testing, FOP for AASHTO T 324 Minimum Number of Passes with no Stripping Inflection Point and Maximum Rut Depth of 10mm	< 0.3	10,000
	0.3 to < 3	12,500
	≥ 3	15,000
Indirect Tensile (IDT) Strength (psi) of Bituminous Materials FOP for ASTM D6931		175 Maximum

	ESAL's (millions)	N initial	N design	N maximum
% Gmm	< 0.3	≤ 91.5	96.0	≤ 98.0
	0.3 to < 3	≤ 90.5	96.0	≤ 98.0
	≥ 3	≤ 89.0	96.0	≤ 98.0
Gyratory	< 0.3	6	50	75

	ESAL's (millions)	N initial	N design	N maximum
Compaction (number of gyrations)	0.3 to < 3	7	75	115
	> 3	8	100	160

9-03.8(7) HMA Tolerances and Adjustments

In the table in item number 1, the fifth row is revised to read:

Asphalt binder	-0.4% to 0.5%		±0.7%

In the table in item number 1, the following new row is inserted before the last row:

Voids in Mineral Aggregate, VMA	-1.0%		

9-03.9 Aggregates for Ballast and Crushed Surfacing

9-03.9(2) Permeable Ballast

Supplement section **9-03.9(2)** with the following:

Aggregates for permeable base shall meet the requirements for grading and quality when placed in hauling vehicles for delivery to the site, after placement in temporary stockpiles on site, during installation, and after installation and compaction.

Acceptance of aggregates shall be as provided under non-statistical evaluation.

The Contractor's submittal for the aggregate material shall provide description of sampling methodology, identify where and how the sample was collected, total weight of sampled collected, description of sample preparation procedures, total weight of sample sieved to determine grain size distribution, and test results. Sampling and preparation shall be in conformance with ASTM D75 and ASTM C702.

9-04 Joint Sealing Materials

9-04.5 Flexible Plastic Gaskets

In the table, the Test Method value for **Specific Gravity at 77°F** is revised to read "ASTM D71."

In the table, the Test Method value for **Flash Point COC, F** is revised to read "ASTM D93 REV A".

In the table, the Test Method value for **Volatile Matter** is revised to read "ASTM D6".

9-05 Drainage Structures and Culverts

January 7, 2019

9-05.3 Concrete Culvert Pipe

9-05.3(1) Plain Concrete Culvert Pipe

9-05.3(1)A End Design and Joints

The second sentence of the first paragraph is revised to read:

The joints and gasket material shall meet the requirements of ASTM C990.

9-05.3(1)C Age at Shipment

The last sentence of the first paragraph is revised to read:

Unless it is tested and accepted at an earlier age, it shall not be considered ready for shipment sooner than 28 days after manufacture when made with Type II portland cement or blended hydraulic cement, nor sooner than 7 days when made with Type III portland cement.

9-05.7 Concrete Storm Sewer Pipe

9-05.7(3) Concrete Storm Sewer Pipe Joints

The second sentence is revised to read:

The joints and gasket material shall meet the requirements of ASTM C990.

9-05.7(4) Testing Concrete Storm Sewer Pipe Joints

9-05.7(4)A Hydrostatic Pressure on Pipes in Straight Alignment

The first sentence is revised to read:

Hydrostatic pressure tests on pipes in straight alignment shall be made in accordance with the procedure outlined in Section 10 of ASTM C990, except that they shall be performed on an assembly consisting of not less than three nor more than five pipe sections selected from stock by the Engineer and assembled in accordance with standard installation instructions issued by the manufacturer.

9-05.24 Polypropylene Culvert Pipe, Polypropylene Storm Sewer Pipe, and Polypropylene Sanitary Sewer Pipe

9-05.24(1) Polypropylene Culvert Pipe and Storm Sewer Pipe

This section is revised to read:

Polypropylene culvert and storm sewer pipe shall conform to the following requirements:

1. For dual wall pipe sizes up to 60 inches: ASTM F2881 or AASHTO M 330, Type S or Type D.
2. For double or triple wall pipe sizes up to 60 inches: ASTM F2764.
3. Fittings shall be factory welded, injection molded, or PVC.

9-13 Riprap, Quarry Spalls, Slope Protection, and Rock for Erosion and Scour Protection and Rock Walls

April 2, 2018

9-13.1 Riprap and Quarry Spalls

9-13.1(1) General

The last paragraph is revised to read:

Riprap and quarry spalls shall be free from segregation, seams, cracks, and other defects tending to destroy its resistance to weather and shall meet the following test requirements:

9-14 Erosion Control and Roadside Planting

August 6, 2018

9-14.4 Mulch and Amendments

9-14.4(2) Hydraulically Applied Erosion Control Products (HECPs)

In Table 1, the last four rows are deleted.

9-14.4(2)A Long-Term Mulch

The first paragraph is supplemented with the following:

Products containing cellulose fiber produced from paper or paper components will not be accepted.

Table 2 is supplemented with the following new rows:

Water Holding Capacity	ASTM D 7367	800 percent minimum
Organic Matter Content	AASHTO T 267	90 percent minimum
Seed Germination Enhancement	ASTM D 7322	Long Term 420 percent minimum

9-14.4(2)B Moderate-Term Mulch

This section is revised to read:

Within 48 hours of application, the Moderate-Term Mulch shall bond with the soil surface to create a continuous, absorbent, flexible, erosion-resistant blanket. Moderate-Term Mulch shall effectively perform the intended erosion control function in accordance with Section 8-01.3(1) for a minimum of 3 months, or until temporary vegetation has been established, whichever comes first.

Moderate-Term Mulch shall not be used in conjunction with permanent seeding.

9-14.4(2)C Short-Term Mulch

This section is revised to read:

Short-Term Mulch shall effectively perform the intended erosion control function in accordance with Section 8-01.3(1) for a minimum of 2 months, or until temporary vegetation has been established, whichever comes first. Short-Term Mulch shall not be used in conjunction with permanent seeding.

9-33 Construction Geosynthetic

August 6, 2018

9-33.4 Geosynthetic Material Approval and Acceptance

9-33.4(1) Geosynthetic Material Approval

The second sentence of the first paragraph is revised to read:

> If the geosynthetics material is not listed in the current WSDOT QPL, a Manufacturer's Certificate of Compliance including Certified Test Reports of each proposed geosynthetic shall be submitted to the City of Port Townsend.

The last paragraph is revised to read:

> Geosynthetics used as reinforcement in permanent geosynthetic retaining walls, reinforced slopes, reinforced embankments, and other geosynthetic reinforcement applications require proof of compliance with the National Transportation Product Evaluation Program (NTPEP) in accordance with AASHTO Standard Practice R 69, Standard Practice for Determination of Long-Term Strength for Geosynthetic Reinforcement.

END OF SECTION

III. – Bid Forms

Exhibit A – Bid Proposal

Exhibit B – Bid Tabulation Form

Exhibit C – Non-Collusion Declaration

Exhibit D – Proposal Bond Form

Exhibit E – Certification of Compliance with Wage Payment Statues

EXHIBIT A

BID PROPOSAL

Proposal of _____

(Hereinafter called "Bidder"), organized and existing under the laws of the State of, doing business as

_____

To the City of Port Townsend ("City"):

In compliance with your Invitation for Bids, Bidder hereby proposes to perform all work for the following Project or Contract: Rainier St. Regional Stormwater in strict accordance with the Contract Documents, within the time set forth therein, and at the prices stated below.

By submission of this Bid, each Bidder certifies, and in the case of a joint Bid each party thereto certifies as to his own organization, that this Bid has been arrived at independently without consultation, communication or agreement as to any matter relating to this Bid with any other Bidder or with any other competitor.

Bidder hereby agrees to commence work under this Contract on or before a date to be specified in the Notice to Proceed.

Bidder acknowledges that if the Bid Proposal is made without a requirement for a Bid Deposit, and Bidder is awarded the Contract but fails to execute the Contract, then Bidder shall be disqualified from submitting further Bid Proposals to the City for a period of two years from Notice of Award.

Bidder agrees to perform all work as described in the Contract Documents and as shown on the drawings for the: Rainier St. Regional Stormwater for the lump sum of: _____ for the Base Bid.

	Bid Amount	*Estimated Sales Tax (_____%)	Total Bid
Base Bid (Schedule A)			
Base Bid (Schedule A)			
Bid Alternate 1			
Total			

EXHIBIT A

Receipt is hereby acknowledged of Addendum(s) No(s): _____[NOTE: write "none" if there were no addendums.]

1. If the Bidder is a sole proprietorship, so state and give the name under which business is transacted.
2. If the Bidder is a co-partnership, so state, giving firm name under which business is transacted.
3. If the Bidder is a corporation, this Proposal must be executed by its duly authorized officials.

_____ _____

Bidder's Firm Name Date

By: _____

Authorized Signature (required)

Bidder's address, telephone _____
Number and email for
Official communications: _____

_____

STATE CERTIFICATE OF REGISTRATION NO. _____

STATE UNIFIED BUSINESS IDENTIFIER NO. _____

END OF TEXT

Bid Item #	WSDOT STD SPEC.	Item Description	Quantity	Unit	Unit Price	Total
Base Bid						
1	1-09.7	MOBILIZATION	1	L.S.		
2	2-01	CLEARING AND GRUBBING	3	ACRE		
4	2-03	COMMON BORROW	300	C.Y.		
5	2-03	ROADWAY EXCAVATION	1130	C.Y.		
6	2-09	STRUCTURE EXCAVATION CLASS B	4850	CY		
7	2-03	EMBANKMENT COMPACTION	3150	C.Y.		
8	8-15	QUARRY SPALLS	235	TON		
9	4-04	PERMEABLE BALLAST	905	TON		
10	7-05	CATCH BASIN TYPE 1L	6	EACH		
11	7-05	CATCH BASIN TYPE 2 48 IN. DIAM.	3	EACH		
12	7-05	MANHOLE ADDITIONAL HEIGHT 48 IN. DIAM. TYPE 2	6	L.F.		
13	7-05	54 IN. CONTROL STRUCTURE	1	EACH		
14	7-05	DEBRIS BARRIER	1	EACH		
15	7-04	TESTING STORM SEWER PIPE	1975	L.F.		
16	7-01	DRAIN PIPE 8 IN. DIAM.	20	L.F.		
17	7-04	SOLID WALL PVC STORM SEWER PIPE 15 IN. DIAM.	36	L.F.		
18	7-04	CORRUGATED POLYETHYLENE STORM SEWER PIPE 12 IN. DIAM.	81	L.F.		
19	7-04	CORRUGATED POLYETHYLENE STORM SEWER PIPE 18 IN. DIAM.	1858	L.F.		
20	7-02	TRASH RACK	3	EACH		
21	4-04	CRUSHED SURFACING TOP COURSE	700	TON		
22	8-01	HIGH VISIBILITY SILT FENCE	1980	L.F.		
23	8-01	STABILIZED CONSTRUCTION ENTRANCE	250	S.Y.		
24	8-01	ESC LEAD	75	DAY		
25	8-01	STREET CLEANING	40	HR		
26	8-01	SEEDING, FERTILIZING, AND MULCHING	3	ACRE		
27	8-21	PERMANENT SIGNING	1	L.S.		
28	7-08	SHORING OR EXTRA EXCAVATION CLASS B	16,000	S.F.		
29	7-08	GRAVEL BACKFILL FOR PIPE ZONE BEDDING	780	C.Y.		
30	8-12	CHAIN LINK FENCE TYPE 3	650	L.F.		
31	8-12	DOUBLE 14 FT. CHAIN LINK GATE	1	EACH		
32	2-12	CONSTRUCTION GEOTEXTILE FOR UNDERGROUND DRAINAGE	525	S.Y.		
33	SP-8-30	FLOW DISPERSION TRENCH	1	EACH		
34	SP-1-05.18	RECORD DRAWINGS	1	L.S.		
35	1-04.4	MINOR CHANGE	EST	EST	$ 35,000	

Bid Alternative

36	2-09	STRUCTURE EXCAVATION CLASS B	3200	C.Y.		
37	4-04	PERMEABLE BALLAST	1250	TON		
38	2-12	CONSTRUCTION GEOTEXTILE FOR UNDERGROUND DRAINAGE	735	S.Y.		
39	8-12	CHAIN LINK FENCE TYPE 3	90	L.F.		

EXHIBIT C

NON-COLLUSION DECLARATION

I, by signing the proposal, hereby declare, under penalty of perjury under the laws of the United States, that the following statements are true and correct:

1. That the undersigned person(s), firm, association or corporation has (have) 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.
2. That by signing the signature page of this proposal, I am deemed to have signed and to have agreed to the provisions of this declaration.

NOTICE TO ALL BIDDERS

To report 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., eastern time. 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.

EXHIBIT D

PROPOSAL BOND FORM

Herewith find deposit in the form of a cashier's check, postal money order or bid bond in the amount of $ _____ which amount is not less than five (5%) percent of the total bid for the Project/Schedule known as:

Rainier St. Regional Stormwater

SIGN HERE _____

PROPOSAL BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, of _____ as Principal and the _____ a corporation duly organized under the laws of the state of _____, and authorized to do business in the State of Washington, as Surety, are held and firmly bound unto the CITY OF PORT TOWNSEND in the full and penal sum of five (5) percent of the total amount of the bid proposal of said principal for the work hereinafter described, for the payment of which, well and truly to be made, we bind out heirs, executors, administrators and assigns, and successors and assigns, firmly by these presents.

The condition of this bond is such, that whereas the principal herein is herewith submitting his or its sealed proposal for the following construction project, to wit:

Rainier St. Regional Stormwater Said bid and proposal, by reference thereto, being made a part hereof.

NOW, THEREFORE, If the said proposal bid by said principal be accepted, and the contract be awarded to said principal, and if said principal shall duly make and enter into and execute said contract and shall furnish bond as required by the City of Port Townsend within a period of twenty (20) days from and after said award, exclusive of the day of such award, then this obligation shall be null and void, otherwise it shall remain and be in full force effect.

IN TESTIMONY WHEREOF, the principal and surety have caused there presents to be signed and sealed this

_____ day of _____, 2020.

_____

_____

(Principal)

_____

(Surety)

_____

(Attorney-in-fact)

EXHIBIT E

CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUES

(Due with the Bid Package)

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date (March 18, 2020), the bidder is not a "willful" violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

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

_____

Bidder's Business Name

_____

Signature of Authorized Official*

_____

Printed Name

_____

Title

_____ _____ _____

Date City State

Check One:

Sole Proprietorship ☐ Partnership ☐ Joint Venture ☐ Corporation ☐

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

_____

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

_____

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

IV. – Contract Forms

Exhibit F – Public Works Contract

Exhibit G – Performance Bond

Exhibit H – Payment Bond

Exhibit I – Title VI Non-Discrimination Assurances

EXHIBIT F

CITY OF PORT TOWNSEND
PUBLIC WORKS CONTRACT

THIS AGREEMENT made and entered into this __ day of _____, by and between the City of Port Townsend (*"Owner" or "City")*, and _____ *("Contractor"):*

WHEREAS, pursuant to the invitation of the Owner for bids, the Contractor did, in accordance therewith, file with the Owner a proposal containing an offer which was invited by said notice, and

WHEREAS, the Owner has heretofore determined that said offer was the lowest responsive and responsible bid submitted;

NOW, THEREFORE, in consideration of the terms and conditions contained herein, the parties hereto covenant and agree as follows:

1. Contract Scope of Work; Contract Documents. The Contractor shall in a workmanlike manner do all work and furnish all tools, materials, and equipment for the

Rainer St. Regional Stormwater
in accordance with and as described in the following Contract Documents (incorporated by reference in this Contract):

1. Public Works Contract;
2. Addenda;
3. Bid Tabulation Form;
4. Special Provisions;
5. Contract Plans;
6. Amendments to the Standard Specifications;
7. The 2018 Washington State Department of Transportation *Standards Specifications for Road, Bridge, and Municipal Construction*;
8. City of Port Townsend Engineering Design Standards (except as modified by any technical specifications in the plans and specifications); and
9. Washington State Department of Transportation Standard Plans for Road, Bridge, and Municipal Construction

In the event of a conflict or discrepancy among or in the Contract Documents, interpretation shall be governed in the priority listed and set forth above.

The Contractor shall provide and bear the expense of all equipment, work and labor of any sort whatsoever they may require for the transfer of materials and for constructing and completing the work provided for in the specifications to be furnished by the City of Port Townsend.

2. Contract Amount; Compensation. The City of Port Townsend hereby promises and agrees with the Contractor to employ, and does employ the Contractor to provide materials and to do

and cause to be done the above described work and to complete and finish the same according to the Scope of Work and the terms and conditions herein contained and hereby contracts to pay for the same, the total sum of_____ including tax. Payment shall be as provided in the Instructions for Bidders unless otherwise provided. Payment shall be made monthly upon submittal of a pay request for work performed to date as determined by the City. Failure to perform any of the obligations under the contract by Contractor may be decreed by the City to be adequate reason for withholding any payments until compliance is achieved, including withholding amounts from any payment based on substantial completion to cover the City's cost to complete any punch list items.

3. Time for Completion. The Contractor shall substantially complete the project within seventy-five (75) working days of a Notice to Proceed.

4. Insurance and Indemnity Requirements. Contractor shall take out and maintain insurance as set forth in the bid package.

5. Correction of Work. If within two years after the date for Substantial Completion, any of the work is found not to be in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after written notice to do so. If the Contractor fails to correct nonconforming work within a reasonable time after notice, City may, without prejudice to other remedies it may have, correct such deficiencies, and the Contractor shall pay the cost to the City, plus 10% City administrative overhead fee.

6. Attorney Fees. If enforcement of this Contract requires either party to engage the services of an attorney or consultant, the prevailing party shall be entitled to recover reasonable legal costs, including attorney fees and expert fees, in connection with such enforcement, with or without suit.

IN THE WITNESS WHEREOF the parties hereto have caused this agreement to be executed this _____ day of _____, 2020.

City of Port Townsend

By: _____
John Mauro, City Manager

Contractor

By: _____

Name: _____

Title: _____

Approved as to form:

_____
Heidi Greenwood, City Attorney

END OF TEXT

EXHIBIT G

PERFORMANCE BOND

to City of Port Townsend, WA
Bond No. _____

The City of Port Townsend, Washington, has awarded to _____ (Principal), a contract for the construction of the project designated as **Rainier St. Regional Stormwater** No. **8028** in Port Townsend, Washington, and said Principal is required to furnish a bond for performance of all obligations under the Contract.

The Principal, and _____ (Surety), a corporation, organized under the laws of the State of _____ and licensed to do business in the State of Washington as surety and named in the current list of "Surety Companies Acceptable in Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Treasury Dept., are jointly and severally held and firmly bound to the City in the sum of _____US Dollars ($_____) Total Contract Amount, subject to the provisions herein.

This statutory performance bond shall become null and void, if and when the Principal, its heirs, executors, administrators, successors, or assigns shall well and faithfully perform all of the Principal's obligations under the Contract and fulfill all the terms and conditions of all duly authorized modifications, additions, and changes to said Contract that may hereafter be made, at the time and in the manner therein specified; and if such performance obligations have not been fulfilled, this bond shall remain in full force and effect.

The Surety for value received agrees that no change, extension of time, alteration or addition to the terms of the Contract, the specifications accompanying the Contract, or to the work to be performed under the Contract shall in any way affect its obligation on this bond, and waives notice of any change, extension of time, alteration or addition to the terms of the Contract or the work performed. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid the Principal shall automatically increase the obligation of the Surety on this bond and notice to Surety is not required for such increased obligation.

This bond may be executed in two (2) original counterparts, and shall be signed by the parties' duly authorized officers. This bond will only be accepted if it is accompanied by a fully executed and original power of attorney for the officer executing on behalf of the surety.

PRINCIPAL		SURETY	
_____		_____	
Principal Signature	Date	Surety Signature	Date
_____		_____	
Printed Name		Printed Name	
_____		_____	
Title		Title	

Name, address, and telephone of local office/agent of Surety Company is:

_____

_____

_____

EXHIBIT H

LABOR AND MATERIALS PAYMENT BOND

(NOTE: CONTRACTOR MUST USE THIS FORM, NOT A SURETY COMPANY FORM. MUST BE ACCOMPAINED BY A POWER OF ATTORNEY FOR THE SURETY'S OFFICER AUTHORIZED TO SIGN)

We the Undersigned _____ as PRINCIPAL (Contractor) and _____a corporation organized and existing under and by virtue of the laws of the state of _____ _____, and duly authorized to do surety business in the state of Washington and named on the current list of approved surety companies acceptable on federal bonds and conforming with the underwriting limitations as published in the Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner and which carries an "A" rating and is of the appropriate class for the bond amount as determined by Best's Rating System, as SURETY, hereby hold and firmly bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, unto CITY OF PORT TOWNSEND, as OBLIGEE, in the sum of _____ _____ Dollars ($_____) in lawful money of the United States of America, for the payment of that sum for the use and benefit of claimants as defined below.

The condition of this obligation is such that whereas the PRINCIPAL entered into a contract with CITY OF PORT TOWNSEND dated _____, 20___, which contract is hereunto annexed and made a part hereof, for accomplishment of the all contract terms for the project described as follows: _____.

This statutory payment bond shall become null and void, if and when the Principal, its heirs, executors, administrators, successors, or assigns shall pay all persons in accordance with Titles 60.28, 39.08, and 39.12 RCW including all workers, laborers, mechanics, subcontractors, and materialmen, and all persons who shall supply such contractor or subcontractor with provisions and supplies for the carrying on of such work, and all taxes incurred on said Contract under Title 50 and 51 RCW and all taxes imposed on the Principal under Title 82 RCW; and if such payment obligations have not been fulfilled, this bond shall remain in force and effect, subject, however, to the following conditions:

The above-named PRINCIPAL and SURETY hereby jointly and severally agree that every claimant, who has not been paid in full, may sue on this bond for the use of such claimant, prosecute the suit to final judgment in for such sum or sums as may be justly due claimant, and have execution thereon. The OBLIGEE shall not be liable for the payment of any judgment, costs, expenses or attorneys' fees of any such suit.

PROVIDED, FURTHER, that SURETY for the value received, hereby stipulates and agrees that all changes, extensions of time, alterations to the terms of the contract or to Work to be performed thereunder or the Specifications accompanying the same shall be within the scope of the SURETY's undertaking on this bond, and SURETY does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications. Any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the

EXHIBIT H

Specifications shall automatically increase the obligation of the SURETY hereunder in a like amount, provided that the total of such increases shall not exceed twenty-five percent (25%) of the original amount of the obligation without the consent of the SURETY.

This obligation shall continue to bind the PRINCIPAL and SURETY, notwithstanding successive payments made hereunder, until the full amount of the obligation is exhausted, or if the full amount of the obligation is not exhausted and no claim is pending resolution, until such time as no further claims can be made pursuant to law with regard to the above-described project.

SURETY shall indemnify, defend, and protect the CITY OF PORT TOWNSEND against any claim of direct or indirect loss resulting from the failure of the CONTRACTOR (or any of the employees, subcontractors, or lower tier subcontractors of the CONTRACTOR) to pay all laborers, mechanics, subcontractors, lower tier subcontractors, material persons, or any other person who provides supplies or provisions for carrying out the work.

If more than one SURETY is on this bond, each SURETY hereby agrees that it is jointly and severally liable for all obligations of this bond.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20___.

_____	_____
SURETY	CONTRACTOR
By:_____	By*:_____
Title:_____	Title:_____
_____	_____
Street Address	Street Address
_____	_____
City, State ZIP	City, State ZIP
_____	_____
Phone Number	Phone Number

* Must be signed by president or vice-president of Contractor.

EXHIBIT I

CITY OF PORT TOWNSEND
Title VI Non Discrimination Assurances

During the performance of this contract, the contractor/consultant, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. Compliance with Regulations
   The contractor shall comply with the Regulations relative to non-discrimination in federally assisted programs of United States Department of Transportation (USDOT), Title 49, Code of Federal Regulations, part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

2. Non-discrimination
   The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, sex, or national origin in the selection and retention of sub-contractors, including procurement of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

3. Solicitations for Sub-contracts, Including Procurement of Materials and Equipment
   In all solicitations either by competitive bidding or negotiations made by the contractor for work to be performed under a sub-contract, including procurement of materials or leases of equipment, each potential sub-contractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to non-discrimination on the grounds of race, color, sex, or national origin.

4. Information and Reports
   The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the contracting agency or the appropriate federal agency to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to WSDOT or the USDOT as appropriate, and shall set forth what efforts it has made to obtain the information.

5. Sanctions for Non-compliance
   In the event of the contractor's non-compliance with the non-discrimination provisions of this contract, the contracting agency shall impose such contract sanctions as it or the USDOT may determine to be appropriate, including, but not limited to:

   - Withholding of payments to the contractor under the contract until the contractor complies, and/or;
   - Cancellation, termination, or suspension of the contract, in whole or in part

6. Incorporation of Provisions

EXHIBIT I

The contractor shall include the provisions of paragraphs (1) through (5) in every sub-contract, including procurement of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any sub-contractor or procurement as the contracting agency or USDOT may direct as a means of enforcing such provisions including sanctions for non-compliance.

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a sub-contractor or supplier as a result of such direction, the contractor may request WSDOT enter into such litigation to protect the interests of the state and, in addition, the contractor may request the USDOT enter into such litigation to protect the interests of the United States.

V. – Appendices

Appendix A – Washington State / Jefferson County Prevailing Wages 03/26/2020

Appendix B – Benefit Code Key 03/4/2020 – 9/1/2020

Appendix C – Supplemental to State Wages “L&I Policy Statement” 03/04/2020

Appendix D – Conditional Use Permit

Appendix E – Standard Plans

APPENDIX - A

Washington State / Jefferson County Prevailing Wages 03/26/20

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: 3/26/2020

County	Trade	Job Classification	Wage	Holiday	Overtime	Note	*Risk Class
Jefferson	Asbestos Abatement Workers	Journey Level	$50.86	5D	1H		View
Jefferson	Boilermakers	Journey Level	$69.29	5N	1C		View
Jefferson	Brick Mason	Journey Level	$58.82	5A	1M		View
Jefferson	Brick Mason	Pointer-Caulker-Cleaner	$58.82	5A	1M		View
Jefferson	Building Service Employees	Janitor	$13.50		1		View
Jefferson	Building Service Employees	Shampooer	$13.50		1		View
Jefferson	Building Service Employees	Waxer	$13.50		1		View
Jefferson	Building Service Employees	Window Cleaner	$13.50		1		View
Jefferson	Cabinet Makers (In Shop)	Journey Level	$28.43		1		View
Jefferson	Carpenters	Acoustical Worker	$62.44	7A	4C		View
Jefferson	Carpenters	Carpenter	$62.44	7A	4C		View
Jefferson	Carpenters	Carpenters on Stationary Tools	$62.57	7A	4C		View
Jefferson	Carpenters	Creosoted Material	$62.54	7A	4C		View
Jefferson	Carpenters	Floor Finisher	$62.44	7A	4C		View
Jefferson	Carpenters	Floor Layer	$62.44	7A	4C		View
Jefferson	Carpenters	Scaffold Erector	$62.44	7A	4C		View
Jefferson	Cement Masons	Application of all Composition Mastic	$62.97	7A	4U		View
Jefferson	Cement Masons	Application of all Epoxy Material	$62.47	7A	4U		View
Jefferson	Cement Masons	Application of all Plastic Material	$62.97	7A	4U		View
Jefferson	Cement Masons	Application of Sealing Compound	$62.47	7A	4U		View
Jefferson	Cement Masons	Application of Underlayment	$62.97	7A	4U		View
Jefferson	Cement Masons	Building General	$62.47	7A	4U		View
Jefferson	Cement Masons	Composition or Kalman Floors	$62.97	7A	4U		View
Jefferson	Cement Masons	Concrete Paving	$62.47	7A	4U		View
Jefferson	Cement Masons	Curb & Gutter Machine	$62.97	7A	4U		View
Jefferson	Cement Masons	Curb & Gutter, Sidewalks	$62.47	7A	4U		View
Jefferson	Cement Masons	Curing Concrete	$62.47	7A	4U		View
Jefferson	Cement Masons	Finish Colored Concrete	$62.97	7A	4U		View
Jefferson	Cement Masons	Floor Grinding	$62.97	7A	4U		View
Jefferson	Cement Masons	Floor Grinding/Polisher	$62.47	7A	4U		View
Jefferson	Cement Masons	Green Concrete Saw, self-powered	$62.97	7A	4U		View
Jefferson	Cement Masons	Grouting of all Plates	$62.47	7A	4U		View
Jefferson	Cement Masons	Grouting of all Tilt-up Panels	$62.47	7A	4U		View
Jefferson	Cement Masons	Gunite Nozzleman	$62.97	7A	4U		View

Jefferson	Cement Masons	Hand Powered Grinder	$62.97	7A	4U		View
Jefferson	Cement Masons	Journey Level	$62.47	7A	4U		View
Jefferson	Cement Masons	Patching Concrete	$62.47	7A	4U		View
Jefferson	Cement Masons	Pneumatic Power Tools	$62.97	7A	4U		View
Jefferson	Cement Masons	Power Chipping & Brushing	$62.97	7A	4U		View
Jefferson	Cement Masons	Sand Blasting Architectural Finish	$62.97	7A	4U		View
Jefferson	Cement Masons	Screed & Rodding Machine	$62.97	7A	4U		View
Jefferson	Cement Masons	Spackling or Skim Coat Concrete	$62.47	7A	4U		View
Jefferson	Cement Masons	Troweling Machine Operator	$62.97	7A	4U		View
Jefferson	Cement Masons	Troweling Machine Operator on Colored Slabs	$62.97	7A	4U		View
Jefferson	Cement Masons	Tunnel Workers	$62.97	7A	4U		View
Jefferson	Divers & Tenders	Bell/Vehicle or Submersible Operator (Not Under Pressure)	$116.20	7A	4C		View
Jefferson	Divers & Tenders	Dive Supervisor/Master	$79.23	7A	4C		View
Jefferson	Divers & Tenders	Diver	$116.20	7A	4C	8V	View
Jefferson	Divers & Tenders	Diver On Standby	$74.23	7A	4C		View
Jefferson	Divers & Tenders	Diver Tender	$67.31	7A	4C		View
Jefferson	Divers & Tenders	Manifold Operator	$67.31	7A	4C		View
Jefferson	Divers & Tenders	Manifold Operator Mixed Gas	$72.31	7A	4C		View
Jefferson	Divers & Tenders	Remote Operated Vehicle Operator/Technician	$67.31	7A	4C		View
Jefferson	Divers & Tenders	Remote Operated Vehicle Tender	$62.69	7A	4C		View
Jefferson	Dredge Workers	Assistant Engineer	$56.44	5D	3F		View
Jefferson	Dredge Workers	Assistant Mate (Deckhand)	$56.00	5D	3F		View
Jefferson	Dredge Workers	Boatmen	$56.44	5D	3F		View
Jefferson	Dredge Workers	Engineer Welder	$57.51	5D	3F		View
Jefferson	Dredge Workers	Leverman, Hydraulic	$58.67	5D	3F		View
Jefferson	Dredge Workers	Mates	$56.44	5D	3F		View
Jefferson	Dredge Workers	Oiler	$56.00	5D	3F		View
Jefferson	Drywall Applicator	Journey Level	$62.44	5D	1H		View
Jefferson	Drywall Tapers	Journey Level	$62.81	5P	1E		View
Jefferson	Electrical Fixture Maintenance Workers	Journey Level	$31.99	5L	1E		View
Jefferson	Electricians - Inside	Cable Splicer	$87.22	7C	4E		View
Jefferson	Electricians - Inside	Cable Splicer (tunnel)	$93.74	7C	4E		View
Jefferson	Electricians - Inside	Certified Welder	$84.26	7C	4E		View
Jefferson	Electricians - Inside	Certified Welder (tunnel)	$90.47	7C	4E		View
Jefferson	Electricians - Inside	Construction Stock Person	$43.18	7C	4E		View
Jefferson	Electricians - Inside	Journey Level	$81.30	7C	4E		View
Jefferson	Electricians - Inside	Journey Level (tunnel)	$87.22	7C	4E		View
Jefferson	Electricians - Motor Shop	Craftsman	$15.37		1		View
Jefferson	Electricians - Motor Shop	Journey Level	$14.69		1		View
Jefferson	Electricians - Powerline Construction	Cable Splicer	$82.39	5A	4D		View
Jefferson	Electricians - Powerline Construction	Certified Line Welder	$75.64	5A	4D		View
Jefferson	Electricians - Powerline Construction	Groundperson	$49.17	5A	4D		View
Jefferson	Electricians - Powerline Construction	Heavy Line Equipment Operator	$75.64	5A	4D		View
Jefferson	Electricians - Powerline	Journey Level Lineperson	$75.64	5A	4D		View

	Construction						
Jefferson	Electricians - Powerline Construction	Line Equipment Operator	$64.54	5A	4D		View
Jefferson	Electricians - Powerline Construction	Meter Installer	$49.17	5A	4D	8W	View
Jefferson	Electricians - Powerline Construction	Pole Sprayer	$75.64	5A	4D		View
Jefferson	Electricians - Powerline Construction	Powderperson	$56.49	5A	4D		View
Jefferson	Electronic Technicians	Journey Level	$53.57	7E	1E		View
Jefferson	Elevator Constructors	Mechanic	$97.31	7D	4A		View
Jefferson	Elevator Constructors	Mechanic In Charge	$105.06	7D	4A		View
Jefferson	Fabricated Precast Concrete Products	Journey Level	$13.50		1		View
Jefferson	Fabricated Precast Concrete Products	Journey Level - In-Factory Work Only	$13.50		1		View
Jefferson	Fence Erectors	Fence Erector	$43.11	7A	4V	8Y	View
Jefferson	Fence Erectors	Fence Laborer	$43.11	7A	4V	8Y	View
Jefferson	Flaggers	Journey Level	$43.11	7A	4V	8Y	View
Jefferson	Glaziers	Journey Level	$66.51	7L	1Y		View
Jefferson	Heat & Frost Insulators And Asbestos Workers	Journeyman	$76.61	5J	4H		View
Jefferson	Heating Equipment Mechanics	Journey Level	$85.88	7F	1E		View
Jefferson	Hod Carriers & Mason Tenders	Journey Level	$52.44	7A	4V	8Y	View
Jefferson	Industrial Power Vacuum Cleaner	Journey Level	$13.50		1		View
Jefferson	Inland Boatmen	Boat Operator	$61.41	5B	1K		View
Jefferson	Inland Boatmen	Cook	$56.48	5B	1K		View
Jefferson	Inland Boatmen	Deckhand	$57.48	5B	1K		View
Jefferson	Inland Boatmen	Deckhand Engineer	$58.81	5B	1K		View
Jefferson	Inland Boatmen	Launch Operator	$58.89	5B	1K		View
Jefferson	Inland Boatmen	Mate	$57.31	5B	1K		View
Jefferson	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Cleaner Operator, Foamer Operator	$13.50		1		View
Jefferson	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Grout Truck Operator	$13.50		1		View
Jefferson	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Head Operator	$13.50		1		View
Jefferson	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Technician	$13.50		1		View
Jefferson	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Tv Truck Operator	$13.50		1		View
Jefferson	Insulation Applicators	Journey Level	$62.44	7A	4C		View
Jefferson	Ironworkers	Journeyman	$73.73	7N	1O		View
Jefferson	Laborers	Air, Gas Or Electric Vibrating Screed	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Airtrac Drill Operator	$52.44	7A	4V	8Y	View
Jefferson	Laborers	Ballast Regular Machine	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Batch Weighman	$43.11	7A	4V	8Y	View
Jefferson	Laborers	Brick Pavers	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Brush Cutter	$50.86	7A	4V	8Y	View

Jefferson	Laborers	Brush Hog Feeder	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Burner	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Caisson Worker	$52.44	7A	4V	8Y	View
Jefferson	Laborers	Carpenter Tender	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Cement Dumper-paving	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Cement Finisher Tender	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Change House Or Dry Shack	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Chipping Gun (30 Lbs. And Over)	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Chipping Gun (Under 30 Lbs.)	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Choker Setter	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Chuck Tender	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Clary Power Spreader	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Clean-up Laborer	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Concrete Dumper/Chute Operator	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Concrete Form Stripper	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Concrete Placement Crew	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Concrete Saw Operator/Core Driller	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Crusher Feeder	$43.11	7A	4V	8Y	View
Jefferson	Laborers	Curing Laborer	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Demolition: Wrecking & Moving (Incl. Charred Material)	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Ditch Digger	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Diver	$52.44	7A	4V	8Y	View
Jefferson	Laborers	Drill Operator (Hydraulic, Diamond)	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Dry Stack Walls	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Dump Person	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Epoxy Technician	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Erosion Control Worker	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Faller & Bucker Chain Saw	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Fine Graders	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Firewatch	$43.11	7A	4V	8Y	View
Jefferson	Laborers	Form Setter	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Gabian Basket Builders	$50.86	7A	4V	8Y	View
Jefferson	Laborers	General Laborer	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Grade Checker & Transit Person	$52.44	7A	4V	8Y	View
Jefferson	Laborers	Grinders	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Grout Machine Tender	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Groutmen (Pressure) Including Post Tension Beams	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Guardrail Erector	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Hazardous Waste Worker (Level A)	$52.44	7A	4V	8Y	View
Jefferson	Laborers	Hazardous Waste Worker (Level B)	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Hazardous Waste Worker (Level C)	$50.86	7A	4V	8Y	View
Jefferson	Laborers	High Scaler	$52.44	7A	4V	8Y	View
Jefferson	Laborers	Jackhammer	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Laserbeam Operator	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Maintenance Person	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Manhole Builder-Mudman	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Material Yard Person	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Motorman-Dinky Locomotive	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Nozzleman (Concrete Pump, Green	$51.80	7A	4V	8Y	View

		Cutter When Using Combination Of High Pressure Air & Water On Concrete & Rock, Sandblast, Gunite, Shotcrete, Water Blaster, Vacuum Blaster)					
Jefferson	Laborers	Pavement Breaker	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Pilot Car	$43.11	7A	4V	8Y	View
Jefferson	Laborers	Pipe Layer Lead	$52.44	7A	4V	8Y	View
Jefferson	Laborers	Pipe Layer/Tailor	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Pipe Pot Tender	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Pipe Reliner	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Pipe Wrapper	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Pot Tender	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Powderman	$52.44	7A	4V	8Y	View
Jefferson	Laborers	Powderman's Helper	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Power Jacks	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Railroad Spike Puller - Power	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Raker - Asphalt	$52.44	7A	4V	8Y	View
Jefferson	Laborers	Re-timberman	$52.44	7A	4V	8Y	View
Jefferson	Laborers	Remote Equipment Operator	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Rigger/Signal Person	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Rip Rap Person	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Rivet Buster	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Rodder	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Scaffold Erector	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Scale Person	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Sloper (Over 20")	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Sloper Sprayer	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Spreader (Concrete)	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Stake Hopper	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Stock Piler	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Swinging Stage/Boatswain Chair	$43.11	7A	4V	8Y	View
Jefferson	Laborers	Tamper & Similar Electric, Air & Gas Operated Tools	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Tamper (Multiple & Self-propelled)	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Timber Person - Sewer (Lagger, Shorer & Cribber)	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Toolroom Person (at Jobsite)	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Topper	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Track Laborer	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Track Liner (Power)	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Traffic Control Laborer	$46.10	7A	4V	9C	View
Jefferson	Laborers	Traffic Control Supervisor	$46.10	7A	4V	9C	View
Jefferson	Laborers	Truck Spotter	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Tugger Operator	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Tunnel Work-Compressed Air Worker 0-30 psi	$120.61	7A	4V	9B	View
Jefferson	Laborers	Tunnel Work-Compressed Air Worker 30.01-44.00 psi	$125.64	7A	4V	9B	View
Jefferson	Laborers	Tunnel Work-Compressed Air Worker 44.01-54.00 psi	$129.32	7A	4V	9B	View
Jefferson	Laborers	Tunnel Work-Compressed Air	$135.02	7A	4V	9B	View

		Worker 54.01-60.00 psi					
Jefferson	Laborers	Tunnel Work-Compressed Air Worker 60.01-64.00 psi	$137.14	7A	4V	9B	View
Jefferson	Laborers	Tunnel Work-Compressed Air Worker 64.01-68.00 psi	$142.24	7A	4V	9B	View
Jefferson	Laborers	Tunnel Work-Compressed Air Worker 68.01-70.00 psi	$144.14	7A	4V	9B	View
Jefferson	Laborers	Tunnel Work-Compressed Air Worker 70.01-72.00 psi	$146.14	7A	4V	9B	View
Jefferson	Laborers	Tunnel Work-Compressed Air Worker 72.01-74.00 psi	$148.14	7A	4V	9B	View
Jefferson	Laborers	Tunnel Work-Guage and Lock Tender	$52.54	7A	4V	8Y	View
Jefferson	Laborers	Tunnel Work-Miner	$52.54	7A	4V	8Y	View
Jefferson	Laborers	Vibrator	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Vinyl Seamer	$50.86	7A	4V	8Y	View
Jefferson	Laborers	Watchman	$39.18	7A	4V	8Y	View
Jefferson	Laborers	Welder	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Well Point Laborer	$51.80	7A	4V	8Y	View
Jefferson	Laborers	Window Washer/Cleaner	$39.18	7A	4V	8Y	View
Jefferson	Laborers - Underground Sewer & Water	General Laborer & Topman	$50.86	7A	4V	8Y	View
Jefferson	Laborers - Underground Sewer & Water	Pipe Layer	$51.80	7A	4V	8Y	View
Jefferson	Landscape Construction	Landscape Construction/Landscaping Or Planting Laborers	$39.18	7A	4V	8Y	View
Jefferson	Landscape Construction	Landscape Operator	$66.05	7A	3K	8X	View
Jefferson	Landscape Maintenance	Groundskeeper	$13.50		1		View
Jefferson	Lathers	Journey Level	$62.44	5D	1H		View
Jefferson	Marble Setters	Journey Level	$58.82	5A	1M		View
Jefferson	Metal Fabrication (In Shop)	Fitter	$15.16		1		View
Jefferson	Metal Fabrication (In Shop)	Laborer	$13.50		1		View
Jefferson	Metal Fabrication (In Shop)	Machine Operator	$13.50		1		View
Jefferson	Metal Fabrication (In Shop)	Painter	$13.50		1		View
Jefferson	Metal Fabrication (In Shop)	Welder	$15.16		1		View
Jefferson	Millwright	Journey Level	$63.94	7A	4C		View
Jefferson	Modular Buildings	Journey Level	$13.50		1		View
Jefferson	Painters	Journey Level	$43.40	6Z	2B		View
Jefferson	Pile Driver	Crew Tender	$67.31	7A	4C		View
Jefferson	Pile Driver	Crew Tender/Technician	$67.31	7A	4C		View
Jefferson	Pile Driver	Hyperbaric Worker - Compressed Air Worker 0-30.00 PSI	$77.93	7A	4C		View
Jefferson	Pile Driver	Hyperbaric Worker - Compressed Air Worker 30.01 - 44.00 PSI	$82.93	7A	4C		View
Jefferson	Pile Driver	Hyperbaric Worker - Compressed Air Worker 44.01 - 54.00 PSI	$86.93	7A	4C		View
Jefferson	Pile Driver	Hyperbaric Worker - Compressed Air Worker 54.01 - 60.00 PSI	$91.93	7A	4C		View
Jefferson	Pile Driver	Hyperbaric Worker - Compressed Air Worker 60.01 - 64.00 PSI	$94.43	7A	4C		View
Jefferson	Pile Driver	Hyperbaric Worker - Compressed Air Worker 64.01 - 68.00 PSI	$99.43	7A	4C		View
Jefferson	Pile Driver	Hyperbaric Worker - Compressed	$101.43	7A	4C		View

		Air Worker 68.01 - 70.00 PSI					
Jefferson	Pile Driver	Hyperbaric Worker - Compressed Air Worker 70.01 - 72.00 PSI	$103.43	7A	4C		View
Jefferson	Pile Driver	Hyperbaric Worker - Compressed Air Worker 72.01 - 74.00 PSI	$105.43	7A	4C		View
Jefferson	Pile Driver	Journey Level	$62.69	7A	4C		View
Jefferson	Plasterers	Journey Level	$59.42	7Q	1R		View
Jefferson	Playground & Park Equipment Installers	Journey Level	$13.50		1		View
Jefferson	Plumbers & Pipefitters	Journey Level	$89.19	6Z	1G		View
Jefferson	Power Equipment Operators	Asphalt Plant Operators	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Assistant Engineer	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Barrier Machine (zipper)	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Batch Plant Operator: concrete	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Bobcat	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Brokk - Remote Demolition Equipment	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Brooms	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Bump Cutter	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Cableways	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Chipper	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Compressor	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Concrete Finish Machine - Laser Screed	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Concrete Pump: Truck Mount With Boom Attachment Over 42 M	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Conveyors	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Cranes friction: 200 tons and over	$69.20	7A	3K	8X	View
Jefferson	Power Equipment Operators	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators	Cranes: 20 Tons Through 44 Tons With Attachments	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	$68.53	7A	3K	8X	View
Jefferson	Power Equipment Operators	Cranes: 300 tons and over or 300' of boom including jib with attachments	$69.20	7A	3K	8X	View
Jefferson	Power Equipment Operators	Cranes: 45 Tons Through 99 Tons, Under 150' Of Boom (including Jib With Attachments)	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Cranes: A-frame - 10 Tons And Under	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Cranes: Friction cranes through 199 tons	$68.53	7A	3K	8X	View
Jefferson	Power Equipment Operators	Cranes: through 19 tons with attachments, A-frame over 10 tons	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Crusher	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Deck Engineer/Deck Winches	$66.57	7A	3K	8X	View

		(power)					
Jefferson	Power Equipment Operators	Derricks, On Building Work	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Dozers D-9 & Under	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Drill Oilers: Auger Type, Truck Or Crane Mount	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Drilling Machine	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators	Elevator And Man-lift: Permanent And Shaft Type	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Finishing Machine, Bidwell And Gamaco & Similar Equipment	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Forklift: 3000 Lbs And Over With Attachments	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Forklifts: Under 3000 Lbs. With Attachments	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Grade Engineer: Using Blue Prints, Cut Sheets, Etc	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Gradechecker/Stakeman	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Guardrail Punch	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Horizontal/Directional Drill Locator	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Horizontal/Directional Drill Operator	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Hydralifts/Boom Trucks Over 10 Tons	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Hydralifts/Boom Trucks, 10 Tons And Under	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Loader, Overhead 8 Yards. & Over	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators	Loader, Overhead, 6 Yards. But Not Including 8 Yards	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Loaders, Overhead Under 6 Yards	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Loaders, Plant Feed	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Loaders: Elevating Type Belt	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Locomotives, All	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Material Transfer Device	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Mechanics, All (leadmen - $0.50 Per Hour Over Mechanic)	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators	Motor Patrol Graders	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Oil Distributors, Blower Distribution & Mulch Seeding Operator	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Outside Hoists (Elevators And Manlifts), Air Tuggers, Strato	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Overhead, Bridge Type Crane: 20 Tons Through 44 Tons	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Overhead, Bridge Type: 100 Tons And Over	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators	Overhead, Bridge Type: 45 Tons Through 99 Tons	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Pavement Breaker	$63.17	7A	3K	8X	View

Jefferson	Power Equipment Operators	Pile Driver (other Than Crane Mount)	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Plant Oiler - Asphalt, Crusher	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Posthole Digger, Mechanical	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Power Plant	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Pumps - Water	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Quad 9, Hd 41, D10 And Over	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Quick Tower - No Cab, Under 100 Feet In Height Based To Boom	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Remote Control Operator On Rubber Tired Earth Moving Equipment	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Rigger and Bellman	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Rigger/Signal Person, Bellman (Certified)	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Rollagon	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Roller, Other Than Plant Mix	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Roller, Plant Mix Or Multi-lift Materials	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Roto-mill, Roto-grinder	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Saws - Concrete	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Scraper, Self Propelled Under 45 Yards	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Scrapers - Concrete & Carry All	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Scrapers, Self-propelled: 45 Yards And Over	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Service Engineers - Equipment	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Shotcrete/Gunite Equipment	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Shovel, Excavator, Backhoe, Tractors Under 15 Metric Tons	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators	Shovel, Excavator, Backhoes: Over 90 Metric Tons	$68.53	7A	3K	8X	View
Jefferson	Power Equipment Operators	Slipform Pavers	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Spreader, Topsider & Screedman	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Subgrader Trimmer	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Tower Bucket Elevators	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Tower Crane Up To 175' In Height Base To Boom	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators	Tower Crane: over 175’ through 250’ in height, base to boom	$68.53	7A	3K	8X	View
Jefferson	Power Equipment Operators	Tower Cranes: over 250' in height from base to boom	$69.20	7A	3K	8X	View
Jefferson	Power Equipment Operators	Transporters, All Track Or Truck Type	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Trenching Machines	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators	Truck Crane Oiler/driver - 100 Tons And Over	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Truck Crane Oiler/Driver Under 100 Tons	$66.05	7A	3K	8X	View

Jefferson	Power Equipment Operators	Truck Mount Portable Conveyor	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators	Welder	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators	Wheel Tractors, Farmall Type	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators	Yo Yo Pay Dozer	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Asphalt Plant Operators	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Assistant Engineer	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Barrier Machine (zipper)	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Batch Plant Operator, Concrete	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Bobcat	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Brokk - Remote Demolition Equipment	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Brooms	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Bump Cutter	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Cableways	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Chipper	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Compressor	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Concrete Finish Machine - Laser Screed	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Concrete Pump: Truck Mount With Boom Attachment Over 42 M	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Conveyors	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Cranes friction: 200 tons and over	$69.20	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Cranes: 20 Tons Through 44 Tons With Attachments	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	$68.53	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Cranes: 300 tons and over or 300' of boom including jib with attachments	$69.20	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Cranes: 45 Tons Through 99 Tons, Under 150' Of Boom (including Jib With Attachments)	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Cranes: A-frame - 10 Tons And Under	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Cranes: Friction cranes through 199 tons	$68.53	7A	3K	8X	View

Jefferson	Power Equipment Operators-Underground Sewer & Water	Cranes: through 19 tons with attachments, A-frame over 10 tons	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Crusher	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Deck Engineer/Deck Winches (power)	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Derricks, On Building Work	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Dozers D-9 & Under	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Drill Oilers: Auger Type, Truck Or Crane Mount	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Drilling Machine	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Elevator And Man-lift: Permanent And Shaft Type	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Finishing Machine, Bidwell And Gamaco & Similar Equipment	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Forklift: 3000 Lbs And Over With Attachments	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Forklifts: Under 3000 Lbs. With Attachments	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Grade Engineer: Using Blue Prints, Cut Sheets, Etc	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Gradechecker/Stakeman	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Guardrail Punch	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Horizontal/Directional Drill Locator	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Horizontal/Directional Drill Operator	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Hydralifts/Boom Trucks Over 10 Tons	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Hydralifts/Boom Trucks, 10 Tons And Under	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Loader, Overhead 8 Yards. & Over	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Loader, Overhead, 6 Yards. But Not Including 8 Yards	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Loaders, Overhead Under 6 Yards	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Loaders, Plant Feed	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Loaders: Elevating Type Belt	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Locomotives, All	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Material Transfer Device	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Mechanics, All (leadmen - $0.50 Per Hour Over Mechanic)	$67.84	7A	3K	8X	View

Jefferson	Power Equipment Operators-Underground Sewer & Water	Motor Patrol Graders	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Oil Distributors, Blower Distribution & Mulch Seeding Operator	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Outside Hoists (Elevators And Manlifts), Air Tuggers, Strato	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Overhead, Bridge Type Crane: 20 Tons Through 44 Tons	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Overhead, Bridge Type: 100 Tons And Over	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Overhead, Bridge Type: 45 Tons Through 99 Tons	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Pavement Breaker	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Pile Driver (other Than Crane Mount)	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Plant Oiler - Asphalt, Crusher	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Posthole Digger, Mechanical	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Power Plant	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Pumps - Water	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Quad 9, Hd 41, D10 And Over	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Quick Tower - No Cab, Under 100 Feet In Height Based To Boom	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Remote Control Operator On Rubber Tired Earth Moving Equipment	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Rigger and Bellman	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Rigger/Signal Person, Bellman (Certified)	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Rollagon	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Roller, Other Than Plant Mix	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Roller, Plant Mix Or Multi-lift Materials	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Roto-mill, Roto-grinder	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Saws - Concrete	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Scraper, Self Propelled Under 45 Yards	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Scrapers - Concrete & Carry All	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Scrapers, Self-propelled: 45 Yards And Over	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Service Engineers - Equipment	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-	Shotcrete/Gunite Equipment	$63.17	7A	3K	8X	View

	Underground Sewer & Water						
Jefferson	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoe, Tractors Under 15 Metric Tons	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes: Over 90 Metric Tons	$68.53	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Slipform Pavers	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Spreader, Topsider & Screedman	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Subgrader Trimmer	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Tower Bucket Elevators	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Tower Crane Up To 175' In Height Base To Boom	$67.84	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Tower Crane: over 175’ through 250’ in height, base to boom	$68.53	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Tower Cranes: over 250' in height from base to boom	$69.20	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Transporters, All Track Or Truck Type	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Trenching Machines	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Truck Crane Oiler/driver - 100 Tons And Over	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Truck Crane Oiler/Driver Under 100 Tons	$66.05	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Truck Mount Portable Conveyor	$66.57	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Welder	$67.16	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Wheel Tractors, Farmall Type	$63.17	7A	3K	8X	View
Jefferson	Power Equipment Operators-Underground Sewer & Water	Yo Yo Pay Dozer	$66.57	7A	3K	8X	View
Jefferson	Power Line Clearance Tree Trimmers	Journey Level In Charge	$53.10	5A	4A		View
Jefferson	Power Line Clearance Tree Trimmers	Spray Person	$50.40	5A	4A		View
Jefferson	Power Line Clearance Tree Trimmers	Tree Equipment Operator	$53.10	5A	4A		View
Jefferson	Power Line Clearance Tree Trimmers	Tree Trimmer	$47.48	5A	4A		View
Jefferson	Power Line Clearance Tree Trimmers	Tree Trimmer Groundperson	$36.10	5A	4A		View
Jefferson	Refrigeration & Air Conditioning Mechanics	Journey Level	$84.01	6Z	1G		View
Jefferson	Residential Brick Mason	Journey Level	$58.82	5A	1M		View
Jefferson	Residential Carpenters	Journey Level	$46.43	7A	4C		View
Jefferson	Residential Cement Masons	Journey Level	$23.25		1		View

Jefferson	Residential Drywall Applicators	Journey Level	$46.43	7A	4C		View
Jefferson	Residential Drywall Tapers	Journey Level	$24.48		1		View
Jefferson	Residential Electricians	Journey Level	$24.84		1		View
Jefferson	Residential Glaziers	Journey Level	$45.90	7L	1H		View
Jefferson	Residential Insulation Applicators	Journey Level	$18.03		1		View
Jefferson	Residential Laborers	Journey Level	$22.63		1		View
Jefferson	Residential Marble Setters	Journey Level	$58.82	5A	1M		View
Jefferson	Residential Painters	Journey Level	$19.96		1		View
Jefferson	Residential Plumbers & Pipefitters	Journey Level	$54.12	5A	1G		View
Jefferson	Residential Refrigeration & Air Conditioning Mechanics	Journey Level	$54.12	5A	1G		View
Jefferson	Residential Sheet Metal Workers	Journey Level (Field or Shop)	$51.89	7F	1R		View
Jefferson	Residential Soft Floor Layers	Journey Level	$51.07	5A	3J		View
Jefferson	Residential Sprinkler Fitters (Fire Protection)	Journey Level	$13.50		1		View
Jefferson	Residential Stone Masons	Journey Level	$58.82	5A	1M		View
Jefferson	Residential Terrazzo Workers	Journey Level	$14.86		1		View
Jefferson	Residential Terrazzo/Tile Finishers	Journey Level	$14.86		1		View
Jefferson	Residential Tile Setters	Journey Level	$14.86		1		View
Jefferson	Roofers	Journey Level	$55.02	5A	3H		View
Jefferson	Roofers	Using Irritable Bituminous Materials	$58.02	5A	3H		View
Jefferson	Sheet Metal Workers	Journey Level (Field or Shop)	$85.88	7F	1E		View
Jefferson	Shipbuilding & Ship Repair	New Construction Boilermaker	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Carpenter	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Crane Operator	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Electrician	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Heat & Frost Insulator	$76.61	5J	4H		View
Jefferson	Shipbuilding & Ship Repair	New Construction Laborer	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Machinist	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Operating Engineer	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Painter	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Pipefitter	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Rigger	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Sheet Metal	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Shipfitter	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Warehouse/Teamster	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	New Construction Welder / Burner	$36.36	7V	1		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Boilermaker	$46.15	7X	4J		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Carpenter	$44.95	7X	4J		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Crane Operator	$45.06	7Y	4K		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Electrician	$46.22	7X	4J		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Heat & Frost Insulator	$76.61	5J	4H		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Laborer	$46.15	7X	4J		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Machinist	$46.15	7X	4J		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Operating Engineer	$45.06	7Y	4K		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Painter	$46.15	7X	4J		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Pipefitter	$46.15	7X	4J		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Rigger	$46.15	7X	4J		View

Jefferson	Shipbuilding & Ship Repair	Ship Repair Sheet Metal	$46.15	7X	4J		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Shipwright	$44.95	7X	4J		View
Jefferson	Shipbuilding & Ship Repair	Ship Repair Warehouse / Teamster	$45.06	7Y	4K		View
Jefferson	Sign Makers & Installers (Electrical)	Journey Level	$49.44	0	1		View
Jefferson	Sign Makers & Installers (Non-Electrical)	Journey Level	$31.96	0	1		View
Jefferson	Soft Floor Layers	Journey Level	$51.07	5A	3J		View
Jefferson	Solar Controls For Windows	Journey Level	$13.50		1		View
Jefferson	Sprinkler Fitters (Fire Protection)	Journey Level	$56.76	7J	1R		View
Jefferson	Stage Rigging Mechanics (Non Structural)	Journey Level	$13.50		1		View
Jefferson	Stone Masons	Journey Level	$58.82	5A	1M		View
Jefferson	Street And Parking Lot Sweeper Workers	Journey Level	$16.00		1		View
Jefferson	Surveyors	Assistant Construction Site Surveyor	$66.05	7A	3K	8X	View
Jefferson	Surveyors	Chainman	$63.17	7A	3K	8X	View
Jefferson	Surveyors	Construction Site Surveyor	$67.16	7A	3K	8X	View
Jefferson	Telecommunication Technicians	Journey Level	$53.57	7E	1E		View
Jefferson	Telephone Line Construction - Outside	Cable Splicer	$41.81	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Hole Digger/Ground Person	$23.53	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Installer (Repairer)	$40.09	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Special Aparatus Installer I	$41.81	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Special Apparatus Installer II	$40.99	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Telephone Equipment Operator (Heavy)	$41.81	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Telephone Equipment Operator (Light)	$38.92	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Telephone Lineperson	$38.92	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Television Groundperson	$22.32	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Television Lineperson/Installer	$29.60	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Television System Technician	$35.20	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Television Technician	$31.67	5A	2B		View
Jefferson	Telephone Line Construction - Outside	Tree Trimmer	$38.92	5A	2B		View
Jefferson	Terrazzo Workers	Journey Level	$54.06	5A	1M		View
Jefferson	Tile Setters	Journey Level	$54.06	5A	1M		View
Jefferson	Tile, Marble & Terrazzo Finishers	Finisher	$44.89	5A	1B		View
Jefferson	Traffic Control Stripers	Journey Level	$47.68	7A	1K		View
Jefferson	Truck Drivers	Asphalt Mix Over 16 Yards	$60.84	5D	4Y	8L	View
Jefferson	Truck Drivers	Asphalt Mix To 16 Yards	$60.00	5D	4Y	8L	View
Jefferson	Truck Drivers	Dump Truck	$60.00	5D	4Y	8L	View
Jefferson	Truck Drivers	Dump Truck & Trailer	$60.84	5D	4Y	8L	View
Jefferson	Truck Drivers	Other Trucks	$60.84	5D	4Y	8L	View
Jefferson	Truck Drivers - Ready Mix	Transit Mix	$60.84	5D	4Y	8L	View

Jefferson	Well Drillers & Irrigation Pump Installers	Irrigation Pump Installer	$13.50		1		View
Jefferson	Well Drillers & Irrigation Pump Installers	Oiler	$13.50		1		View
Jefferson	Well Drillers & Irrigation Pump Installers	Well Driller	$13.50		1		View

APPENDIX – B

Benefit Code Key 3/4/2020 – 09/01/2020

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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.

S. 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 hours worked on holidays and 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.

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.

   C. All hours worked on Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at two 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.

   G. 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 hours worked on Sunday shall be paid at two times the hourly rate of wage. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.

   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.

   W. 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 first eight (8) hours worked on the fifth day shall be paid at one and one-half times the hourly rate of wage. All other hours worked on the fifth, sixth, and seventh days and on 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.

   A. 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. Hours worked over twelve hours (12) in a single shift and 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. The employer shall have the sole discretion to assign overtime work to employees. Primary consideration for overtime work shall be given to employees regularly assigned to the work to be performed on overtime situations. 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.

   C. 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 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 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.

Overtime Codes Continued

3. E. All hours worked Sundays and holidays shall be paid at double the hourly rate of wage. Each week, once 40 hours of straight time work is achieved, then any hours worked over 10 hours per day Monday through Saturday shall be paid at double the hourly wage rate.

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.

B. All hours worked over twelve (12) hours per day and all hours worked on holidays shall be paid at double the hourly rate of wage.

C. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay. On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay, except that if the job is down on Monday through Friday due to weather conditions or other conditions outside the control of the employer, the first ten (10) hours on Saturday may be worked at the straight time rate of pay. All hours worked over twelve (12) hours in a day and all hours worked on Sunday and Holidays shall be paid at two (2) times the straight time rate of pay.

Overtime Codes Continued

4. 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.

F. 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. All hours worked on 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.

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.

H. 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.

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.

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.

Overtime Codes Continued

4. 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.

M. All hours worked on Sunday and Holidays shall be paid at double the hourly rate. Any employee reporting to work less than nine (9) hours from their previous quitting time shall be paid for such time at time and one-half times the hourly rate.

N. 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, and all work performed between the hours of midnight (12:00 AM) and eight AM (8:00 AM) every day shall be paid at double the hourly rate of wage.

O. All hours worked between midnight Friday to midnight Sunday shall be paid at one and one-half the hourly rate of wage. After an employee has worked in excess of eight (8) continuous hours in any one or more calendar days, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of six (6) hours or more. All hours worked on Holidays shall be paid at double the hourly rate of wage.

P. All hours worked on Holidays shall be paid at one and one-half times the hourly rate of wage.

Q. The first four (4) 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 hours worked over twelve (12) hours Monday through Saturday shall be paid at double the hourly rate. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

R. All hours worked on Saturdays 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 on Sundays and holidays shall be paid at double the hourly rate of wage.

S. 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.

T. The first two (2) hours of overtime for hours worked Monday-Friday 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 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. For work on Saturday which is scheduled prior to the end of shift on Friday, the first six (6) hours work shall be paid at one and one-half times the hourly rate of wage, and all hours over (6) shall be paid double the hourly rate of wage. For work on Saturday which was assigned following the close of shift on Friday, all work shall be paid at double the hourly rate of wage.

U. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. (Except on makeup days if work is lost due to inclement weather, then the first eight (8) hours on Saturday may be paid the regular rate.) All hours worked over twelve (12) hours Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

4. V. Work performed in excess of ten (10) hours of straight time per day when four ten (10) hour shifts are established or outside the normal shift (5 am to 6pm), and all work on Saturdays, except for make-up days shall be paid at time and one-half (1 ½) the straight time rate.

In the event the job is down due to weather conditions, then Saturday may, be worked as a voluntary make-up day at the straight time rate. However, Saturday shall not be utilized as a make-up day when a holiday falls on Friday. All work performed on Sundays and holidays and work in excess of twelve (12) hours per day shall be paid at double (2x) the straight time rate of pay.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

When an employee returns to work without a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

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.

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.

Overtime Codes Continued

4. 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.

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

5. 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).

   T. Paid Holidays: New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, Christmas Day, And The Day Before Or After Christmas (9).

   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. A. Paid Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8).

   E. Paid 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 a Half-Day On Christmas Eve Day. (9 1/2).

   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).

   I. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday After Thanksgiving Day, And Christmas Day (7).

   T. Paid Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Last Working Day Before Christmas Day, And Christmas Day (9).

   Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). If a holiday falls on Saturday, the preceding Friday shall be considered as the holiday. If a holiday falls on Sunday, the following Monday shall be considered as the holiday.

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.

Holiday Codes Continued

7. D. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Unpaid Holidays: President's Day. Any paid holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any paid holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

E. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

F. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the last working day before Christmas day and Christmas day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

G. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.

H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

I. Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

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.

M. Paid Holidays: New Year's Day, The Day after or before New Year's Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, And the Day after or before Christmas Day (10). 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.

R. Paid Holidays: New Year's Day, the day after or before New Year's Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and the day after or before Christmas Day (10). If any of the listed holidays fall on Saturday, the preceding Friday shall be observed as the holiday. If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.

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.

T. Paid Holidays: New Year's Day, the Day after or before New Year's Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and The Day after or before Christmas Day. (10). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

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.

Z. Holidays: New Year's Day, President's Day, Independence Day, Memorial 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.

15. A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the 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.

B. Holidays: New Year's Day, Martin Luther King Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day. (9)

C. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the day before Christmas Day and Christmas Day. (8)

Holiday Codes Continued

15. D. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Day, and the day after Christmas.

E. Holidays: the day before New Years's Day, New Year's Day, Martin Luther King, Jr. Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving Day, the day before Christmas, and Christmas Day. (12)

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.

P. 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.

Q. 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.

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.

Note Codes Continued

8. 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.

   X. Workers on hazmat projects receive additional hourly premiums as follows - Class A Suit: $2.00, Class B Suit: $1.50, Class C Suit: $1.00, and Class D Suit: $0.50. Special Shift Premium: Basic hourly rate plus $2.00 per hour.

   When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications requires that work can only be performed outside the normal 5 am to 6pm shift, then the special shift premium will be applied to the basic hourly rate. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in OT or Double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

   Y. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay.

   Swinging Stage/Boatswains Chair: Employees working on a swinging state or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents ($0.75) per hour above the classification rate.

   Z. Workers working with supplied air on hazmat projects receive an additional $1.00 per hour.

   Special Shift Premium: Basic hourly rate plus $2.00 per hour. When due to conditions beyond the control of the Employer or when an owner (not acting as a contractor), a government agency or the contract specifications require that more than (4) hours of a special shift can only be performed outside the normal 6 am to 6pm shift, then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they will be paid a special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

Note Codes Continued

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.

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.

APPENDIX – C

Supplemental to State Wages “L&I Policy Statement”

Washington State Department of Labor and Industries
Policy Statement
(Regarding the Production of "Standard" or "Non-standard" Items)

Below is the department's (State L&I's) list of criteria to be used in determining whether a prefabricated item is "standard" or "non-standard". For items not appearing on WSDOT's predetermined list, these criteria shall be used by the Contractor (and the Contractor's subcontractors, agents to subcontractors, suppliers, manufacturers, and fabricators) to determine coverage under RCW 39.12. The production, in the State of Washington, of non-standard items is covered by RCW 39.12, and the production of standard items is not. The production of any item outside the State of Washington is not covered by RCW 39.12.

1. Is the item fabricated for a public works project? If not, it is not subject to RCW 39.12. If it is, go to question 2.

2. Is the item fabricated on the public works jobsite? If it is, the work is covered under RCW 39.12. If not, go to question 3.

3. Is the item fabricated in an assembly/fabrication plant set up for, and dedicated primarily to, the public works project? If it is, the work is covered by RCW 39.12. If not, go to question 4.

4. Does the item require any assembly, cutting, modification or other fabrication by the supplier? If not, the work is not covered by RCW 39.12. If yes, go to question 5.

5. Is the prefabricated item intended for the public works project typically an inventory item which could reasonably be sold on the general market? If not, the work is covered by RCW 39.12. If yes, go to question 6.

6. Does the specific prefabricated item, generally defined as standard, have any unusual characteristics such as shape, type of material, strength requirements, finish, etc? If yes, the work is covered under RCW 39.12.

Any firm with questions regarding the policy, WSDOT's Predetermined List, or for determinations of covered and non-covered workers shall be directed to State L&I at (360) 902-5330.

WSDOT's
Predetermined List for
Suppliers - Manufactures - Fabricator

Below is a list of potentially prefabricated items, originally furnished by WSDOT to Washington State Department of Labor and Industries, that may be considered non-standard and therefore covered by the prevailing wage law, RCW 39.12. Items marked with an X in the "YES" column should be considered to be non-standard and therefore covered by RCW 39.12. Items marked with an X in the "NO" column should be considered to be standard and therefore not covered. Of course, exceptions to this general list may occur, and in that case shall be evaluated according to the criteria described in State and L&I's policy statement.

	ITEM DESCRIPTION	YES	NO
1.	Metal rectangular frames, solid metal covers, herringbone grates, and bi-directional vaned grates for Catch Basin Types 1, 1L, 1P, and 2 and Concrete Inlets. See Std. Plans		X
2.	Metal circular frames (rings) and covers, circular grates, and prefabricated ladders for Manhole Types 1, 2, and 3, Drywell Types 1, 2, and 3 and Catch Basin Type 2. See Std. Plans		X
3.	Prefabricated steel grate supports and welded grates, metal frames and dual vaned grates, and Type 1, 2, and 3 structural tubing grates for Drop Inlets. See Std. Plans.		X
4.	Concrete Pipe - Plain Concrete pipe and reinforced concrete pipe Class 2 to 5 sizes smaller than 60 inch diameter.		X
5.	Concrete Pipe - Plain Concrete pipe and reinforced concrete pipe Class 2 to 5 sizes larger than 60 inch diameter.		X
6.	Corrugated Steel Pipe - Steel lock seam corrugated pipe for culverts and storm sewers, sizes 30 inch to 120 inches in diameter. May also be treated, 1 thru 5.		X
7.	Corrugated Aluminum Pipe - Aluminum lock seam corrugated pipe for culverts and storm sewers, sizes 30 inch to 120 inches in diameter. May also be treated, #5.		X

	ITEM DESCRIPTION	YES	NO
8.	Anchor Bolts & Nuts - Anchor Bolts and Nuts, for mounting sign structures, luminaries and other items, shall be made from commercial bolt stock. See Contract Plans and Std. Plans for size and material type.		X
9.	Aluminum Pedestrian Handrail - Pedestrian handrail conforming to the type and material specifications set forth in the contract plans. Welding of aluminum shall be in accordance with Section 9-28.14(3).	X	
10.	Major Structural Steel Fabrication - Fabrication of major steel items such as trusses, beams, girders, etc., for bridges.	X	
11.	Minor Structural Steel Fabrication - Fabrication of minor steel Items such as special hangers, brackets, access doors for structures, access ladders for irrigation boxes, bridge expansion joint systems, etc., involving welding, cutting, punching and/or boring of holes. See Contact Plans for item description and shop drawings.	X	
12.	Aluminum Bridge Railing Type BP - Metal bridge railing conforming to the type and material specifications set forth in the Contract Plans. Welding of aluminum shall be in accordance with Section 9-28.14(3).		X
13.	Concrete Piling--Precast-Prestressed concrete piling for use as 55 and 70 ton concrete piling. Concrete to conform to Section 9-19.1 of Std. Spec..	X	
14.	Precast Manhole Types 1, 2, and 3 with cones, adjustment sections and flat top slabs. See Std. Plans.		X
15.	Precast Drywell Types 1, 2, and with cones and adjustment Sections. See Std. Plans.		X
16.	Precast Catch Basin - Catch Basin type 1, 1L, 1P, and 2 With adjustment sections. See Std. Plans.		X

	ITEM DESCRIPTION	YES	NO
17.	Precast Concrete Inlet - with adjustment sections, See Std. Plans		X
18.	Precast Drop Inlet Type 1 and 2 with metal grate supports. See Std. Plans.		X
19.	Precast Grate Inlet Type 2 with extension and top units. See Std. Plans		X
20.	Metal frames, vaned grates, and hoods for Combination Inlets. See Std. Plans		X
21.	Precast Concrete Utility Vaults - Precast Concrete utility vaults of various sizes. Used for in ground storage of utility facilities and controls. See Contract Plans for size and construction requirements. Shop drawings are to be provided for approval prior to casting		X
22.	Vault Risers - For use with Valve Vaults and Utilities X Vaults.		X
23.	Valve Vault - For use with underground utilities. See Contract Plans for details.		X
24.	Precast Concrete Barrier - Precast Concrete Barrier for use as new barrier or may also be used as Temporary Concrete Barrier. Only new state approved barrier may be used as permanent barrier.		X
25.	Reinforced Earth Wall Panels – Reinforced Earth Wall Panels in size and shape as shown in the Plans. Fabrication plant has annual approval for methods and materials to be used. See Shop Drawing. Fabrication at other locations may be approved, after facilities inspection, contact HQ. Lab.	X	
26.	Precast Concrete Walls - Precast Concrete Walls - tilt-up wall panel in size and shape as shown in Plans. Fabrication plant has annual approval for methods and materials to be used	X	

	ITEM DESCRIPTION	YES	NO
27.	Precast Railroad Crossings - Concrete Crossing Structure Slabs.	X	
28.	12, 18 and 26 inch Standard Precast Prestressed Girder – Standard Precast Prestressed Girder for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A	X	
29.	Prestressed Concrete Girder Series 4-14 - Prestressed Concrete Girders for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A .	X	
30.	Prestressed Tri-Beam Girder - Prestressed Tri-Beam Girders for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A	X	
31.	Prestressed Precast Hollow-Core Slab – Precast Prestressed Hollow-core slab for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A.	X	
32.	Prestressed-Bulb Tee Girder - Bulb Tee Prestressed Girder for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A	X	
33.	Monument Case and Cover See Std. Plan.		X

	ITEM DESCRIPTION	YES	NO
34.	Cantilever Sign Structure - Cantilever Sign Structure fabricated from steel tubing meeting AASHTO-M-183. See Std. Plans, and Contract Plans for details. The steel structure shall be galvanized after fabrication in accordance with AASHTO-M-111.	X	
35.	Mono-tube Sign Structures - Mono-tube Sign Bridge fabricated to details shown in the Plans. Shop drawings for approval are required prior to fabrication.	X	
36.	Steel Sign Bridges - Steel Sign Bridges fabricated from steel tubing meeting AASHTO-M-138 for Aluminum Alloys. See Std. Plans, and Contract Plans for details. The steel structure shall be galvanized after fabrication in accordance with AASHTO-M-111.	X	
37.	Steel Sign Post - Fabricated Steel Sign Posts as detailed in Std Plans. Shop drawings for approval are to be provided prior to fabrication		X
38.	Light Standard-Prestressed - Spun, prestressed, hollow concrete poles.	X	
39.	Light Standards - Lighting Standards for use on highway illumination systems, poles to be fabricated to conform with methods and materials as specified on Std. Plans. See Specia Provisions for pre-approved drawings.	X	
40.	Traffic Signal Standards - Traffic Signal Standards for use on highway and/or street signal systems. Standards to be fabricated to conform with methods and material as specified on Std. Plans. See Special Provisions for pre-approved drawings	X	
41.	Precast Concrete Sloped Mountable Curb (Single and DualFaced) See Std. Plans.		X

	ITEM DESCRIPTION	YES	NO
42.	Traffic Signs - Prior to approval of a Fabricator of Traffic Signs, the sources of the following materials must be submitted and approved for reflective sheeting, legend material, and aluminum sheeting. **NOTE:** *** Fabrication inspection required. Only signs tagged "Fabrication Approved" by WSDOT Sign Fabrication Inspector to be installed	X	X
		Custom Message	Std Signing Message
43.	Cutting & bending reinforcing steel		X
44.	Guardrail components	X	X
		Custom End Sec	Standard Sec
45.	Aggregates/Concrete mixes	Covered by WAC 296-127-018	
46.	Asphalt	Covered by WAC 296-127-018	
47.	Fiber fabrics		X
48.	Electrical wiring/components		X
49.	treated or untreated timber pile		X
50.	Girder pads (elastomeric bearing)	X	
51.	Standard Dimension lumber		X
52.	Irrigation components		X

ITEM DESCRIPTION	YES	NO
53. Fencing materials		X
54. Guide Posts		X
55. Traffic Buttons		X
56. Epoxy		X
57. Cribbing		X
58. Water distribution materials		X
59. Steel "H" piles		X
60. Steel pipe for concrete pile casings		X
61. Steel pile tips, standard		X
62. Steel pile tips, custom	X	

Prefabricated items specifically produced for public works projects that are prefabricated in a county other than the county wherein the public works project is to be completed, the wage for the offsite prefabrication shall be the applicable prevailing wage for the county in which the actual prefabrication takes place.

It is the manufacturer of the prefabricated product to verify that the correct county wage rates are applied to work they perform.

See RCW 39.12.010
(The definition of "locality" in RCW 39.12.010(2) contains the phrase "wherein the physical work is being performed." The department interprets this phrase to mean the actual work site.

WSDOT's List of State Occupations not applicable to Heavy and Highway Construction Projects

This project is subject to the state hourly minimum rates for wages and fringe benefits in the contract provisions, as provided by the state Department of Labor and Industries.
The following list of occupations, is comprised of those occupations that are not normally used in the construction of heavy and highway projects.
When considering job classifications for use and / or payment when bidding on, or building heavy and highway construction projects for, or administered by WSDOT, these Occupations will be excepted from the included "Washington State Prevailing Wage Rates For Public Work Contracts" documents.

- Building Service Employees
- Electrical Fixture Maintenance Workers
- Electricians - Motor Shop
- Heating Equipment Mechanics
- Industrial Engine and Machine Mechanics
- Industrial Power Vacuum Cleaners
- Inspection, Cleaning, Sealing of Water Systems by Remote Control
- Laborers - Underground Sewer & Water
- Machinists (Hydroelectric Site Work)
- Modular Buildings
- Playground & Park Equipment Installers
- Power Equipment Operators - Underground Sewer & Water
- Residential *** ALL ASSOCIATED RATES ***
- Sign Makers and Installers (Non-Electrical)
- Sign Makers and Installers (Electrical)
- Stage Rigging Mechanics (Non Structural)

The following occupations may be used only as outlined in the preceding text concerning "WSDOT's list for Suppliers - Manufacturers - Fabricators"

- Fabricated Precast Concrete Products
- Metal Fabrication (In Shop)

Definitions for the Scope of Work for prevailing wages may be found at the Washington State Department of Labor and Industries web site and in WAC Chapter 296-127.

Washington State Department of Labor and Industries
Policy Statements
(Regarding Production and Delivery of Gravel, Concrete, Asphalt, etc.)

WAC 296-127-018 Agency filings affecting this section

Coverage and exemptions of workers involved in the production and delivery of gravel, concrete, asphalt, or similar materials.

(1) The materials covered under this section include but are not limited to: Sand, gravel, crushed rock, concrete, asphalt, or other similar materials.

(2) All workers, regardless of by whom employed, are subject to the provisions of chapter 39.12 RCW when they perform any or all of the following functions:

(a) They deliver or discharge any of the above-listed materials to a public works project site:

(i) At one or more point(s) directly upon the location where the material will be incorporated into the project; or

(ii) At multiple points at the project; or

(iii) Adjacent to the location and coordinated with the incorporation of those materials.

(b) They wait at or near a public works project site to perform any tasks subject to this section of the rule.

(c) They remove any materials from a public works construction site pursuant to contract requirements or specifications (e.g., excavated materials, materials from demolished structures, clean-up materials, etc.).

(d) They work in a materials production facility (e.g., batch plant, borrow pit, rock quarry, etc.,) which is established for a public works project for the specific, but not necessarily exclusive, purpose of supplying materials for the project.

(e) They deliver concrete to a public works site regardless of the method of incorporation.

(f) They assist or participate in the incorporation of any materials into the public works project.

(3) All travel time that relates to the work covered under subsection (2) of this section requires the payment of prevailing wages. Travel time includes time spent waiting to load, loading, transporting, waiting to unload, and delivering materials. Travel time would include all time spent in travel in support of a public works project whether the vehicle is empty or full. For example, travel time spent returning to a supply source to obtain another load of material for use on a public works site or returning to the public works site to obtain another load of excavated material is time spent in travel that is subject to prevailing wage. Travel to a supply source, including travel from a public works site, to obtain materials for use on a private project would not be travel subject to the prevailing wage.

(4) Workers are not subject to the provisions of chapter 39.12 RCW when they deliver materials to a stockpile.

(a) A "stockpile" is defined as materials delivered to a pile located away from the site of incorporation such that the stockpiled materials must be physically moved from the stockpile and transported to another location on the project site in order to be incorporated into the project.

(b) A stockpile does not include any of the functions described in subsection (2)(a) through (f) of this section; nor does a stockpile include materials delivered or distributed to multiple locations upon the project site; nor does a stockpile include materials dumped at the place of incorporation, or adjacent to the location and coordinated with the incorporation.

(5) The applicable prevailing wage rate shall be determined by the locality in which the work is performed. Workers subject to subsection (2)(d) of this section, who produce such materials at an off-site facility shall be paid the applicable prevailing wage rates for the county in which the off-site facility is located. Workers subject to subsection (2) of this section, who deliver such materials to a public works project site shall be paid the applicable prevailing wage rates for the county in which the public works project is located.

[Statutory Authority: Chapter 39.12 RCW, RCW 43.22.051 and 43.22.270. 08-24-101, § 296-127-018, filed 12/2/08, effective 1/2/09. Statutory Authority: Chapters 39.04 and 39.12 RCW and RCW 43.22.270. 92-01-104 and 92-08-101, § 296-127-018, filed 12/18/91 and 4/1/92, effective 8/31/92.]

APPENDIX – D

Conditional Use Permit

JEFFERSON COUNTY
DEPARTMENT OF COMMUNITY DEVELOPMENT
UNIFIED DEVELOPMENT CODE
TYPE II LAND USE PERMIT

APPLICANT: CITY OF PORT TOWNSEND
250 MADISON ST SUITE 3
PORT TOWNSEND WA 98368

DATE ISSUED: April 29, 2019
DATE EXPIRES: April 29, 2022

MLA NUMBER: MLA18-00056

PROJECT PLANNER: David Wayne Johnson

PROJECT DESCRIPTION:

PRJ18-00028 - CONDITIONAL (D) TYPE II- FOR REGIONAL STORMWATER INFILTRATION PLANT THIS STORMATER INFILTRATION FACILITY WILL SERVE PROPERTIES ALONG THE RAINIER ST. CORRIDOR FROM DISCOVERY RD TO THE CITY LIMITS.

ZON18-00014 - On November 8, 2018, the UDC Administrator determined the subject application shall be processed as a Type II Conditional Administrative "C(a)" Use under JCC 18.40.530(2). Type II Conditional Discretionary "C(d)" Use Permit for construction of a City of Port Townsend regional stormwater facility for properties along the Rainer Street corridor (formerly Howard Street) from Discovery Road to the City limits. The project includes an infiltration pond with a volume capacity of 6,700 cubic feet. To convey stormwater runoff from the benefited properties, approximately 1,500 linear feet of 24-inch diameter pipe would be installed from an existing wet pond located south of Sims Way and west of the unopened Rainer Street right-of-way. The land disturbing activities will be approximately 22,115 sq ft with a net cut and fill of 2,750 cu/yd. A SEPA Threshold Determination of Non-Significance was issued by the City of Port Townsend on May 30, 2018. A Stormwater Management Permit application has been submitted in onjunction with the zoning permit application under ZON18-00015. This process requires public notice but no public hearing unless determined necessary by the UDC Administrator under JCC 18.40.520(2)(c).

PROJECT LOCATION:

Parcel number 001 162 017, Section 16, Township 30N, Range 1W; Located off of Mill Road in Port Townsend, WA 98368.

CONDITIONS:

1.) An Engineered Stormwater Plan prepared by AHBL has been submitted for review by the Jefferson County Public Works Department under Stormwater Management Permit ZON18-00015. Once the subject stormwater permit has been issued the applicant shall fully implement the provisions of the submitted plan and contact the Jefferson County Public Works Department to arrange a schedule to inspect the property for plan compliance. No clearing for roadways or utilities shall occur on the project site until clearing necessary for the installation of temporary sedimentation and erosion control measures have been completed.

2.) The applicant shall implement and install vegetation per the approved Vegetation Retention, Landscaping and Driveway Approach Plan stamped approved on April 29, 2019.

3.) A conditional use permit automatically expires and becomes void if the applicant fails to file for a building permit or other necessary development permit within three years of the effective date (the date of the decision granting the permit) of the permit unless the permit approval provides for a greater period of time. Extensions to the duration of the original permit approval are prohibited. The department of community development shall not be responsible for notifying the applicant of an impending expiration.

4.) A signed Release and Waiver associated with the Geotech Waiver shall be required prior to issuance of Stormwater Management Permit ZON18-00015.

5.) Applicant shall obtain approval for Stormwater Management Permit ZON18-00015.

FINDINGS:

1.) The Administrator finds that this application complies with applicable provisions of the Unified Development Code, all other applicable ordinances and regulations, and is consistent with the Jefferson County Comprehensive Plan and Land Use map.

2.) The Geographic Information Systems mapping review identified the following Critical Areas on the subject property: Slight Landslide Hazard Area; Susceptible Aquifer Recharge Area.

3.) Reviewed under the State Environmental Policy Act (SEPA) by the City of Port Townsend acting as lead agency Determination of Non-Significance (DNS) issued on May 30, 2018.

4.) The site plans as submitted with the Zoning Conditional Use Permit application on June 21, 2018 has been reviewed for consistency under the UDC, and has been approved by Jefferson County Department of Community Development. Any modifications, changes, and/or additions to the stamped, approved site plan dated April 29, 2019 shall be resubmitted for review and approval by Jefferson County Department of Community Development.

5.) This approval is for a Stormwater Detention and Infiltration Pond only. Any future permits on this site are subject to review for consistency with applicable codes and ordinances and does not preclude review and conditions which may be placed on future permits.

6.) The proposal was duly notice to the public and agencies on October 16, 2018 for a 14 day comment period. No written comments were recieved.

7.) On November 8, 2018, the UDC Administrator determined the subject application shall be processed as a Type II Conditional Administrative "C(a)" Use under JCC 18.40.530(2).

8.) A request to waiver the requirement for a Geotech Report was submitted by the applicant on June 21, 2018, and approved on April 26, 2019. A signed Release and Waiver associated with the Geotech Waiver shall be required prior to issuance of Stormwater Management Permit ZON18-00015.

APPEALS:

Pursuant to RCW 36.70C, the applicant or any aggrieved party may appeal this final decision to the Hearing Examiner within fourteen (14) calendar days of the date of issuance of this land use decision. For more information related to administrative appeals see JCC 18.40.330.

UDC Administrator
MLA18-00056

April 29, 2019
Date

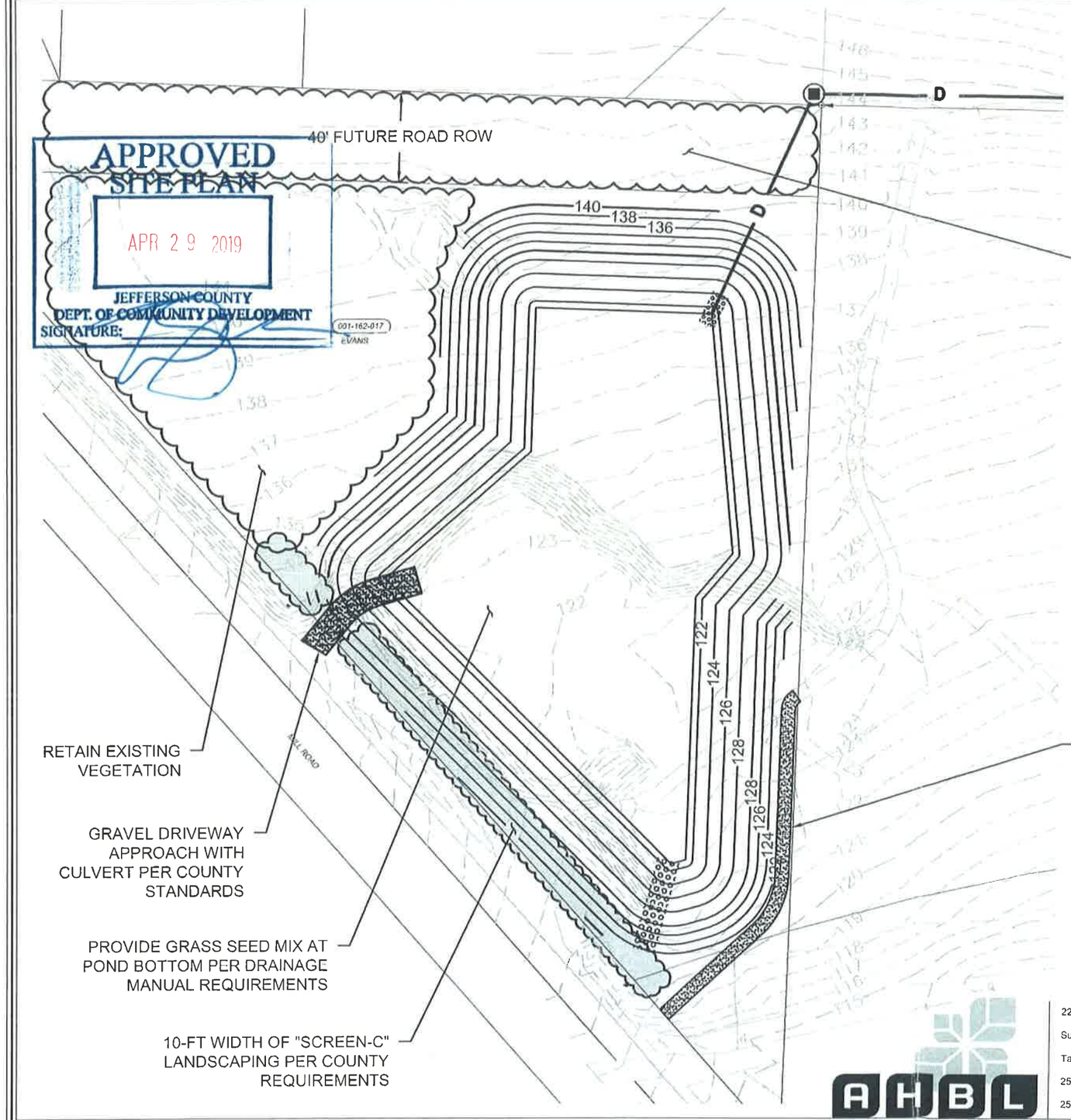
DEPARTMENT OF COMMUNITY DEVELOPMENT
621 Sheridan Street | Port Townsend, WA 98368
360-379-4450 | email: dcd@co.jefferson.wa.us
www.co.jefferson.wa.us/commdevelopment

Applicable Commercial Design Standard:	DSD Director Finding:
17.44.050 Maximum building setback from primary street frontage.	This guideline is inapplicable to the McDonald's remodel project. No restaurant footprint expansion is being proposed. The building's current setback from both Sims Way and Haines Place are pre-existing legal non-conforming conditions with respect to the referenced guideline.
17.44.080 Landscaping.	With no building footprint or parking area expansion, existing landscaping will be unaltered. The referenced guideline is inapplicable to McDonald's current project.
17.44.090 Off-street parking lots.	No change to existing off-street parking is proposed. As such, this guideline is inapplicable to McDonald's remodel project. Current off-street parking is considered pre-existing legal non-conforming with respect to current code (e.g. location; exceeding maximum # of vehicle spaces allowed).
PTMC 17.44.130 - Building Design, Materials and Colors. *A. Objective. New development should recognize the city's ... architectural heritage through ... use of ... materials and proportions compatible with ...historic architecture without replicating historical buildings.* *1. Roof Design.* *a. Roof design shall reduce the mass and scale of buildings, add visual interest and prevent reflective glare. Flat roofs shall have parapets to conceal the roof and mechanical equipment from ground level views. ...*	The applicant's design for the façade remodel (Ex. A) responds favorably to each applicable component of the referenced guideline. The existing roof line (an inverted-mansard design) is consistent with the reduced "*mass and scale*" standard. As remodeled, the building remains single-story but with new a vertical expression of the roof line that creates (in places) a false parapet. The new roof line expression is most evident in the revised south and east façade entrances. Each entrance will be highlighted underneath a "Brand Wall" (19'4" tall x 12' wide) and canopy that extends away from the building. Each Brand Wall will be covered in large black tile. Other new metal canopies will replace portions of the lower mansard roof. Overall, the result is a modest increase in the size and mass of the roof line that remains consistent with the referenced guideline.

Applicable Commercial Design Standard:	DSD Director Finding:
b. When designing rooftops visible from hillsides, special attention shall be given to prevention of reflective glare and placement/design of mechanical equipment. ...	Distant views of the restaurant roof top can be seen from upslope properties to the west, however, the proposed roof parapet design will effectively screen roof top mechanical from these properties as well as nearby street level views.
3. Exterior siding consisting of wood, brick, and/or other materials with "natural" textures is encouraged. The use of recycled and "ecologically friendly" materials is also encouraged.	The façade remodel includes a grey-colored, brick veneer wainscot base surrounding most of the building. Hardiplank siding in a different but compatible color ("Fairview Taupe") is shown above the wainscot for much of the remaining façade. Exterior materials also include the 2 Brand Walls, the canopy revisions and the addition of an accent band of galvanized-colored corrugated metal over portions of the parapet. This same corrugated material will be used to re-roof the detached dining canopy.
4. Exterior building materials shall be of similar type (e.g., wood or masonry) on all sides of a building, except that embellishments and details proposed for the street side frontage(s) of the building need not be carried through on other sides.	Consistent with the referenced guideline, the materials and detailing proposed are similar and cohesive but not uniformly applied across all building façades.
6. Building colors should be compatible with other buildings ... natural and topographic features in the vicinity. The use of ... earth tones ... are encouraged. Bright colors should be minimized or used for minor architectural accents	Colors chosen include a coordinated range of grey, brown, black and galvanized metal with limited use of bright colors (white in the new canopies; bright yellow and white in the internally lit signage; bright yellow in the East entry canopy underscore). The proposal is consistent with the referenced guideline.
9. Buildings should be provided with a distinct "base" through the use of materials, texture, or massing.	The brick veneer wainscot shown makes the façade remodel project consistent with the referenced guideline.

Applicable Commercial Design Standard:	DSD Director Finding:
PTMC 17.44.140 – Vehicle canopies	Other than the change in directional signage and materials involved with the exterior, no change is proposed to the existing vehicle drive-through. As such, this guideline is inapplicable to the remodel project.
PTMC 17.44.150 - Building Entrances. *A. Objective. ... primary entrances ...shall be ... highlighted through ... details,... The design ... shall ...creat[e] easily identifiable building entrances.* *1. Entrances shall be visible from the adjoining primary street.* *2. Techniques that may be used to highlight primary building entrances include, but are not limited to, the following:* *b. Glazed door;* *c. Roof line emphasis;* *f. Canopy...above entry;* *h. Contrasting, decorative finish materials;*	Despite the pre-existing, legal non-conforming building location, the new work surrounding building entrances is generally consistent with the referenced guideline. The introduction of a modulated Brand Wall at each entrance will make them easily visible from the adjacent streets. Design details shown on the submitted plans incorporate several of the referenced techniques including the: • Use of fully glazed doors at each entry; • Addition of a roof line emphasis via the Brand Wall; • Use of a canopy over each entrance; and, • Application of contrasting materials on the Brand Wall when compared to the remaining façade.
PTMC 17.44.160 – Weather protection *A. Objective. Buildings should provide protection for pedestrians from adverse weather conditions.* *1. Overhangs, ...that provide protection for pedestrians and bicycle racks from adverse weather ... should be incorporated at entrances, along pedestrian pathways, and at transportation waiting areas.*	The existing site improvements are generally consistent with the referenced standard. The proposed plans appear to maintain, and possibly even expand, consistency with the Weather protection guideline.

Applicable Commercial Design Standard:	DSD Director Finding:
PTMC 17.44.170 – Transparency *A. Objective. Buildings shall provide generous amounts of windows to create ground floors with a "transparent" quality in order to provide visual interest.* *1. Windows shall cover at least 30 percent of the facade area (as measured from grade to eight feet above grade) facing the primary street and also the secondary street on corner lots. ...* *2. Windows shall not consist of reflective glass.* *3. Windows should begin at least 12 inches above grade rather than continue down to grade level.*	The applicant's design for windows in the remodel (Ex. A) is consistent, where applicable, to the referenced guideline. Minimal fenestration exists on the north and west facades (facing Haines Place and 12th Street, respectively) which is a pre-existing, legal non-conforming condition. As no windows on either of these facades will be changed by the project, the 30% window coverage standard is inapplicable to them. Window coverage on the remodeled south façade (facing Sims Way) is approximately 42%, which is consistent with the referenced guideline. No reflective glass is proposed in the design. All new windows being added to the east façade are being framed so they begin a minimum of 12" above grade.
PTMC 17.44.180 - Lighting. *A. Objective. All exterior lighting, including that used to illuminate signs, shall be designed to reduce glare impacts to adjacent properties and public rights-of-way, to use energy efficiently, and to reduce nighttime "light pollution."* *2a. All exterior lighting, including that to illuminate signs, shall be pointed downward and shielded from direct observation from the air, adjacent properties, and public rights-of-way. Lighting "spillover" to adjacent*	As revised by the applicant in their April 25, 2019 submittal (Ex. A) the remodel project can be found consistent with each applicable component of the referenced guideline, subject to conditions. The use of LED fixtures is proposed throughout the remodel project, including within 3 internally lit signs (1 planned for each Brand Wall and 1 on the south façade). While the referenced guideline addresses signs, the use of internally lit signage is not prohibited outright. The sign lettering will shield view of the light source itself from direct observation and in so doing is consistent with the referenced guideline. A separate Sign permit that is required for the



GRAPHIC SCALE

0 25 50 100 FEET

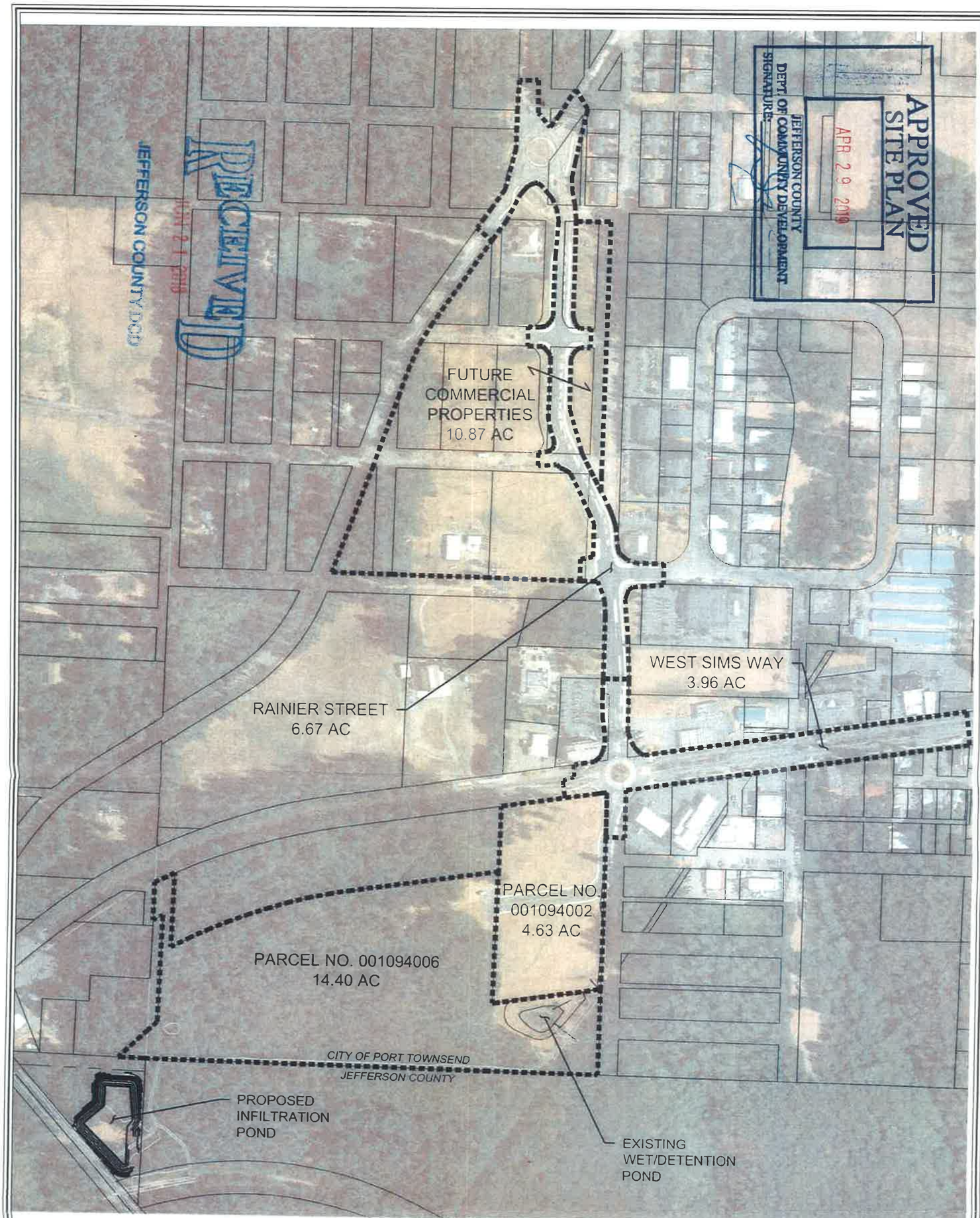
1" = 50 FEET

RECEIVED
JUL 31 2018
JEFFERSON COUNTY DCD

AHBL
2215 North 30th Street,
Suite 300,
Tacoma, WA 98403
253.383.2422 TEL
253.383.2572 FAX

PORT TOWNSEND
RAINIER STREET REGIONAL STORMWATER FACILITY
VEGETATION RETENTION, LANDSCAPE, AND DRIVEWAY APPROACH PLAN

JOB NO. 2160137.10
DATE: 6/20/2018
-



GRAPHIC SCALE

0 150 300 600 FEET

1" = 300 FEET

N

BASIN DEVELOPED HYDROLOGY

	IMPERVIOUS	PERVIOUS	UNDISTURBED	TOTAL
RAINIER STREET	4.72 AC	1.95 AC	-	6.67 AC
WEST SIMS WAY	2.95 AC	1.01 AC	-	3.96 AC
PARCEL NO. 001094002	4.17 AC	0.46 AC	-	4.63 AC
PARCEL NO. 001094006	7.26 AC	1.14 AC	6.00 AC	14.40 AC
COMMERCIAL PROPERTIES	9.78 AC	1.09 AC	-	10.87 AC
TOTAL	28.88 AC	5.65 AC	6.00 AC	40.53 AC

AHBL
2215 North 30th Street,
Suite 300,
Tacoma, WA 98403
253.383.2422 TEL
253.383.2572 FAX

PORT TOWNSEND
RAINIER STREET REGIONAL STORMWATER FACILITY
DEVELOPED SITE BASIN MAP

JOB NO. 2160137.10
DATE: 6/19/2018
A-7

APPENDIX – E

Geotechnical Report

Technical Memorandum

TO:	Ms. Doreen Gavin, PE
FROM:	Annabel Warnell, EIT, and Benjamin Ford, PE
DATE:	July 18, 2019
RE:	**Site Suitability Study** **City of Port Townsend** **Rainier Street Regional Stormwater Facility** **Port Townsend, Washington** **Project No. 1260005.010.013**

Introduction

This technical memorandum summarizes the results of a site suitability study that Landau Associates, Inc. (LAI) completed for the City of Port Townsend's (City; project owner) Rainier Street Regional Stormwater Facility project. The City proposes to construct a stormwater infiltration facility approximately 500 feet (ft) southeast of the intersection of Mill Road and West Sims Way in Port Townsend, Washington (site; Figure 1).

Geotechnical services have been provided in accordance with the revised scope outlined in Amendment No. 2 to the Subconsultant Agreement for Professional Services, dated February 4, 2019.

Project Understanding

The City proposes to construct a stormwater infiltration facility to manage runoff generated by commercial developments along the Rainier Street Corridor (formerly Howard Street). The facility will be located downslope of the corridor, near the intersection of Mill Road and West Sims Way. Stormwater generated from the Rainier Street Corridor project will be conveyed downslope to the proposed infiltration facility through a 2-ft-diameter conveyance pipe. The northern half of the facility will be cut into an existing slope, and the southern half will be contained by a low-permeability fill berm. The facility will have a bottom elevation of 122 ft, and side slopes will be 2 horizontal to 1 vertical (2H:1V) above the maximum surface water elevation, and 3H:1V below the maximum surface water elevation.

High-discharge velocities (approximately 23 feet per second [ft/sec]) are anticipated at the outlet of the 2-ft-diameter conveyance pipe, and an engineered energy dissipater will be required. Emergency overflow for the stormwater facility will be provided by a conveyance pipe running from the pond to a drainage ditch south of the Larry Scott Memorial Trail.

To support design of the infiltration facility, LAI advanced subsurface explorations at the site and completed *in situ* infiltration testing. Additionally, LAI completed an infiltration receptor characterization study in accordance with Section 3.3.5 of the Washington State Department of Ecology's *2012 Stormwater Management Manual for Western Washington, as Amended in December*

2014 (*2014 SWMMWW;* Ecology 2014). In accordance with review comments from Jefferson County (County), the infiltration receptor characterization study was expanded to include a mounding analysis and wintertime groundwater study. Data collected throughout the project were used in the site suitability study.

Site Conditions

The following sections describe the geologic setting of the project area and the surface and subsurface conditions observed during LAI's field investigations.

Geologic Setting

The *Geologic Map of the Port Townsend South and Part of the Port Townsend North 7.5-minute Quadrangles, Jefferson County, Washington* (Schasse and Slaughter 2005) indicates that near-surface soil at the site consists of Vashon Stade advance outwash (Qga), a well-sorted pebble to cobble gravel with local silt and clay deposits. Glacial till (Qgt), which is deposited and consolidated directly by glaciers, is mapped northeast of the site, and generally includes a mix of clay, silt, sand, and gravel with isolated cobbles and boulders.

The soils encountered in LAI's explorations were generally consistent with the mapped geology.

Surface Conditions

The site features an abandoned gravel pit, surrounded by a dense forest of coniferous and deciduous trees with an understory of vegetation common to the area. Mill Road borders the site to the southwest, and a segment of the Pacific Northwest Trail (Larry Scott Memorial Trail) crosses the southern and eastern portions of the site. The central portion of the proposed stormwater pond location is occupied by a forested slope with a vertical relief of 10 to 15 ft.

Subsurface Conditions

Subsurface conditions at the site were explored on August 2 and 3, 2016, and on February 20 and 21, 2019 (Figure 2). During the 2016 field investigation, two hollow-stem auger borings (B-1-16 and B-2-16) were advanced 44 and 41.5 ft below ground surface (bgs), respectively, and four test pits (TP-1-16 through TP-4-16) were excavated 4.4 to 12 ft bgs. During the 2019 field investigation, three hollow-stem auger borings (B-1-19, B-2-19, and B-3-19) were advanced 51 to 51.5 ft bgs, and a groundwater monitoring well (piezometer) was installed in each boring. Geologic cross sections presenting LAI's interpretation of subsurface conditions at the proposed infiltration facility location is shown on Figures 3 and 4.

Subsurface conditions were described using the soil classification system shown on Figure 5, and in general accordance with ASTM International (ASTM) standard test method D2488, *Standard Practice*

for Description and Identification of Soils (Visual-Manual Procedures). Summary logs of the soil conditions observed in the explorations and well construction details are presented on Figures 6 through 12.

Representative samples were obtained from the explorations and brought to LAI's soils laboratory for examination. Geotechnical laboratory testing included natural moisture content and grain size distribution determinations. Natural moisture contents were determined in general accordance with ASTM standard test method D2216, *Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.* The results of the natural moisture content determinations are listed adjacent to the corresponding samples on the summary logs. Grain size distributions were determined in general accordance with ASTM standard test method D422, *Standard Test Method for Particle-Size Analysis of Soils.* Samples selected for grain size analyses are designated with a "GS" in the column labeled "Test Data" on the summary logs. Test results are presented on Figures 13 through 16.

Soil Conditions

The soil observed underlying existing surface conditions (i.e., forest duff, topsoil) were categorized into two general units:

- **Advance Glacial Outwash:** Observed in all explorations, this unit typically consisted of sand with varying silt, gravel, and organic content in a medium dense to very dense, moist or moist to wet condition. In all borings, this unit was observed to the full depth explored.
- **Restrictive Silt Layer:** Noted on the summary boring logs as a "restrictive silt layer," this unit was observed within the advance outwash between 4.3 and 20 ft bgs, and varied from 2 to 22 ft thick. The restrictive silt layer consisted of silt with varying sand and gravel content or very silty sand with a high fines content and low permeability. The restrictive silt layer was observed in a moist or moist to wet, very dense or very stiff to hard condition.

Fractured rock observed in the advance outwash unit could indicate the presence of cobbles. The contractor should be prepared to handle such oversized material.

Groundwater Conditions

During LAI's August 2016 explorations, moist to wet soil conditions, indicative of perched groundwater, were observed in boring B-1-16 and test pit TP-1-16 at 15 and 5.5 ft bgs, respectively. During the February 2019 explorations, moist to wet soil conditions, indicative of perched groundwater, were observed in borings B-1-19 and B-3-19 at 15 and 5 ft bgs, respectively.

Groundwater was not observed in the piezometers between February and April 2019. Groundwater conditions will vary depending on local subsurface conditions, weather conditions, and other factors. Furthermore, groundwater levels in the project area are expected to fluctuate seasonally, with maximum groundwater levels occurring during late winter and early spring.

Conclusions and Recommendations

Based on the results of LAI's subsurface explorations and analyses completed for the project, the proposed site is suitable for stormwater infiltration, provided the recommendations contained herein are implemented.

At the proposed stormwater facility location, the restrictive silt layer bisects the subsurface profile of the pond. Soil mitigation will be required to infiltrate stormwater generated from the City's Rainier Street Corridor project.

Mitigation of Restrictive Silt Layer

Given the variable subsurface conditions at the site, LAI has divided the footprint of the proposed stormwater facility into three areas, and recommended mitigation measures accordingly:

- **Area 1:** Where present, overexcavate the restrictive layer and replace with permeable ballast and/or quarry spalls. LAI anticipates the overexcavation will range from 0 to 15 ft bgs.
- **Area 2:** Where present, overexcavate the restrictive layer and replace with free-draining sand and gravel, permeable ballast, and/or quarry spalls. The overexcavation trenches should be 4- to 5-ft wide, and oriented east to west. Trenches should extend through the restrictive layer (estimated to be between 15 and 20 ft thick), and should cover at least 33 percent of Area 2.
- **Area 3:** No mitigation of the restrictive layer in this area.

Quarry spalls and/or permeable ballast shall conform to the requirements in Sections 9-13.1(5) and 9-03.9(2) of the Washington State Department of Transportation's 2018 *Standard Specifications for Road, Bridge, and Municipal Construction* (*2018 WSDOT Standard Specifications*). Only naturally occurring stone can be used for quarry spalls—concrete rubble is not an acceptable material. Quarry spalls or permeable ballast should be placed with a maximum loose lift thickness of 18 inches, and compacted to a firm, unyielding condition using a hoe-pack or the bucket of a large excavator. The quarry spalls/permeable ballast should be placed up to the infiltration surface of the facility.

Class B, moderate-survivability, underground drainage geotextile should be used to prevent piping of material and clogging of *in situ* infiltration surfaces. The geotextile should meet the requirements in Tables 1 and 2, Section 9-33.2 of the *2018 WSDOT Standard Specifications.* Where overexcavations are performed, geotextile should be provided against the restrictive silt layer where exposed, and across the overexcavation area, 1 ft below the surface of the infiltration facility. Details regarding soil overexcavation and replacement are provided on Figure 2.

Outlet Protection

The outlet of the 2-ft-diameter conveyance pipe will discharge with a maximum flow of 12.5 cubic feet per second (cf/sec) and a maximum velocity of 22.5 ft/sec, necessitating design and installation of an engineered energy dissipater. LAI recommends using a stilling basin or well for energy dissipation:

- **Stilling Basin:** LAI has assumed that at peak velocity, the culvert will flow fully, and the tailwater depth will equal the maximum pond depth (7 ft). LAI has also assumed use of Class A Rock for Erosion and Scour Protection conforming to Section 9-13.4(2) of the *2018 WSDOT Standard Specifications.* The Class A Rock should have a maximum size of 1.5 ft with 50 percent passing the 1-ft sieve.

  Based on these assumptions, the stilling basin would be 34 ft long, 24 ft wide (at its widest point), and 2.3 ft deep. The Class A Rock should be 3 ft thick at the headwall, and 2 ft thick throughout the remainder of the basin.

- **Stilling Well:** If a stilling well is selected, LAI recommends the outlet discharges to a 4-ft-inside-diameter well, set 1 ft below the invert of the outlet pipe. The well should have a total height of at least 5 ft.

The preceding recommendations comply with the guidelines set forth in the U.S. Department of Transportation's Hydraulic Engineering Circular No. 14, Third Edition, *Hydraulic Design of Energy Dissipators for Culverts and Channels* (FHWA 2006).

Infiltration Receptor Characterization

LAI completed an infiltration receptor characterization in general accordance with Volume III, Section 3.3.5 of the *2014 SWMMWW.* The results of the characterization are summarized in the following sections.

Site Groundwater Conditions

A true groundwater table was not observed during LAI's August 2016 or February 2019 field explorations. Moist to wet soil conditions, indicative of perched groundwater, were observed. Piezometers were installed in borings B-1-19, B-2-19, and B-3-19 to monitor site groundwater levels. On February 20, 2019, pressure transducers were installed in borings B-1-19 and B-3-19 to record subsequent groundwater occurrence.

On March 28, 2019, data downloaded from the pressure transducers indicated that the piezometers had remained dry since installation. At that time, the pressure transducers were removed from the piezometers. On April 22, 2019, LAI visited the site to measure groundwater levels in the piezometers, and no groundwater was observed. Based on the results of LAI's groundwater study, seasonal high groundwater levels beneath the facility are anticipated to be 30 ft or more.

Ambient Groundwater Quality

LAI reviewed historical information for the site, and reports no concerns about the quality of ambient groundwater.

Volumetric Water-Holding Capacity

The volumetric holding capacity (VHC) of an infiltration receptor is dependent on the porosity of the *in situ* soil. The advance outwash unit is granular and free-draining, with a porosity on the order of 20 to 30 percent. Based on the results of LAI's field explorations, the advance outwash unit extends at least 51.5 ft below the facility footprint. When preparing the following VHC estimates, LAI only considered the receptor soil directly below the facility footprint. Estimates are based on the square footage of each area and the vertical extent of the receptor soil:

- **Area 1:** The advance outwash extends at least 51.5 ft bgs, and LAI estimates a VHC of approximately 130,000 cubic feet (cf).
- **Area 2:** The advance outwash extends at least 51.5 ft bgs. Assuming trench overexcavations in at least 33 percent of Area 2, LAI estimates a VHC of approximately 50,000 cf.
- **Area 3:** The advance outwash extends approximately 20 ft bgs. LAI estimates a VHC of approximately 30,000 cf.

According to the Western Washington Hydrology Model (WWHM) results provided by AHBL, Inc. (AHBL; project civil engineer), the pond will have a maximum stormwater storage volume of approximately 3.9 acre-feet (170,000 cf). The cumulative VHC of the receptor soil directly beneath the pond is approximately 210,000 cf, which exceeds the maximum pond storage volume. The above VHC estimates do not account for the receptor soil that extends laterally beyond the pond footprint. LAI considers the advance outwash deposits to be laterally expansive, and the estimated VHC directly below the facility is highly conservative.

Groundwater Gradient and Flow Direction

Groundwater at the site is assumed to flow southeast, toward Port Townsend Bay. Infiltrating stormwater will likely flow vertically into the advance outwash unit beneath the facility, or laterally across the restrictive silt layer, until it encounters a more permeable soil zone and infiltrates deeper into the subsurface. Given the depth of the restrictive silt layer and the discontinuous nature of restrictive layers in advance outwash, groundwater is not likely to break surface, and no adverse effects to the surrounding area/infrastructure are anticipated.

Mounding Analysis

The *2014 SWMMWW* requires a groundwater mounding analysis if there is less than 15 ft of vertical separation between the bottom of a proposed stormwater infiltration facility and the seasonal high groundwater table or restrictive soil layer. A restrictive silt layer will be located approximately 5 to 21

ft beneath the bottom of the proposed infiltration facility following soil mitigation; therefore, a mounding analysis was required (5 to 11 ft beneath Area 2; 11 to 21 ft beneath Area 3).

LAI performed the mounding analysis using the HYDRUS 2D/3D (Simunek et al. 2011) modeling platform with simulated groundwater infiltration rates based on the WWHM results provided by AHBL. Conservative hydraulic conductivity and groundwater infiltration rates were used to complete the analysis. The mounding analysis incorporates the mitigation requirements for facility design discussed in this memorandum. The results of the mounding analysis are provided in Attachment 1.

In summary, the results of the mounding analysis indicated that a maximum seasonal groundwater mound of approximately 6 ft could be expected beneath Area 3. The model results indicated no mounding occurrence beneath Areas 1 or 2. Assuming 11 to 21 ft of vertical separation between the bottom of the facility and the top of the restrictive silt layer in Area 3, the modeled groundwater mound would reduce the vertical separation to a minimum of 5 ft.[1] The reduced vertical separation is not expected to impair the infiltration capacity of the soil beneath the facility.

Because hydraulic conductivity and groundwater infiltration rates were conservative, the results of the simulations are expected to represent conservative, maximum potential groundwater mounding conditions, based on historical precipitation records. The mounding analysis model is a simplified representation of the complex hydrogeologic conditions beneath the facility, and actual groundwater mounding beneath the facility could differ from that estimated.

Long-Term Design Infiltration Rate Evaluation

LAI evaluated infiltration rates above and below the restrictive silt layer within the footprint of the proposed pond. Given the variable subsurface conditions at the site, infiltration rates were developed by performing three borehole infiltration tests (BITs) and one large-scale pilot infiltration test (PIT). The *2014 SWMMWW* does not specify a frequency for *in situ* infiltration testing of basins, like the one proposed for this project. In LAI's opinion, a large-scale PIT and three small-scale infiltration tests (BITs conducted in borings B-1-19, B-2-19, and B-3-19) will provide sufficient data to calculate long-term design rates for the facility.

[1] The mounding analysis was performed using WWHM-simulated groundwater recharge data provided by AHBL. This data included a bottom elevation of 121 ft and a bottom surface area of 22,283 square feet. The final design, including a bottom elevation of 122 ft and a bottom surface area of 24,381 square feet, would result in reduced infiltration rates (infiltration volumes from WWHM data, but applied to a larger area) and increased vertical separation relative to the values used for the mounding analysis. The mounding analysis is considered conservative in terms of estimated groundwater mounding. Vertical separation values have been amended to reflect final design parameters (i.e., bottom elevation) for the facility.

Borehole Infiltration Tests

On March 28, 2019, BITs were performed in borings B-1-19, B-2-19, and B-3-19 in general accordance with the methods for a constant-head well permeameter test presented in *Soil Sampling and Methods of Analysis* (Reynolds 2006). LAI used Equations 1 and 2 and the results of the BITs to calculate field infiltration rates.

The correction shape factor (α; soil sorption number) was estimated by examining the advance outwash soil-structure (Zhang et. al. 1998; Reynolds 2006). Following the initial soak period at each test location, three drawdown cycles were conducted once steady state conditions had been achieved. Table 1 provides the input parameters used to calculate field infiltration rates.

Table 1. BIT Test Summary

Exploration Designation	Height of Water in Borehole[(a)] (ft)	Radius of Borehole (ft)	Measured Flow Rate[(a)] (gpm)
B-1-19	4.0	0.6	4.0
B-2-19	8.5	0.6	25.0
B-3-19	8.0	0.6	3.9

(a) Average of three drawdown cycles.
BIT = borehole infiltration test
ft = feet
gpm = gallons per minute

$$I_{measured} = \frac{CQ}{2\pi H^2 + \pi r^2 C + \frac{2\pi H}{\alpha}} \quad \text{(Equation 1)}$$

$$C = \left(\frac{\frac{H}{r}}{2.074 + 0.093\frac{H}{r}} \right)^{0.754} \quad \text{(Equation 2)}$$

Where:

$I_{measured}$ = field infiltration rate (in/hr).
Q = flow rate into borehole (gallons per minute).
H = stage height in borehole (ft).
r = radius of borehole (ft).
α = soil sorption number = 3.7 (1/ft).

The following correction factors were applied to the field infiltration rates:

- Site variability and number of tests (CF_V) = 0.55.
- Test method (CF_t) = 0.40.
- Biofouling and siltation effects (CF_m) = 0.90.

Large-scale Pilot Infiltration Test

On August 2, 2016, a large-scale PIT was conducted at 3 ft bgs in test pit TP-4-16. The PIT was performed in general accordance with Section 3.3.6, Volume III of the *2014 SWMMWW.* The base of test pit TP-4-16 was approximately 10 ft wide by 10 ft long, and a 12-inch water level was maintained above the base during the saturation and test periods. After the test was completed, the excavation was extended 3 ft to determine if water had mounded on shallow, restrictive layers, or infiltrated deeper into the subsurface. No mounding or perched water conditions were observed.

The following correction factors were applied to the field infiltration rate in accordance with the *2014 SWMMWW*:

- CF_V = 0.55.
- CF_t = 0.75.
- CF_m = 0.90.

Long-term Design Infiltration Rate

The results of the field infiltration tests are summarized in Table 2.

Table 2. Summary of Infiltration Rate Evaluation

Exploration Designation	Test Method	Unfactored Infiltration Rate (in/hr)	Factored Infiltration Rate (in/hr)
TP-4-16	PIT	4.7	1.6
B-1-19	BIT	4.0	0.80
B-2-19	BIT	15.0	3.0
B-3-19	BIT	2.6	0.50

BIT = borehole infiltration test
hr = hour
in = inches
PIT = pilot infiltration test

In boring B-2-19, the BIT was performed below the restrictive layer, in sand with a relatively low fines content. In boring B-3-19, the BIT was performed below the restrictive layer, in silty sand with a relatively high fines content. The BIT in boring B-1-19 and the PIT in test pit TP-4-16 were performed above the restrictive layer, in gravelly sand with silt.

Although it was not conducted during the wet season, as recommended in the *2014 SWMMWW*, the PIT yielded a field infiltration rate that corresponds with the rate from the BIT in boring B-1-19 (which was performed during the wet season), thereby validating the PIT results. The results of the BITs

should be considered conservative, as bentonite backfill (impermeable material) in boreholes below the well casings limited vertical infiltration during testing.

Based on data obtained from the field explorations and *in situ* testing, LAI recommends an average design infiltration rate of 1.7 inches per hour (in/hr).

Facility Verification Testing

The *2014 SWMMWW* requires performance verification testing of stormwater facilities. If verification testing suggests that the measured infiltration rate is lower than the design infiltration rate, the following methods could be implemented:

- Reduce the planned impervious area of the proposed development.
- Acquire land adjacent to the proposed pond to increase the pond footprint/volume.
- Advance additional vertical infiltration conduits through the restrictive layer.

Construction Recommendations

The following recommendations should be considered when preparing project plans and specifications:

- **Heavy Equipment:** During construction, heavy equipment will be operated within the proposed pond footprint. Where heavy equipment traffic is required, soil within 3 ft of ground surface should be tilled and placed at no more than 85 percent of the maximum dry density. The contractor should avoid tracking of heavy equipment in Areas 1 and 3.
- **Facility berm/embankment construction:** The facility embankment should be constructed in accordance with the guidelines in Volume III, Section 3.2.1 of the *2014 SWMMWW.* The embankment should consist of low-permeability fill, as described in Section 3.2.1 of the *2014 SWMMWW,* keyed into existing subgrade a minimum of 3 ft bgs. LAI recommends the key is constructed along the outer edge of the embankment; the key should have a thickness equal to at least 50 percent of the total berm width.
- **Temporary excavations:** Temporary excavations should be completed in accordance with the guidelines set forth in Section 2-09 of the *2018 WSDOT Standard Specifications.* Actual excavation trench configurations and the maintenance of safe working conditions, including temporary excavation stability, are the responsibilities of the contractor.

  Given the consolidated nature of advance outwash, LAI anticipates that trench sidewalls in Area 2 will stand vertically for short periods. Trenches should be excavated and backfilled in-place, and monitored for signs of instability. If signs of instability are observed, trench boxes should provide adequate support to achieve the proposed depths. Temporary excavations should be shored or sloped in accordance with the requirements outlined in Safety Standards for Construction Work, Part N (Washington State Department of Labor and Industries, Chapter 296-155 of the Washington Administrative Code). The parameters provided in Table 3 can be used to design engineered shoring systems, if needed.

Table 3. Recommended Soil Parameters for Design of Temporary Shoring

Soil Unit	Moist Unit Weight (pcf)	Submerged Unit Weight (pcf)	Cohesion (psf)	Internal Angle of Friction (degrees)
Advance Outwash	125	63	0	36
Restrictive Layer	115	48	100	30

pcf = pounds per cubic foot
psf = pounds per square foot

- **Oversized material:** Cobbles and boulders are often present in glacial soils, and may be encountered during construction excavation. Fractured rock, indicative of cobbles, was observed in the advance outwash unit. The contractor should be prepared to handle such oversized material.

Closing

This technical memorandum has been prepared for the exclusive use of AHBL, Inc. and the City of Port Townsend for specific application to the proposed Rainier Street Regional Stormwater Facility project in Port Townsend, Washington. Use of the information contained in this technical memorandum by others or for another project is at the user's sole risk. The findings, recommendations, and opinions presented herein are based on the field investigations completed for the project.

We trust that this technical memorandum provides you with sufficient information to proceed with the project. If you have questions or comments, or if we may be of further service, please contact the undersigned at (360) 791-3178.

LANDAU ASSOCIATES, INC.

Annabel Warnell
Project EIT

Benjamin Ford, PE
Associate

AMW/BJF/mcs
[\\OLYMPIA1\PROJECTS\1260\00S\R\SITE SUITABILITY ANALYSIS\REVISED\RAINIER STREET REGIONAL STORMWATER FACILITY SITE SUITABILITY TECHNICAL MEMORANDUM.DOCX]

Attachments: Figure 1. Vicinity Map
Figure 2. Site and Exploration Plan
Figure 3. Geologic Cross Sections A-A' and B-B'
Figure 4. Geologic Cross Section C-C'
Figure 5. Soil Classification System and Key
Figures 6 through 8. Logs of Borings B-1-19 through B-3-19
Figures 9 and 10. Logs of Borings B-1-16 and B-2-16
Figures 11 and 12. Log of Test Pits
Figures 13 through 16. Grain Size Distributions
Attachment 1. Mounding Analysis Technical Memorandum

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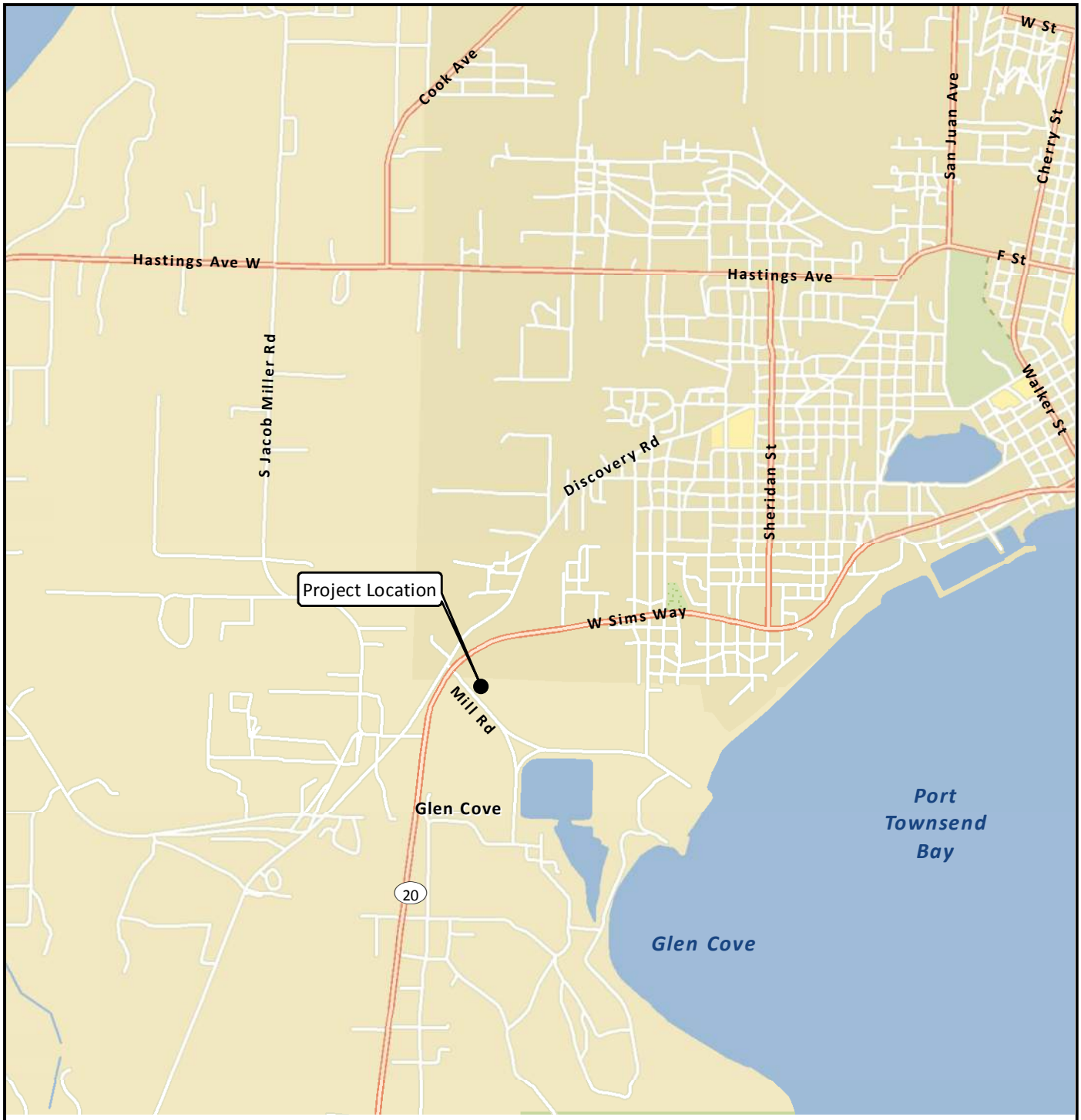

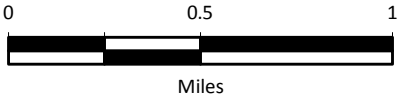

Data Source: Esri 2012

Z:\ES2\F01\VicMap.mxd 7/2/2019

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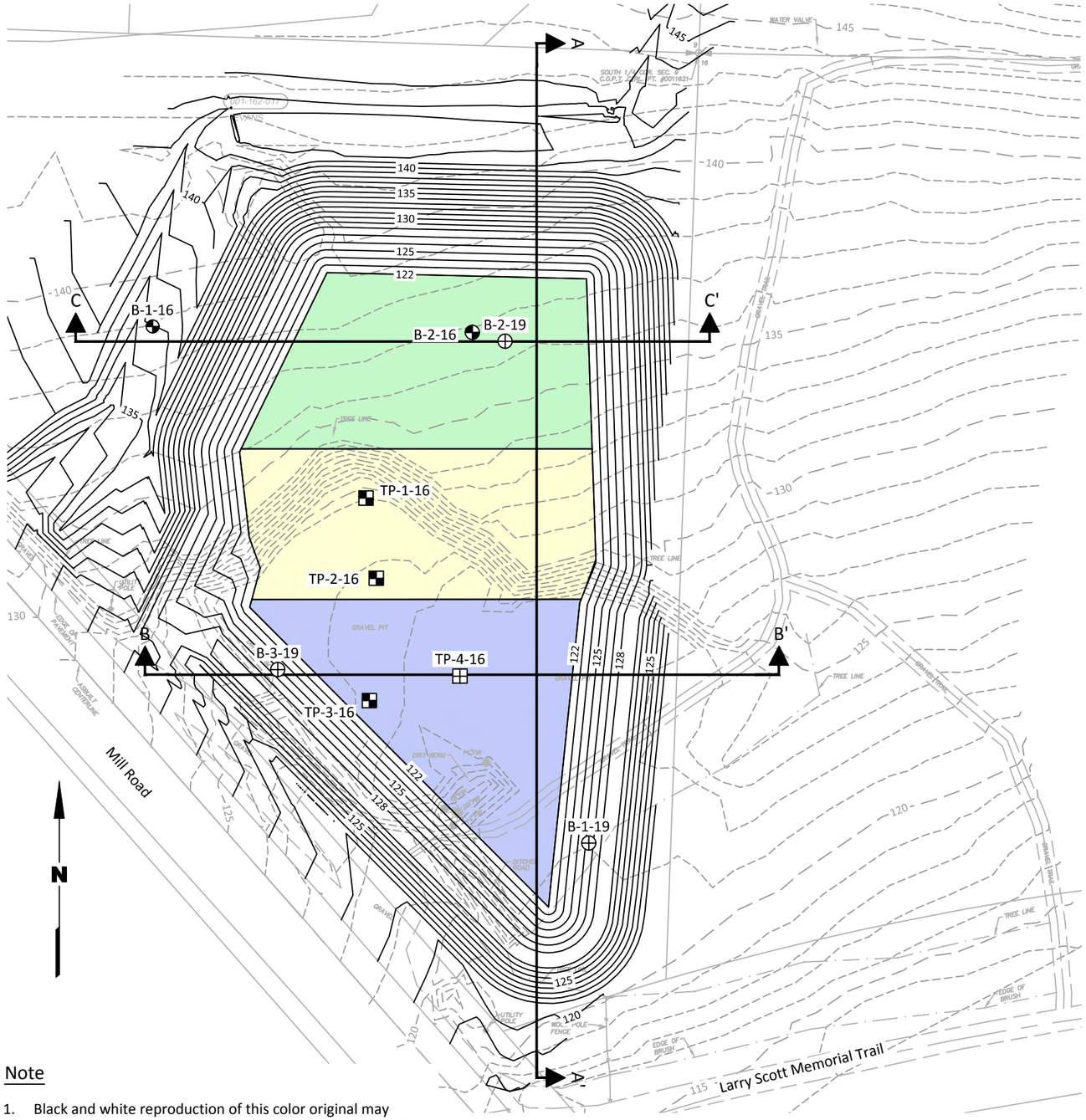
Port Townsend, Washington

Vicinity Map

Figure
1

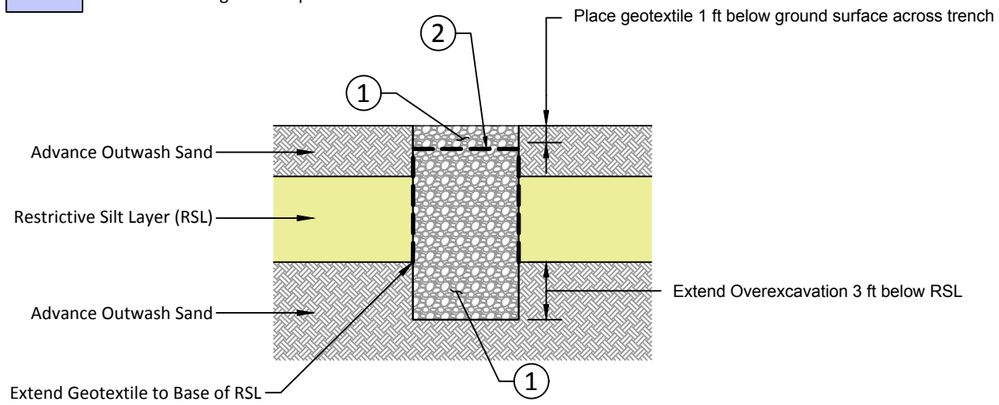


Legend

- B-1-16 — Approximate Boring Location and Designation
- B-1-19 — Approximate Monitoring Well and Borehole Infiltration Test Location and Designation
- TP-5B — Approximate Test Pit Location and Designation
- TP-4-16 — Approximate Large-scale Pilot Infiltration Test Location and Designation
- A — A' — Geologic Profile Location and Designation (See Figure 3 for Geologic Profile)

Restrictive Silt Layer Mitigation Recommendations

- Area 1: Full Overexcavation and Replacement.
- Area 2: Trench Overexcavation and Replacement
- Area 3: No Mitigation Required



Area 2 Mitigation Details

Not to Scale

Material Schedule		
Note	Description	Specification
(1)	Quarry Spalls or Permeable Ballast	WSDOT Standard Specification 9-03.9(2) - Permeable Ballast 9-13.1(5) - Quarry Spalls
(2)	Geotextile for Underground Drainage (Class B, Moderate Survivability)	WSDOT Standard Specification 9-33.2(1) - Tables 1 and 2

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 — 50 — 100

Scale in Feet

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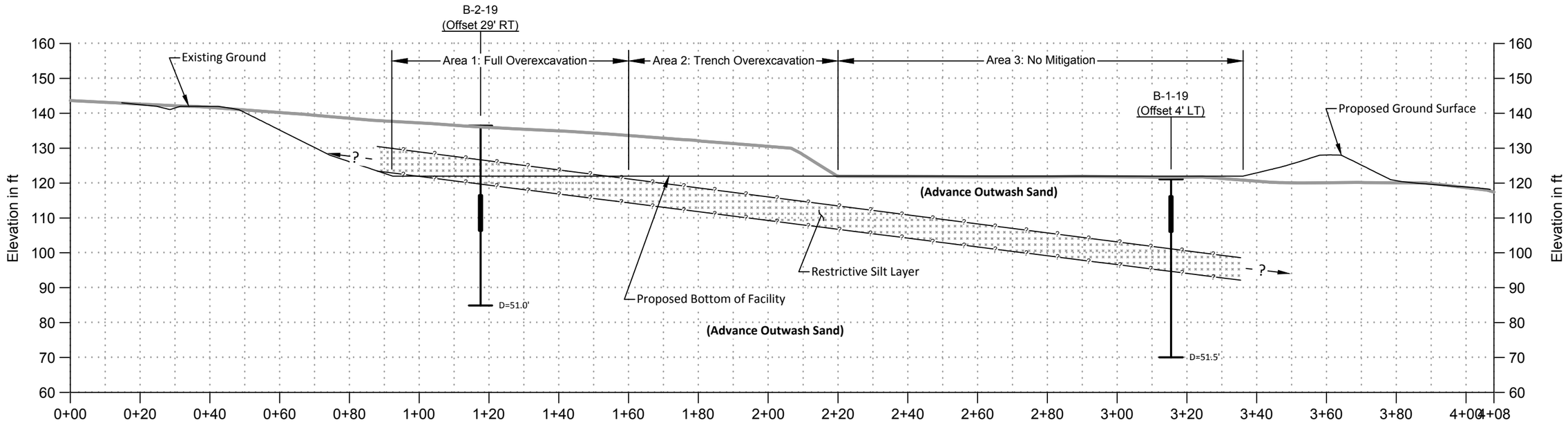
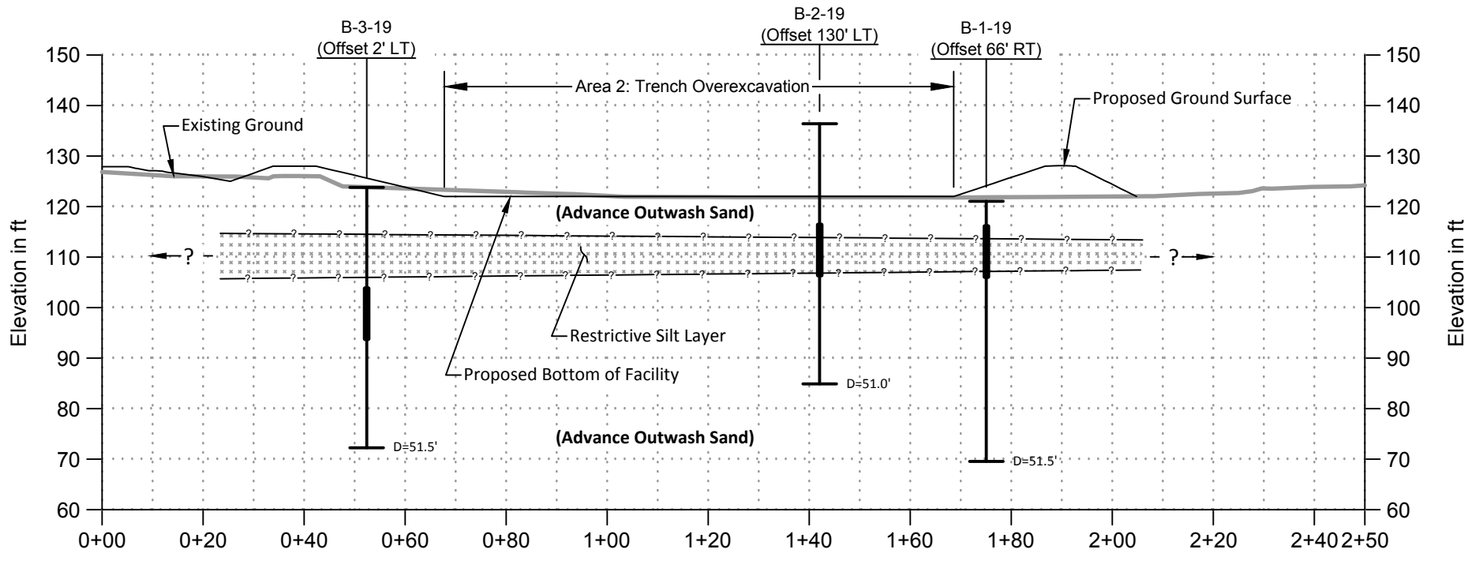
Site and Exploration Plan

Figure 2



A-A' PROFILE



B-B' PROFILE

Legend

B-1-19 — Project Exploration Designation
(Offset 33' LT) — Offset Distance in Feet and Direction
Top of Exploration
Monitoring Well Screen Interval and Borehole Infiltration Test Location
Bottom of Exploration
D = 51.0' — Depth of Exploration

0 30 60
Scale in Feet

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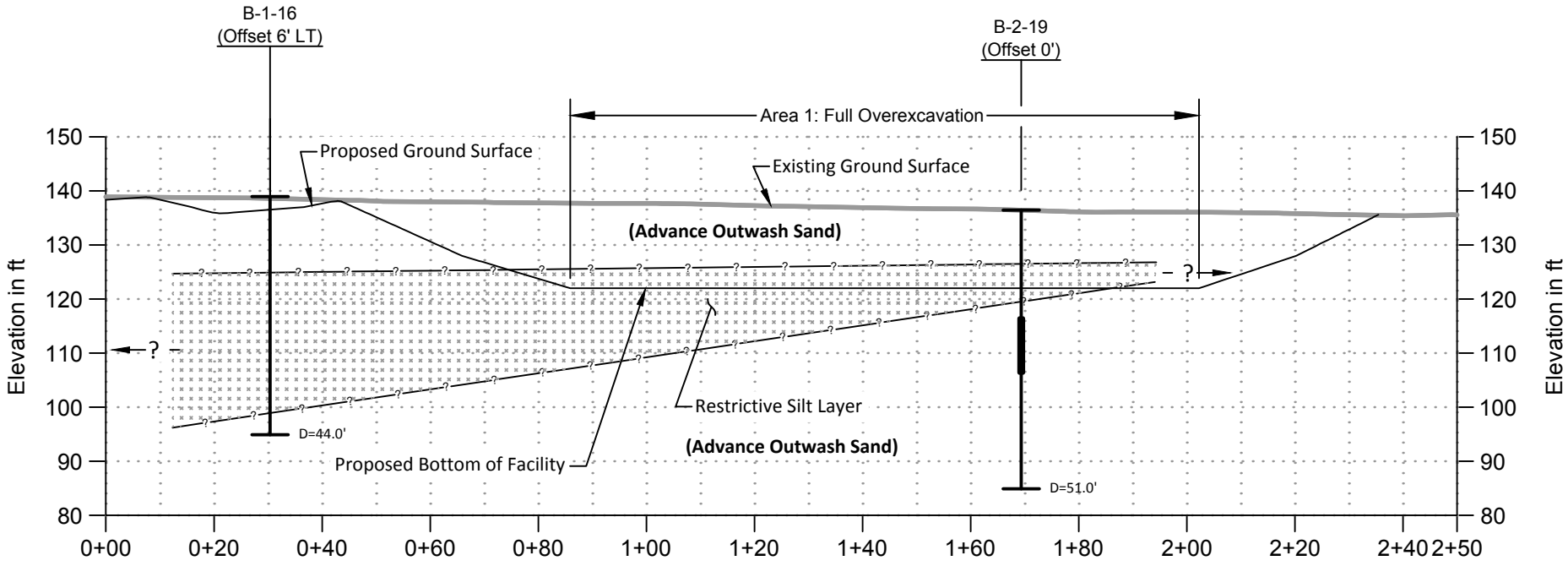
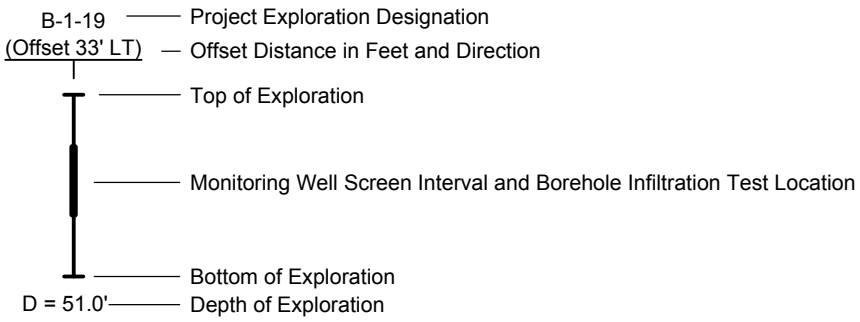
City of Port Townsend Rainier Street Regional Stormwater Facility Port Townsend, Washington	**Geologic Cross Sections A-A' and B-B'**	Figure 3



C-C' PROFILE

Legend



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Geologic Cross Section C-C'

Figure 4

Soil Classification System

MAJOR DIVISIONS			GRAPHIC SYMBOL	USCS LETTER SYMBOL[1]	TYPICAL DESCRIPTIONS [2][3]
COARSE-GRAINED SOIL (More than 50% of material is larger than No. 200 sieve size)	GRAVEL AND GRAVELLY SOIL (More than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (Little or no fines)		GW	Well-graded gravel; gravel/sand mixture(s); little or no fines
				GP	Poorly graded gravel; gravel/sand mixture(s); little or no fines
		GRAVEL WITH FINES (Appreciable amount of fines)		GM	Silty gravel; gravel/sand/silt mixture(s)
				GC	Clayey gravel; gravel/sand/clay mixture(s)
	SAND AND SANDY SOIL (More than 50% of coarse fraction passed through No. 4 sieve)	CLEAN SAND (Little or no fines)		SW	Well-graded sand; gravelly sand; little or no fines
				SP	Poorly graded sand; gravelly sand; little or no fines
		SAND WITH FINES (Appreciable amount of fines)		SM	Silty sand; sand/silt mixture(s)
				SC	Clayey sand; sand/clay mixture(s)
FINE-GRAINED SOIL (More than 50% of material is smaller than No. 200 sieve size)	SILT AND CLAY (Liquid limit less than 50)			ML	Inorganic silt and very fine sand; rock flour; silty or clayey fine sand or clayey silt with slight plasticity
				CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay
				OL	Organic silt; organic, silty clay of low plasticity
	SILT AND CLAY (Liquid limit greater than 50)			MH	Inorganic silt; micaceous or diatomaceous fine sand
				CH	Inorganic clay of high plasticity; fat clay
				OH	Organic clay of medium to high plasticity; organic silt
	HIGHLY ORGANIC SOIL			PT	Peat; humus; swamp soil with high organic content

OTHER MATERIALS	GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
PAVEMENT		AC or PC	Asphalt concrete pavement or Portland cement pavement
ROCK		RK	Rock (See Rock Classification)
WOOD		WD	Wood, lumber, wood chips
DEBRIS		DB	Construction debris, garbage

Notes:
1. USCS letter symbols correspond to symbols used by the Unified Soil Classification System and ASTM classification methods. Dual letter symbols (e.g., SP-SM for sand or gravel) indicate soil with an estimated 5-15% fines. Multiple letter symbols (e.g., ML/CL) indicate borderline or multiple soil classifications.
2. Soil descriptions are based on the general approach presented in the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), outlined in ASTM D 2488. Where laboratory index testing has been conducted, soil classifications are based on the Standard Test Method for Classification of Soils for Engineering Purposes, as outlined in ASTM D 2487.
3. Soil description terminology is based on visual estimates (in the absence of laboratory test data) of the percentages of each soil type and is defined as follows:

Primary Constituent:	> 50% - "GRAVEL," "SAND," "SILT," "CLAY," etc.
Secondary Constituents:	> 30% and ≤ 50% - "very gravelly," "very sandy," "very silty," etc.
	> 15% and ≤ 30% - "gravelly," "sandy," "silty," etc.
Additional Constituents:	> 5% and ≤ 15% - "with gravel," "with sand," "with silt," etc.
	≤ 5% - "with trace gravel," "with trace sand," "with trace silt," etc., or not noted.

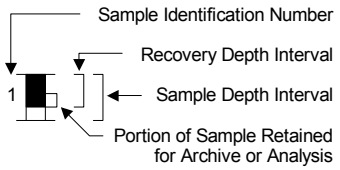
4. Soil density or consistency descriptions are based on judgement using a combination of sampler penetration blow counts, drilling or excavating conditions, field tests, and laboratory tests, as appropriate.

Drilling and Sampling Key

SAMPLER TYPE

Code	Description
a	3.25-inch O.D., 2.42-inch I.D. Split Spoon
b	2.00-inch O.D., 1.50-inch I.D. Split Spoon
c	Shelby Tube
d	Grab Sample
e	Single-Tube Core Barrel
f	Double-Tube Core Barrel
g	2.50-inch O.D., 2.00-inch I.D. WSDOT
h	3.00-inch O.D., 2.375-inch I.D. Mod. California
i	Other - See text if applicable
1	300-lb Hammer, 30-inch Drop
2	140-lb Hammer, 30-inch Drop
3	Pushed
4	Vibrocore (Rotosonic/Geoprobe)
5	Other - See text if applicable

SAMPLE NUMBER & INTERVAL



Field and Lab Test Data

Code	Description
PP = 1.0	Pocket Penetrometer, tsf
TV = 0.5	Torvane, tsf
PID = 100	Photoionization Detector VOC screening, ppm
W = 10	Moisture Content, %
D = 120	Dry Density, pcf
-200 = 60	Material smaller than No. 200 sieve, %
GS	Grain Size - See separate figure for data
AL	Atterberg Limits - See separate figure for data
GT	Other Geotechnical Testing
CA	Chemical Analysis

Groundwater

▽	Approximate water level at time of drilling (ATD)
▼	Approximate water level at time after drilling/excavation/well

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Soil Classification System and Key

Figure 5

B-1-19

LAI Project No: 1260005.010

SAMPLE DATA | **SOIL PROFILE** | **WELL DETAIL** (DOE#: BLI 753)

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 121.0
Drilled By: Holocene Drilling Inc.
Logged By: AMW Date: 02/20/19

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Description
0	120						SM	Grass over brown, silty, fine to coarse SAND with gravel and trace organics (loose, moist)
							SP	**(TOPSOIL)**
								Tan-gray, gravelly, fine to coarse SAND (medium dense, moist)
		S-1	b2	28	W = 4 GS			**(ADVANCE GLACIAL OUTWASH)**
5	115	S-2	h2	67				-Grades to dense
		S-3	b2	74	W = 3 GS		SP-SM	Tan-gray, very gravelly, fine to coarse SAND with silt (very dense, moist)
								-Grades to gray-white
								-Fractured rock in sampler
10	110	S-4	h2	95				-Grades to tan-gray
		S-5	b2	50/6"	W = 5 GS			-Grades to gravelly
								-Fractured rock in shoe
15	105	S-6	h2	80				-Grades to brown-gray, without gravel, dense, and moist to wet
		S-7	b2	52				-Grades to mottled and very dense
20	100	S-8	h2	75			ML	Gray, very sandy SILT with trace gravel (hard, moist)
								(RESTRICTIVE SILT LAYER)
		S-9	b2	28				-Grades to very stiff
25	95	S-10	h2	43				-Grades to with dropstones
							SP	Tan-gray, fine to coarse SAND (dense, moist)
								(ADVANCE GLACIAL OUTWASH)

Perched GW at 15 ft

Moisture Content (%) — Plastic Limit — Liquid Limit
20 40 60 80

▲ SPT N-Value ▲
△ Non-Standard N-Value △
20 40 60 80

× Fines Content (%) ×
20 40 60 80

50/6"

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\T\1260005.010.GPJ SOIL BORING LOG WITH GRAPH

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Regional Stormwater Facility
Port Townsend, Washington

Log of Boring B-1-19

Figure 6 (1 of 2)

B-1-19

LAI Project No: 1260005.010

SAMPLE DATA | **SOIL PROFILE** | **WELL DETAIL** (DOE#: BLI 753)

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 121.0
Drilled By: Holocene Drilling Inc.
Logged By: AMW Date: 02/20/19

Moisture Content (%) — Plastic Limit — Liquid Limit (20 40 60 80)
▲ SPT N-Value ▲ △ Non-Standard N-Value △ (20 40 60 80)
× Fines Content (%) × (20 40 60 80)

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	
		S-11	b2	44			SP	Tan-gray, fine to coarse SAND (dense, moist) **(ADVANCE GLACIAL OUTWASH)**
30	90	S-12	h2	75	W = 2 GS			
		S-13	b2	50/ 6"				-Grades to with gravel and very dense
35	85	S-14	h2	100				-Grades to without gravel
		S-15	b2	56				
40	80	S-16	h2	100				
		S-17	b2	51				
45	75	S-18	h2	97				
		S-19	b2	74				-Grades to with gravel
50	70	S-20	h2	100				

50/6" | 100 | 100 | 100

Boring Completed 02/20/19
Total Depth of Boring = 51.0 ft.

55

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\T\1260005.010.GPJ SOIL BORING LOG WITH GRAPH

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Regional Stormwater Facility
Port Townsend, Washington

Log of Boring B-1-19

Figure 6 (2 of 2)

B-2-19

LAI Project No: 1260005.010

SAMPLE DATA | **SOIL PROFILE** | **WELL DETAIL** (DOE#: BLI 754)

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 136.4
Drilled By: Holocene Drilling Inc.
Logged By: AMW Date: 02/20/19

Moisture Content (%) — Plastic Limit — Liquid Limit (20 40 60 80)
▲ SPT N-Value ▲ △ Non-Standard N-Value △ (20 40 60 80)
× Fines Content (%) × (20 40 60 80)

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Soil Description
0	135						SM	3 inches of forest duff over brown, silty, fine to coarse SAND with gravel and trace organics (loose, moist)
							SP	**(TOPSOIL)**
		S-1	b2	16				Brown, fine to coarse SAND with gravel and trace roots (medium dense, moist) **(ADVANCE GLACIAL OUTWASH)**
5	130	S-2	h2	35				-Grades to tan
		S-3	b2	34				-Grades to without roots and dense
10	125	S-4	h2	55				-Grades to gravelly -Fractured rock in sampler
		S-5	b2	36			ML	Brown-gray, very sandy SILT with gravel (hard, moist) **(RESTRICTIVE SILT LAYER)**
15	120	S-6A S-6B	h2	52				-Layer of sand with silt and gravel about 5 inches thick -Grades to very stiff
		S-7	b2	53			SP-SM	Tan, fine to coarse SAND with silt (very dense, moist) **(ADVANCE GLACIAL OUTWASH)**
20	115	S-8	h2	46	W = 5 GS			-Grades to fine to medium sand and medium dense
		S-9	b2	57				-Grades to with gravel and very dense -Fractured rock in sampler
25	110	S-10	h2	61	W = 2 GS		SP	Tan, fine to coarse SAND with gravel (dense, moist)
							SP-SM	Tan, fine to medium SAND with silt (dense, moist)

Groundwater Not Encountered

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\T\1260005.010.GPJ SOIL BORING LOG WITH GRAPH

LANDAU ASSOCIATES

City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Log of Boring B-2-19

Figure 7 (1 of 2)

B-2-19

LAI Project No: 1260005.010

SAMPLE DATA | **SOIL PROFILE** | **WELL DETAIL** (DOE#: BLI 754)

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 136.4
Drilled By: Holocene Drilling Inc.
Logged By: AMW Date: 02/20/19

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Soil Description
		S-11	b2	49			SP-SM	Tan, fine to medium SAND with silt (dense, moist) **(ADVANCE GLACIAL OUTWASH)**
30		S-12	h2	75	W = 4 GS			
	105							
		S-13	b2	48				
35		S-14	h2	68				
	100							
		S-15	b2	78				-Grades to very dense
40		S-16	h2	96				
	95							
		S-17	b2	50/ 6"				-Grades to with gravel
45		S-18	h2	96				-Grades to without gravel
	90							
		S-19	b2	73				
50		S-20	h2	81				-Grades to dense
	85							
55								

Groundwater Not Encountered

Moisture Content (%) — Plastic Limit — Liquid Limit
20 40 60 80

▲ SPT N-Value ▲
△ Non-Standard N-Value △
20 40 60 80

× Fines Content (%) ×
20 40 60 80

50/ 6"

Boring Completed 02/20/19
Total Depth of Boring = 51.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\T\1260005.010.GPJ SOIL BORING LOG WITH GRAPH

LANDAU ASSOCIATES

City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Log of Boring B-2-19

Figure 7 (2 of 2)

B-3-19

LAI Project No: 1260005.010

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 123.8
Drilled By: Holocene Drilling Inc.
Logged By: AMW Date: 02/21/19

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Soil Description	Well Detail
0							SM	Grass over brown, silty, fine to coarse SAND with gravel and trace organics (loose, moist)	
							SP	**(TOPSOIL)**	
								Brown, fine to coarse SAND with gravel (dense, moist)	
	120	S-1	b2	34	W = 4 GS			**(ADVANCE GLACIAL OUTWASH)**	
5		S-2	h2	52				-Grades to medium dense and moist to wet	Perched GW at 5 ft
							SP-SM	Gray, mottled, fine to medium SAND with silt (very dense, moist to wet)	
	115	S-3A S-3B	b2	52				-Grades to moist	
10		S-4	h2	128			ML	Gray, very sandy SILT with trace gravel (hard, moist)	
								(RESTRICTIVE SILT LAYER)	
		S-5	b2	53				-Minor sand seams	
	110								
15		S-6	h2	51				-Grades to mottled, very stiff, and with dropstones	
		S-7	b2	36			SM	Tan-white, silty, fine SAND (dense, moist)	
	105							**(ADVANCE GLACIAL OUTWASH)**	
20		S-8	h2	72	W = 4 GS				
		S-9	b2	41					
	100								
25		S-10	h2	37	W = 4 GS			-Grades to medium dense	
							SP	Gray, fine to coarse SAND (dense, moist)	

Moisture Content (%) — Plastic Limit — Liquid Limit
20 40 60 80

▲ SPT N-Value ▲
△ Non-Standard N-Value △
20 40 60 80

× Fines Content (%) ×
20 40 60 80

128

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\T\1260005.010.GPJ SOIL BORING LOG WITH GRAPH

LANDAU ASSOCIATES

City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Log of Boring B-3-19

Figure
8
(1 of 2)

B-3-19

LAI Project No: 1260005.010

SAMPLE DATA | **SOIL PROFILE** | **WELL DETAIL** (DOE#: BLI 755)

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 123.8
Drilled By: Holocene Drilling Inc.
Logged By: AMW Date: 02/21/19

Moisture Content (%) — Plastic Limit — Liquid Limit — 20 40 60 80
▲ SPT N-Value ▲ △ Non-Standard N-Value △ — 20 40 60 80
× Fines Content (%) × — 20 40 60 80

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Soil Description	Fines Content (%)	SPT N-Value
		S-11	b2	45			SP	Gray, fine to coarse SAND (dense, moist) **(ADVANCE GLACIAL OUTWASH)**		
30	95	S-12	h2	99	W = 2 GS			-Grades to very dense		
		S-13	b2	63				-Grades to with gravel		
35	90	S-14	h2	143				-Grades to gravelly		143
		S-15	b2	62				-Grades to with gravel		
40	85	S-16	h2	105				-Grades to without gravel		105
		S-17	b2	72						
45	80	S-18	h2	71				-Grades to dense		
		S-19	b2	62				-Grades to very dense		
50	75	S-20	h2	63				-Grades to dense		
55										

Boring Completed 02/21/19
Total Depth of Boring = 51.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\T\1260005.010.GPJ SOIL BORING LOG WITH GRAPH

LANDAU ASSOCIATES

City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Log of Boring B-3-19

Figure 8 (2 of 2)

B-1-16

LAI Project No: 1260005.010

SAMPLE DATA | **SOIL PROFILE**

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 140.8
Drilled By: Holocene Drilling Inc.
Logged By: AMW Date: 08/03/16

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Soil Description	Groundwater
0	140						SP-SM	6 inches of forest duff **(TOPSOIL)**	
								Light brown, fine to medium SAND with silt **(ADVANCE GLACIAL OUTWASH)**	
5	135	S-1	b2	50/6"				-Grades to light brownish-gray, fine to coarse sand, with gravel, and with organics (roots) -Grades to very dense -Fractured rock in sampler	
10	130	S-2	b2	44				-Grades to gray and dense	
		S-3	b2	55				-Grades to without gravel	
15	125	S-4	b2	76			SM	Gray, silty, fine to coarse SAND (very dense, moist)	Perched Groundwater at 15 ft 8/3/16
		S-5	b2	50	W = 21 GS			-Grades to very silty	
20	120	S-6	b2	28	W = 20 GS		ML	Gray, very sandy SILT (very stiff, moist) **(RESTRICTIVE LAYER)**	
25	115	S-7	b2	20	W = 19 GS				

Moisture Content (%) — Plastic Limit — Liquid Limit
20 40 60 80
▲ SPT N-Value ▲
△ Non-Standard N-Value △
20 40 60 80
× Fines Content (%) ×
20 40 60 80

50/6"

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\T\1260005.010.GPJ SOIL BORING LOG WITH GRAPH

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City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Log of Boring B-1-16

Figure 9 (1 of 2)

B-1-16

LAI Project No: 1260005.010

SAMPLE DATA | **SOIL PROFILE**

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 140.8
Drilled By: Holocene Drilling Inc.
Logged By: AMW Date: 08/03/16

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Groundwater
30	110	S-8	b2	25			ML	
35	105	S-9	b2	18				
40	100	S-10	b2	52			SP	
		S-11	b2	56				

Gray, very sandy SILT (very stiff, moist)
(RESTRICTIVE LAYER)

-Grades to sandy

-Grades to brownish-gray, moist to wet

Gray, fine to coarse SAND (very dense, moist)
(ADVANCE GLACIAL OUTWASH)

Boring Completed 08/03/16
Total Depth of Boring = 44.0 ft.

Moisture Content (%)
Plastic Limit — Liquid Limit
20 40 60 80

▲ SPT N-Value ▲
△ Non-Standard N-Value △
20 40 60 80

× Fines Content (%) ×
20 40 60 80

45
50
55

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\T\1260005.010.GPJ SOIL BORING LOG WITH GRAPH

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City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Log of Boring B-1-16

Figure 9 (2 of 2)

B-2-16

LAI Project No: 1260005.010

SAMPLE DATA | **SOIL PROFILE**

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 137.4
Drilled By: Holocene Drilling Inc.
Logged By: AMW Date: 08/03/16

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Soil Description	Groundwater
0								6 inches forest duff **(TOPSOIL)**	
	135						SP-SM	Light brown, fine to medium SAND with silt **(ADVANCE GLACIAL OUTWASH)**	
5		S-1	b2	32				-Grades to light brownish-gray, gravelly, and fine to coarse sand -Grades to dense, fractured rock in sampler	
	130								
10		S-2	b2	77				-Grades to very dense	
	125	S-3	b2	26			ML	Light brown, sandy SILT (very stiff, moist) **(RESTRICTIVE LAYER)**	
15		S-4	b2	25			SP-SM	Light brown, fine to coarse SAND with silt (medium dense, moist) **(ADVANCE GLACIAL OUTWASH)**	
	120	S-5	b2	43	W = 3 GS			-Grades to with gravel	
20		S-6	b2	45	W = 2 GS			-Grades to without gravel	
	115								
25		S-7	b2	50	W = 2 GS			-Grades to gravelly and very dense	
	110								

Groundwater Not Encountered

Moisture Content (%)
Plastic Limit — Liquid Limit
20 40 60 80

▲ SPT N-Value ▲
△ Non-Standard N-Value △
20 40 60 80

× Fines Content (%) ×
20 40 60 80

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\T\1260005.010.GPJ SOIL BORING LOG WITH GRAPH

LANDAU ASSOCIATES

City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Log of Boring B-2-16

Figure
10
(1 of 2)

B-2-16

LAI Project No: 1260005.010

SAMPLE DATA | **SOIL PROFILE**

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): 137.4
Drilled By: Holocene Drilling Inc.
Logged By: AMW Date: 08/03/16

Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Soil Description	Groundwater
							SP-SM	Light brown, gravelly, fine to coarse SAND with silt (very dense, moist)	Groundwater Not Encountered
30		S-8	b2	57				-Grades to without gravel	
	105								
35		S-9	b2	50/ 5"				-Grades to with gravel -Fractured rock in sampler	
	100								
40		S-10	b2	50/ 5"				-Pieces of weathered, iron-stained gravel in sampler	
45									
50									
55									

Moisture Content (%)
Plastic Limit — Liquid Limit
20 40 60 80

▲ SPT N-Value ▲
△ Non-Standard N-Value △
20 40 60 80

× Fines Content (%) ×
20 40 60 80

50/ 5"

50/ 5"

Boring Completed 08/03/16
Total Depth of Boring = 41.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\T\1260005.010.GPJ SOIL BORING LOG WITH GRAPH

LANDAU ASSOCIATES

City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Log of Boring B-2-16

Figure
10
(2 of 2)

TP-1-16

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol	Excavation Method: Tracked Excavator Ground Elevation (ft): 127.5 Excavated By: Howard's Constrcution and Excvtg. Logged By: AMW	
0	126					SP-SM	6 inches of sod and roots **(TOPSOIL)** Light brown, gravelly, fine to coarse SAND with silt (medium dense, moist) **(ADVANCE GLACIAL OUTWASH)** -grades to gray and with gravel	▽ Perched groundwater seepage encountered at 5.5 ft.
2	124							
4	122							
6	120						-grades to brownish-gray and dense	
8	118					SM	Gray, very silty, fine to medium SAND (very dense, moist) **(RESTRICTIVE SILT LAYER)**	
10	116							
12								
14								

Test Pit Completed 08/02/16
Total Depth of Test Pit = 12.0 ft.

TP-2-16

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol	Excavation Method: Tracked Excavator Ground Elevation (ft): 122.9 Excavated By: Howard's Constrcution and Excvtg. Logged By: AMW	
0	122					SP-SM	6 inches of sod and roots **(TOPSOIL)** Light brown, gravelly, fine to coarse SAND with silt (medium dense, moist) **(ADVANCE GLACIAL OUTWASH)**	Groundwater not encountered.
2	120							
4						SM	Gray, silty, fine to medium SAND (very dense, moist)	
6								
8								
10								
12								
14								

Test Pit Completed 08/03/16
Total Depth of Test Pit = 4.4 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1260005.01 7/17/19 Y:\1260\005\TY\1260005.010.GPJ TEST PIT LOG W/ ELEVATION

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City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Log of Test Pits

Figure
11

TP-3-16

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol		
0	122					AC	1 inch of asphalt **(ASPHALT)**	Groundwater not encountered.
2	120					SP-SM	Light brown, gravelly, fine to coarse SAND with silt (medium dense, moist) **(ADVANCE GLACIAL OUTWASH)**	
4	118							
6	116							
8						SM	Gray, silty, fine to medium SAND (very dense, moist)	
10								
12								
14								

Excavation Method: Tracked Excavator
Ground Elevation (ft): 122.5
Excavated By: Howard's Constrcution and Excvtg.
Logged By: AMW

Test Pit Completed 08/03/16
Total Depth of Test Pit = 7.5 ft.

TP-4-16

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol		
0	120					SP-SM	6 inches of sod and roots **(TOPSOIL)**	Groundwater not encountered.
2	118						Light brown, gravelly, fine to coarse SAND with silt (medium dense, moist) **(ADVANCE GLACIAL OUTWASH)**	
4	116							
6	114					SM	Gray, silty, fine to medium SAND (very dense, moist)	
8								
10								
12								
14								

Excavation Method: Tracked Excavator
Ground Elevation (ft): 121.9
Excavated By: Howard's Constrcution and Excvtg.
Logged By: AMW

Test Pit Completed 08/03/16
Total Depth of Test Pit = 8.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

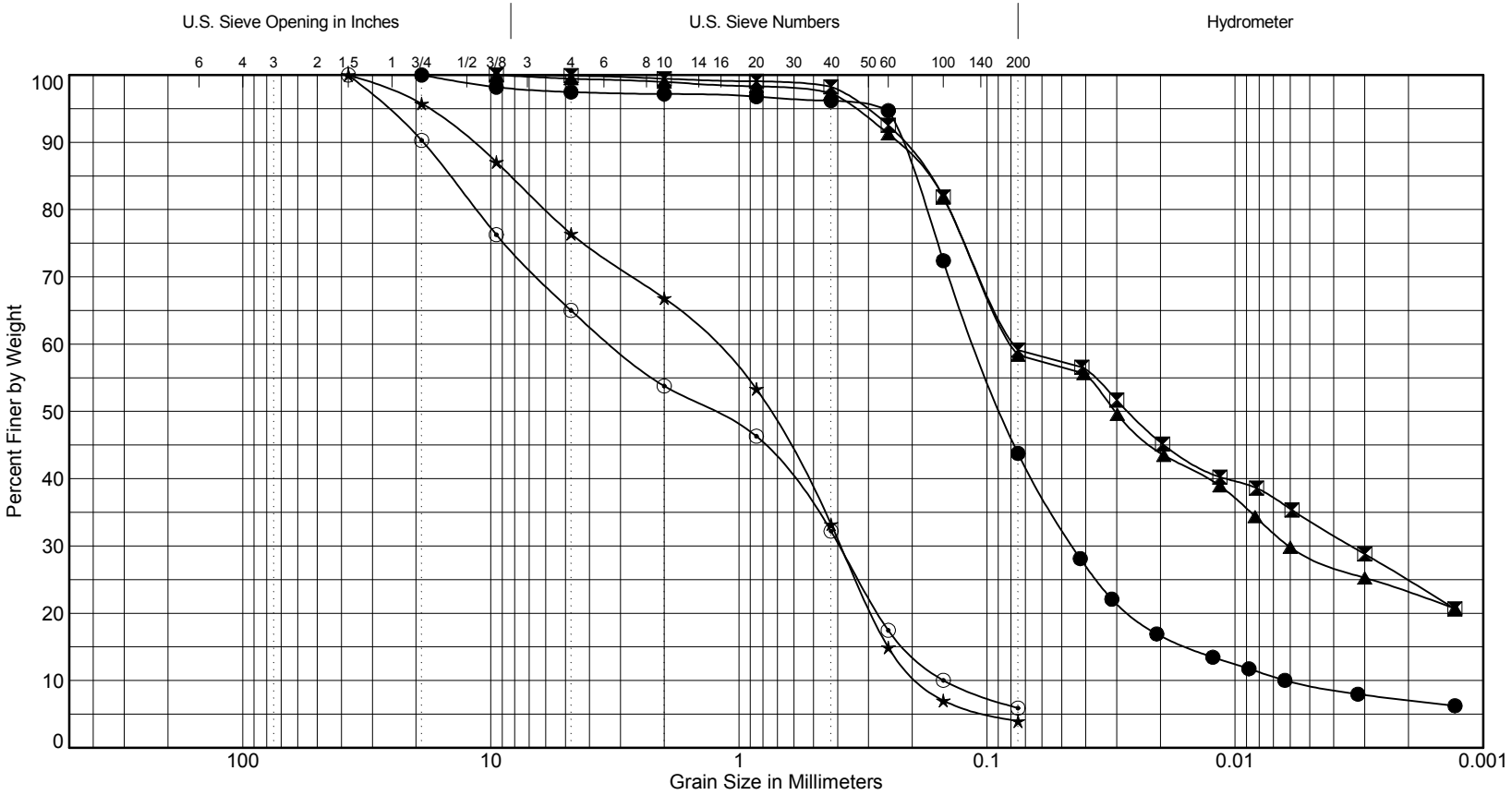
1260005.01 7/17/19 Y:\1260\005\TI\1260005.010.GPJ TEST PIT LOG W/ ELEVATION

LANDAU ASSOCIATES

City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Log of Test Pits

Figure
12



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

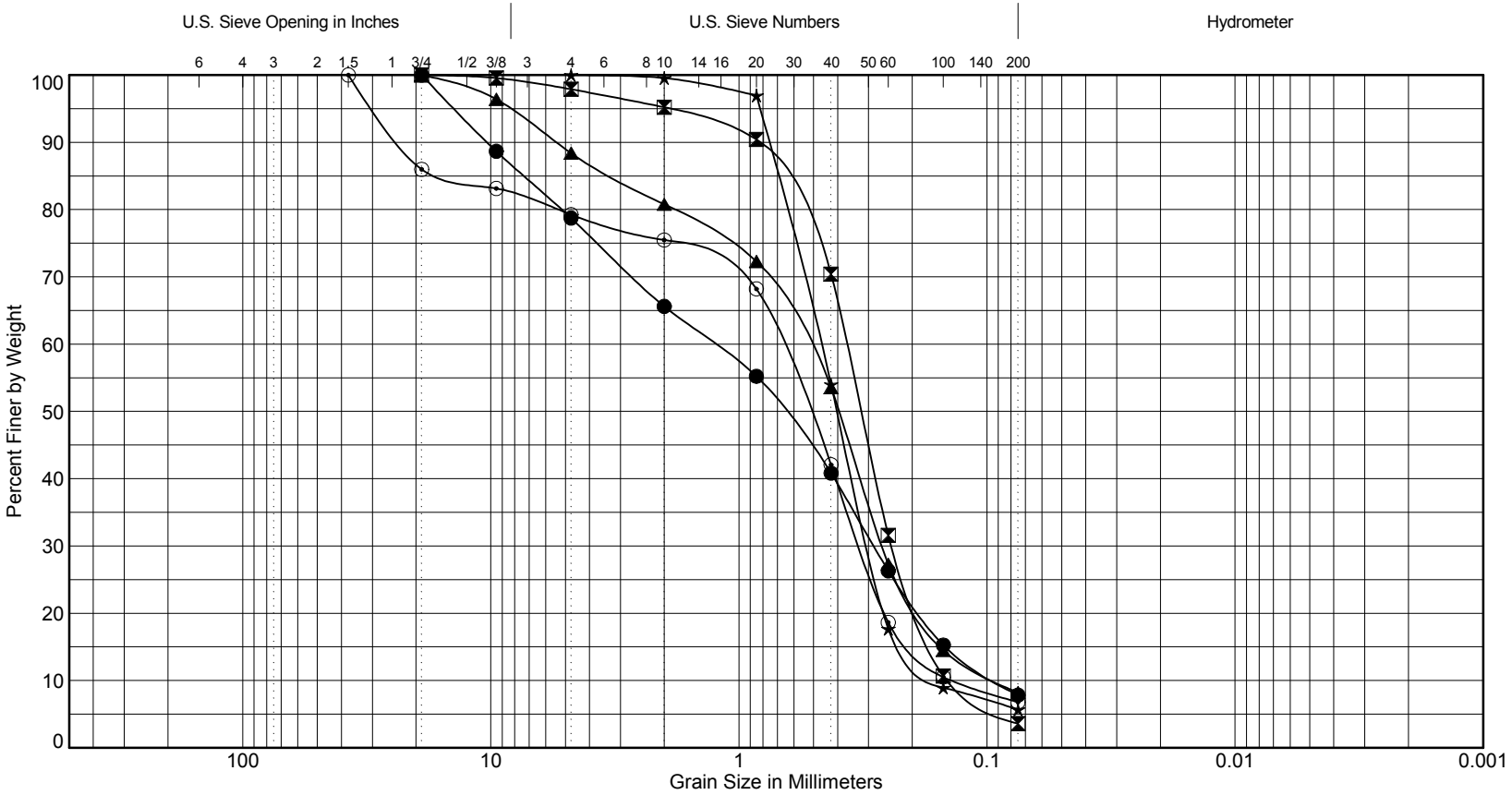
Symbol	Exploration Number	Sample Number	Depth (ft)	Natural Moisture (%)	Soil Description	Unified Soil Classification
●	B-1-16	S-5	17.5	21	Very silty, fine to coarse SAND	SM
⧓	B-1-16	S-6	20.0	20	Very sandy SILT	ML
▲	B-1-16	S-7	25.0	19	Very sandy SILT	ML
★	B-1-19	S-1	2.5	4	Gravelly, fine to coarse SAND	SP
⊙	B-1-19	S-3	7.5	3	Very gravelly, fine to coarse SAND with silt	SP-SM

LANDAU ASSOCIATES

City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Grain Size Distribution

Figure
13



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Exploration Number	Sample Number	Depth (ft)	Natural Moisture (%)	Soil Description	Unified Soil Classification
●	B-1-19	S-5	12.5	5	Gravelly, fine to coarse SAND with silt	SP-SM
⧓	B-1-19	S-12	30.0	2	Fine to coarse SAND	SP
▲	B-2-16	S-5	17.5	3	Fine to coarse SAND with silt and gravel	SP-SM
★	B-2-16	S-6	20.0	2	Fine to medium SAND with silt	SP-SM
⊙	B-2-16	S-7	25.0	2	Gravelly, fine to coarse SAND with silt	SP-SM

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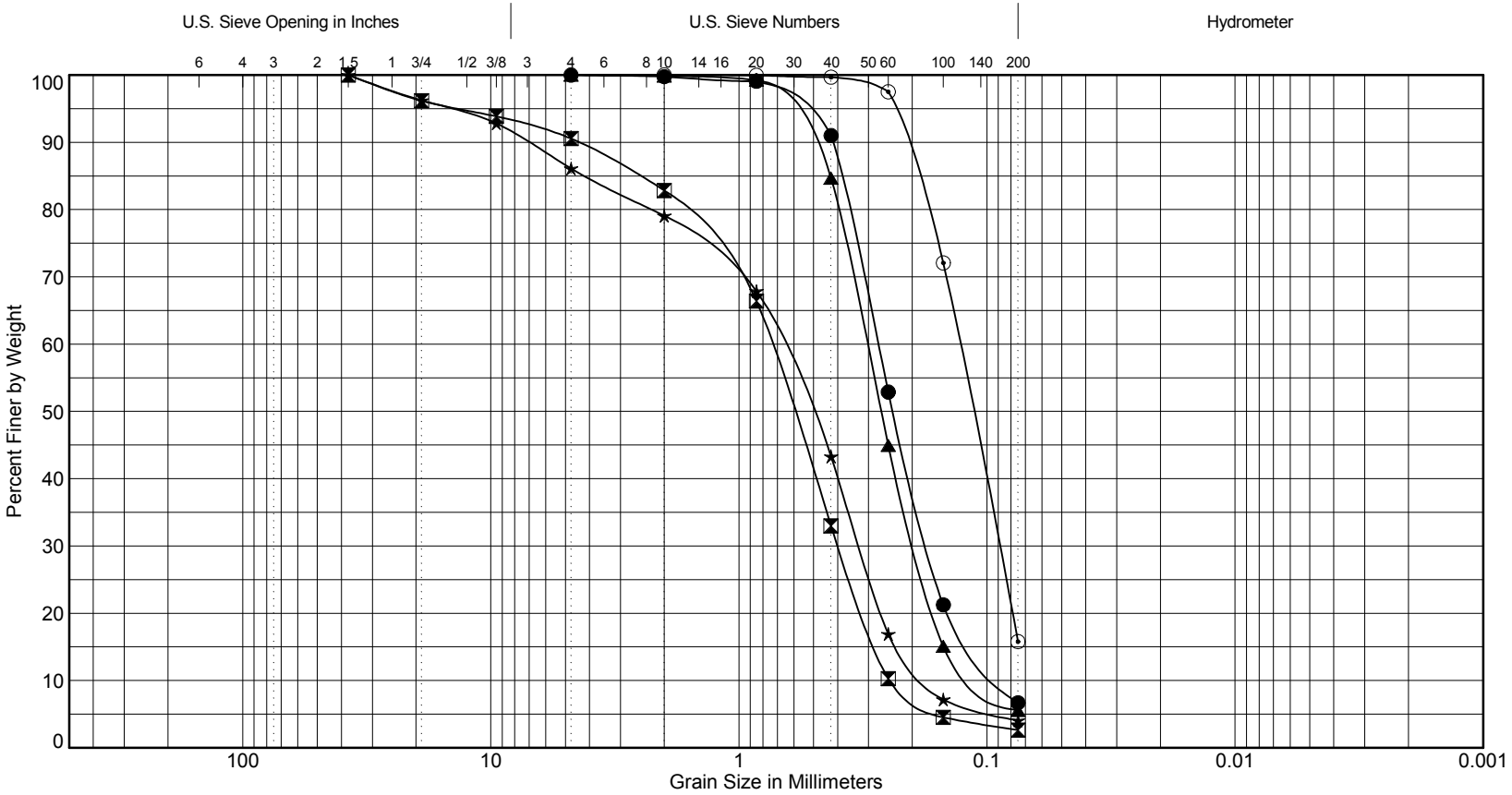
City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Grain Size Distribution

Figure
14



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Exploration Number	Sample Number	Depth (ft)	Natural Moisture (%)	Soil Description	Unified Soil Classification
●	B-2-19	S-8	20.0	5	Fine to medium SAND with silt	SP-SM
⧓	B-2-19	S-10	25.0	2	Fine to coarse SAND with gravel	SP
▲	B-2-19	S-12	30.0	4	Fine to medium SAND with silt	SP-SM
★	B-3-19	S-1	2.5	4	Fine to coarse SAND with gravel	SP
⊙	B-3-19	S-8	20.0	4	Silty, fine SAND	SM

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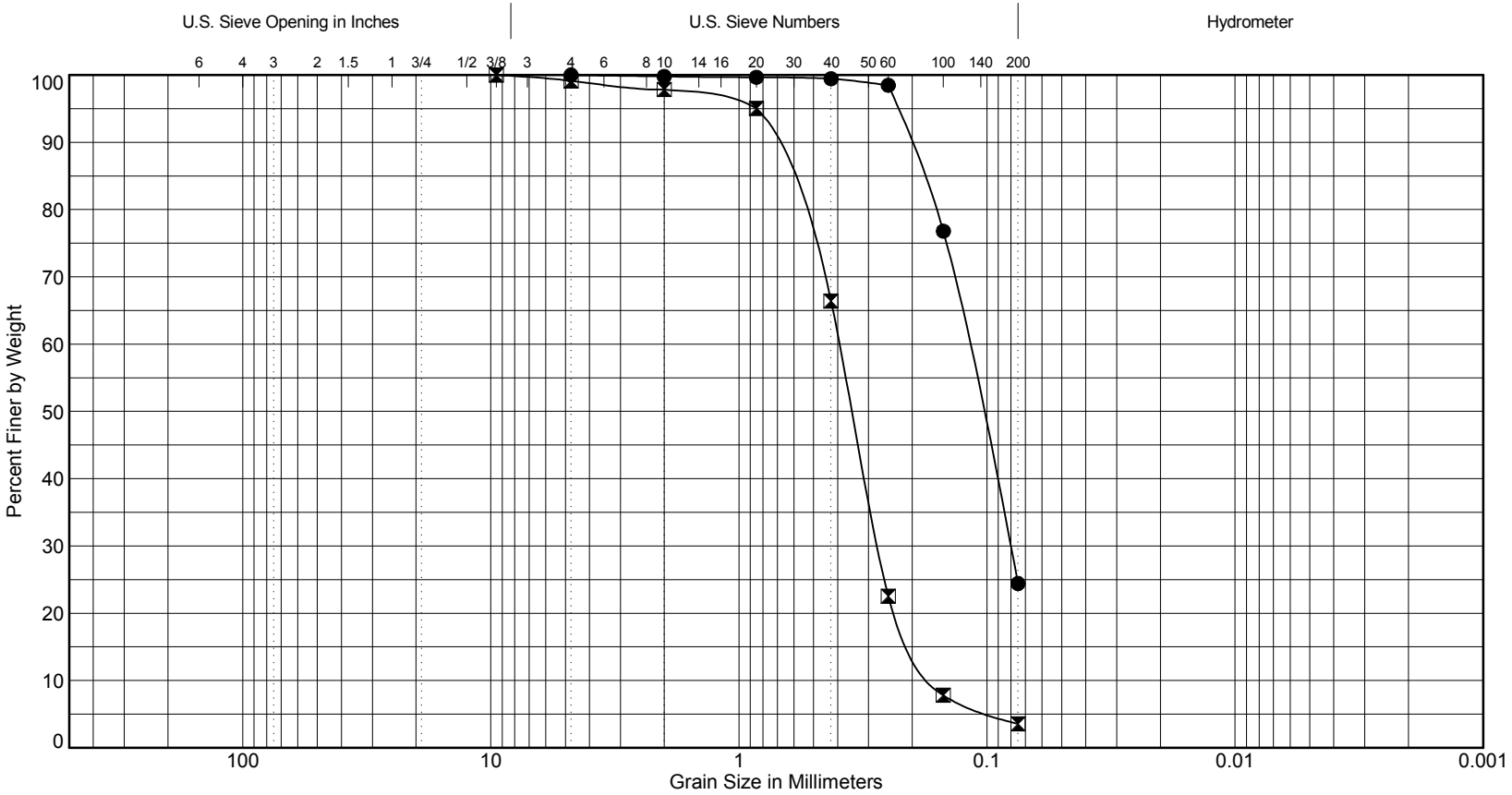
City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Grain Size Distribution

Figure
15



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

Symbol	Exploration Number	Sample Number	Depth (ft)	Natural Moisture (%)	Soil Description	Unified Soil Classification
●	B-3-19	S-10	25.0	4	Silty, fine SAND	SM
⧓	B-3-19	S-12	30.0	2	Fine to coarse SAND	SP

LANDAU ASSOCIATES

City of Port Townsend
Rainier Street
Regional Stormwater Facility
Port Townsend, Washington

Grain Size Distribution

Figure
16

ATTACHMENT 1

Mounding Analysis Technical Memorandum

Technical Memorandum

TO: Ms. Doreen Gavin, PE

FROM: Ben Lee, PE

DATE: July 2, 2019

RE: **Groundwater Mounding Analysis**
City of Port Townsend Rainier Street Regional Stormwater Pond
Port Townsend, Washington
Project No. 1260005.010.013

Introduction

This technical memorandum summarizes the results of a groundwater mounding analysis (mounding analysis) performed by Landau Associates, Inc. (LAI) in support of the City of Port Townsend's (City's) Rainier Street Regional Stormwater Pond project (project). As part of the project, the City proposes to construct a stormwater infiltration facility (facility) near Mill Road, on Jefferson County Parcel No. 001162017. The location of the facility is shown on Figure 1. The facility will be used to manage stormwater runoff generated by a proposed commercial development along the Rainier Street corridor. A stormwater conveyance pipe will be installed between an existing stormwater detention pond at the south end of Rainier Street and the facility. The contributing area for the detention facility is approximately 39.4 acres. A portion of the stormwater runoff flow from the contributing area will be routed directly to the facility or from the existing detention pond to the facility; the remainder will be discharged as surface flow from the detention pond to an existing outfall.

Background

The facility is being designed by AHBL, Inc. (AHBL) in accordance with the *2012 Stormwater Management Manual for Western Washington*, as amended in December 2014 (SWMMWW)(Ecology 2012). The SWMMWW requires at least 3 feet (ft) of vertical separation between the bottom of an infiltration facility and the seasonal high groundwater level, bedrock (or hardpan), or other low permeability layer. For facilities that receive runoff from a contributing area of greater than 1 acre and have less than 15 ft of vertical separation, a mounding analysis is required to assess the impact of the limited separation on groundwater mounding and the infiltration capacity of the facility.

Geotechnical explorations performed by LAI in support of facility design indicate that the subsurface soil conditions at the location of the facility are comprised of glacial advance outwash. Within the glacial advance outwash soil unit, a low permeability restrictive silt layer is present (LAI 2019), occurring at depths ranging from approximately 4.3 to 20 ft below ground surface (bgs). The facility will be constructed by excavating – and in some places over-excavating – soil beneath the existing ground surface to partially remove the restrictive silt layer from beneath the facility. The excavation of the facility will be separated into three areas:

- Area 1: the northern approximate one-third of the facility. Soil will be over-excavated in this area to remove the restrictive silt layer material and backfill with material suitable for infiltration.
- Area 2: the middle approximate one-third of the facility. Soil will be partially over-excavated in this area to remove the restrictive silt layer from evenly spaced trenches covering approximately one-third (or 33 percent) of the bottom surface in this area. Trenches will be backfilled with material suitable for infiltration.
- Area 3: the southern approximate one-third of the facility. Soil will be excavated down to the facility bottom but not over-excavated. The restrictive silt layer will remain beneath the facility in this area but will be separated from the bottom of the facility by native outwash sand of varying thickness.

The conceptual coverage of the three areas is shown relative to the facility dimensions on Figure 2. Conceptual geologic cross sections through the facility, including the vertical spatial relationship between the bottom of the facility and the restrictive silt layer, are shown on Figures 3 and 4.

Following facility construction, it is expected that the restrictive silt layer will be between approximately 4 and 20 ft below the bottom of the facility in Areas 2 and 3. Therefore, a mounding analysis is required to assess the effect of the limited vertical separation on groundwater mounding beneath the facility due to stormwater infiltration.

Hydrogeologic Conceptual Model

The following sections provide a basic summary of the hydrogeologic conditions at the project location. A more detailed description of hydrogeologic conditions is provided in the project Site Characterization Study (LAI 2019).

Surface and Subsurface Soil

The Geologic Map of the Port Townsend South, and Part of the Port Townsend North, 7.5-minute Quadrangles, Jefferson County, Washington (Schasse and Slaughter 2005) indicates that near-surface soil at the facility location consists of Vashon Stade glacial advance outwash (advance outwash or Qga). This unit typically consists of well-sorted pebble to cobble gravel with local silt and clay deposits. Near-surface soil encountered in geotechnical explorations at the facility generally confirm the presence of shallow advance outwash as shown on the surficial geology map.

Based on the findings of the geotechnical explorations near the facility, the subsurface soils were categorized into two general units: advance outwash sand and an interbedded restrictive silt layer. The advance outwash sand was observed in all explorations and was typically described as sand with varying silt, gravel, and organic content (but primarily fine and medium sand) in a medium dense to very dense, moist or moist to wet condition. The restrictive silt layer was encountered approximately

4 to 20 ft bgs and varied in thickness from approximately 2 to 22 ft. This unit was identified based on its relatively high fines content, consisting of silt with varying sand and gravel content or very silty sand. The restrictive silt layer was observed to be typically moist or moist to wet, and very dense or very stiff to hard, and was determined to be relatively impermeable. Below the restrictive silt layer, advance outwash sand material (fine to medium/coarse sand with varying gravel and silt content) continued to the full depth of the explorations (or to approximately 51 ft bgs). Other publically-available well logs within approximately ½ mile of the facility indicate that material similar to the advance outwash sand observed in the geotechnical explorations continues to depths slightly above sea level. Therefore, the advance outwash sand material is likely relatively thick beneath the facility, possibly extending to near sea level.

Groundwater Levels

Possible perched groundwater conditions above the restrictive silt layer were recorded in some of the geotechnical explorations, based on observations of moist to wet soil 4 or 5 ft above the top of the restrictive silt layer during drilling (LAI 2019). Perched groundwater on top of the restrictive silt layer is possible, although not likely to the extent recorded based on soil moisture observations. It is more likely that the mottled soil coloring observed approximately 1 to 2 ft above the restrictive silt layer in some of the geotechnical explorations (e.g., B-1-19 and B-3-19) indicate limited (i.e., laterally restricted) seasonally saturated conditions above the restrictive silt layer. These seasonally saturated conditions appear to be laterally discontinuous since mottled soil coloring (or even moist to wet soil) was not observed in all geotechnical explorations. Groundwater was not recorded in any of the subsequently installed monitoring wells near the facility. Therefore, shallow groundwater, including perched water above the restrictive silt layer, is expected to be present only to a limited extent.

Publically-available well logs from within approximately ½ mile of the facility indicate that saturated groundwater conditions occur approximately 10 to 30 ft above sea level, likely at the base of, or below, the advance outwash material.

Infiltration Testing and Hydraulic Conductivity

The hydraulic conductivity of soil beneath the facility was estimated based on a review of literature values for similar materials, the results of infiltration testing, and grain size analyses.

A review of literature values for hydraulic conductivity of soils similar to those observed in the geotechnical explorations indicates that the hydraulic conductivity for the advance outwash sand material may be within the range of approximately 2 to 60 ft per day and for the restrictive silt layer may be within the range of approximately 0.1 to 6 ft per day (Freeze and Cherry 1979, Fetter 2001, Schwartz and Zhang 2003).

Grain size distribution testing was performed on a number of soil samples collected from the advance outwash sand material above and below the restrictive silt layer. Application of the Hazen (1911) and Shepherd (1989) equations, as described by Fetter (2001), indicates that the hydraulic conductivity of the advance outwash sand material above the restrictive silt layer may be within approximately 66 to 94 ft per day and that the hydraulic conductivity of the outwash sand material below the restrictive silt layer may be within the range of approximately 14 to 74 ft per day.

Infiltration testing was performed near the facility by a combination of large-scale pilot infiltration tests (PIT) and borehole infiltration tests (BITs), as described separately (LAI 2019). The results of the infiltration testing indicate that measured infiltration rates for the advance outwash sand material above the restrictive silt layer (TP-4-16 PIT and B-1-19 BIT) are 4.0 to 4.7 inches per hour (or 8 to 9.4 ft per day) and for advance outwash sand material below the restrictive silt layer (B-2-19 and B-3-19 BITs) are 2.6 to 15.0 inches per hour (or 5.2 to 30 ft per day).

For the purposes of this mounding analysis and for establishing a conservative estimate, hydraulic conductivity of the advance outwash sand material was assumed to be represented by the results of the in-situ infiltration testing. The hydraulic conductivity of the restrictive silt layer was taken conservatively to be on the low end of the range based on the literature review of similar material. Accordingly, conservative estimates of the hydraulic conductivity of the soils beneath the infiltration facility are summarized below:

- Advance outwash sand material above the restrictive silt layer: 9 ft per day
- Restrictive silt layer: 0.2 ft per day
- Advance outwash sand material below the restrictive silt layer: 18 ft per day.

The effective hydraulic conductivity of the soils beneath the facility within Area 2 (backfilled trenches through the restrictive silt layer in one-third of the area) was estimated by calculating a weighted average of the hydraulic conductivity of the backfilled trenches (approximately 33% by area) and the remaining restrictive silt layer material (approximately 67% by area). Assuming conservatively a hydraulic conductivity of 18 ft per day for the backfilled trenches (equivalent to the value for the advance outwash sand material below the restrictive silt layer), the effective hydraulic conductivity of the Area 2 soils beneath the facility amended by trenching is estimated to be approximately 6 ft per day.

Infiltration Facility Design

The proposed layout of the facility is shown on Figure 2. The elevation of the bottom of the facility will be at 121 ft and the bottom area of the facility is to be approximately 22,283 square ft.[1] As described by AHBL staff, the facility will collect a portion of the runoff from the Rainier Street corridor. The runoff routed to the facility will be infiltrated to ground. The facility design was developed by AHBL with the use of the Western Washington Hydrology Model (WWHM) in accordance with the SWMMWW.

As described above, the facility will be constructed with 3 areas of varying excavation through the restrictive silt layer. Area 1 will have the restrictive silt layer removed during over-excavation; Area 2 will have the restrictive silt layer between approximately 4 and 10 ft below the bottom of the facility but will be partially trenched to facilitate drainage; Area 3 will have the restrictive silt layer between approximately 10 and 20 ft below the bottom of the facility.

Mounding Analysis

Because the top of the restrictive silt layer is expected to be less than 15 ft below the bottom of a portion of the facility, a mounding analysis is required to assess the degree of groundwater mounding due to increased stormwater infiltration beneath the facility and the effect of that mounding on infiltration rates of subsurface soils beneath the facility. The mounding analysis was completed using the HYDRUS 2D/3D (Simunek et al 2011) modeling platform developed for simulating the flow of groundwater through unsaturated (or variably saturated) vadose zone soil conditions.[2] HYDRUS 2D/3D is a finite element model that solves the Richards equation for groundwater flow through variably saturated material, including the vadose zone. Consequently, this model is well-suited to represent the largely unsaturated soils beneath the facility, as well as the restrictive silt layer and any perched groundwater mounding that may develop on top of the restrictive silt layer due to stormwater infiltration.

Numerical Model Construction

The model was constructed to represent a 2-dimensional cross section in the vertical plane oriented approximately north-south through the long axis of the facility (i.e., a similar orientation of cross section A-A' shown on Figure 3). Because the model was constructed to represent 2-dimensional flow only, it can be considered to provide a conservative estimate of groundwater mounding due to

[1] These design parameters are based on information provided by AHBL on June 12, 2019 and were used for calculation of model input values and interpretation of results of the mounding analysis. Changes to the final design made recently include raising the bottom of the facility to 122 ft elevation, which would increase the bottom area of the facility to 24,381 square ft. The effect of these changes relative to interpretation of mounding analysis results is discussed below.

[2] An alternative modeling platform, MODFLOW, was also considered. MODFLOW is often used to simulate groundwater mounding due to stormwater infiltration. However, because MODFLOW simulates saturated flow conditions only, it would be difficult to simulate the complex hydrogeologic conditions beneath the facility.

stormwater infiltration (i.e., it does not include flow in the third dimension, which conceptually would reduce the magnitude of groundwater mounding).

Model Domain and Mesh Design

The 2-dimensional model was constructed within the vertical plane. The domain extends approximately 400 ft laterally and approximately 150 ft vertically.[3] The top surface of the model was constructed to approximately replicate the finished grade of the facility following construction, including the existing grade toward the edges of the model domain and the facility bottom within the center of the model domain. The various subsurface soil materials beneath the facility, including the advance outwash sand material above and below the restrictive silt layer, the restrictive silt layer itself, and the modified soil within Area 2 of the facility (including partial trenching) are represented explicitly in the model domain by zones of differing hydraulic conductivity. The model domain, including the representation of subsurface materials, is shown on Figure 5.

The finite element mesh was generated within the model domain such that the default mesh node spacing of approximately 10 ft was employed throughout the majority of the domain but was refined to approximately 0.8 ft near the facility bottom (where the concentrated stormwater infiltration rates would be applied) and along the top of the restrictive silt layer (where steep hydraulic gradients are generated). The model finite element mesh is shown on Figure 6.

Hydraulic Parameters

The hydraulic parameters for all subsurface materials represented in the model were initialized based on the loam soil profile included in the van Genuchten – Mualem soil hydraulic model within HYDRUS 2D/3D but modified so that the hydraulic conductivity of each material was in accordance with the hydrogeologic conceptual model of subsurface conditions beneath the facility. The hydraulic conductivity of each material, as represented in the model, and assumed to be isotropic, is summarized below:

- Advance outwash sand material above the restrictive silt layer: 9 ft per day
- Restrictive silt layer: 0.2 ft per day
- Advance outwash sand material below the restrictive silt layer: 18 ft per day
- Area 2 partially trenched material: effective value of 6 ft per day.

Time Discretization

The model was set up to run on monthly time steps between October 1948 and September 2009 (61 years), or the duration of the WWHM modeling runs performed by AHBL for facility design purposes.

[3] The HYDRUS 2D/3D model domain and other input parameters are described in metric units (i.e., meters). Those units have been converted to ft for the purposes of this technical memorandum and are therefore reported as approximate.

Time-varying recharge rates representing infiltration through the bottom of the facility were applied to the model on the same monthly time scale. For ease of data input, all months were assumed to consist of a uniform 30 day length. The scale of the timesteps utilized in the calculations of the simulation are adjusted automatically by HYDRUS 2D/3D during the model run and are based on internal model convergence criteria. The model output was generated on a sub-monthly basis throughout the entire 61 year simulation period.

Boundary Conditions and Recharge

The top surface of the model was assigned as two different time-varying flux boundary conditions. The portion of the model boundary representing the bottom of the facility was assigned infiltration rates based on WWHM modeling outputs of calculated groundwater recharge through the bottom of the facility[4]; the rest of the top surface of the model (i.e., the portion outside of the facility bottom) was assigned infiltration rates based on WWHM modeling outputs of calculated recharge for 1 acre of forested conditions (i.e., assumed background recharge for the facility's surroundings). Monthly volumetric recharge (in units of acre-ft per month) was converted to monthly average recharge rate (in units of ft per day) by dividing by the area to which they would be applied: the bottom area of the facility, assuming uniform distribution of recharge across the entire facility bottom, or the arbitrary 1-acre of forest conditions for background recharge.[5]

Monthly average recharge rates applied to the top surface of the model, including a summary of the conversion from recharge volumes to recharge rates, are included in Attachment 1. Monthly precipitation data exported from the WWHM model for the project location is also included in Attachment 1 for reference.

The bottom and some sides of the model domain were assigned a free drainage boundary condition. This boundary condition allows groundwater to flow through it based on the hydraulic conditions (i.e., head) in the model nodes adjacent to the boundary.

[4] Simulated groundwater recharge is tabulated by WWHM when the 'compute recharge' option is selected. One complication with WWHM is that, when a basin is connected to an infiltration facility and the 'compute recharge' option is selected, the recharge output includes calculated groundwater recharge from both the infiltration facility and the contributing area basin. To isolate the recharge from the infiltration facility only, a second WWHM run is completed with infiltration in the facility disabled (i.e., the only recharge tabulated is from the contributing area basin); the difference in tabulated recharge between the two model runs can be taken to represent the groundwater recharge from the infiltration facility.

[5] The bottom area of the facility used for recharge rate calculations, or 22,283 square ft, was based on preliminary design parameters provided by AHBL with the bottom elevation of the facility at 121 ft. The final design includes a facility bottom elevation of 122 ft, resulting in a larger facility bottom area of 24,381 square ft. Therefore, the recharge rates calculated for the mounding analysis represent conservatively high values relative to the final design parameters (i.e., a larger facility bottom area under the final design would result in lower infiltration rates, given the same monthly recharge volumes).

Model Execution

The model was executed with default iteration criteria of 0.001 as the water content tolerance and approximately 0.03 ft as the pressure head tolerance. An observation point (i.e., to simulate a monitoring well) was added at the top surface of the restrictive silt layer directly beneath Area 3 of the facility to record simulated mounding conditions above the restrictive silt layer over time. The location of the observation point is shown relative to the subsurface soil material zones on Figure 5 and relative to the model mesh on Figure 6.

Mounding Analysis Results

The model run time was approximately 1.7 hours. The mass balance error (comparison of simulated flow into and flow out of the model) for each time step was generally approximately 0.12%, indicating proper model convergence.

Mounding was not simulated to occur beneath Areas 1 or 2; rather, infiltrating water flowed vertically beneath those areas down through the bottom of the model (i.e., toward the deep water table). However, seasonally saturated conditions were simulated on top of the restrictive silt layer, ranging from negligible head (i.e., less than 0.1 ft) to approximately 5.8 ft. A time series of simulated pressure head over time at the observation point is shown on Figure 7. In variably saturated groundwater conditions, a negative pressure head corresponds to unsaturated soil (with the magnitude of the negative pressure relating to the degree of unsaturation), zero pressure head corresponds to the saturation point of the soil, and a positive pressure head corresponds to fully saturated conditions (with the magnitude of the positive pressure relating to the total hydraulic pressure at the given location). On Figure 7, only non-negative pressures are shown for relevance to saturated mounding conditions. Positive mounding conditions are simulated to occur seasonally and are roughly correlated with monthly precipitation (Attachment 1).

The maximum simulated groundwater mounding conditions, as recorded at the observation point, of 5.8 ft above the top of the restrictive silt layer occurs in December of 1979. The simulated pressure head in the model from that period is shown in cross-section view on Figure 8.

Recommendations

Based on the results of the mounding analysis described above, it is expected that the maximum seasonal groundwater mounding beneath the facility due to infiltration of concentrated stormwater runoff may be on the order of approximately 6 ft beneath Area 3 of the facility only. With a vertical separation of between 10 and 20 ft between the bottom of the facility and the top of the restrictive silt layer in Area 3, the maximum mounding conditions would reduce the vertical separation between

the bottom of the facility and saturated soil conditions to a minimum of 4 ft.[6] It is not anticipated that the reduced vertical separation caused by groundwater mounding will significantly impair the infiltration capacity of the soil beneath the facility.

Because conservative values were used to establish hydraulic conductivity of the subsurface soil materials and groundwater recharge rates, the results of these simulations are expected to represent conservative, maximum potential groundwater mounding conditions, based on historical precipitation records. However, because the mounding analysis model represents a simplified representation of the complex hydrogeologic conditions beneath the facility, it is possible that actual groundwater mounding beneath the facility would be different than that estimated under the historical conditions used for the simulations.

Limitations

The groundwater modeling described above is highly simplified relative to in-situ conditions and is not meant to represent actual groundwater conditions at the project site. Actual conditions not fully represented by the model include non-uniform hydraulic conductivity fields and complex groundwater recharge mechanisms. There are likely to be discrepancies between simulated groundwater mounding and actual groundwater mounding observed at the project site.

This Technical Memorandum has been prepared for the exclusive use of AHBL and the City of Port Townsend for specific application to the Port Townsend Rainier Street Regional Stormwater Pond project. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of LAI. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by LAI, shall be at the user's sole risk. LAI warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

[6] These estimated mounding and vertical separation values are based on the preliminary facility design parameters, including a facility bottom elevation of 121 ft and bottom area of 22,283 square ft. The final design parameters, including a facility bottom elevation of 122 ft and bottom area of 24, 381 square ft, would result in lower estimated mounding (i.e., a larger surface area with the same monthly recharge volumes would lead to lower infiltration rates and therefore less mounding) and also greater vertical separation between the facility bottom and estimated mounding conditions (i.e., due to a combination of the facility bottom being elevated another foot above the restrictive silt layer and the estimated magnitude of mounding likely to be lower).

This document has been prepared under the supervision and direction of the following key staff.

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Ben Lee, PE
Senior Engineer

BDL/BJF/EFW/kjg
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Attachments: Figure 1. Vicinity Map
Figure 2. Infiltration Facility Layout
Figure 3. Geologic Cross Section A-A' and B-B'
Figure 4. Geologic Cross Section C-C'
Figure 5. Model Subsurface Soil Material
Figure 6. Model Finite Element Mesh
Figure 7. Simulated Groundwater Mounding Timeseries
Figure 8. Maximum Simulated Mounding
Attachment 1. WWHM Output Mass Balance and Calculated Facility Recharge Rates

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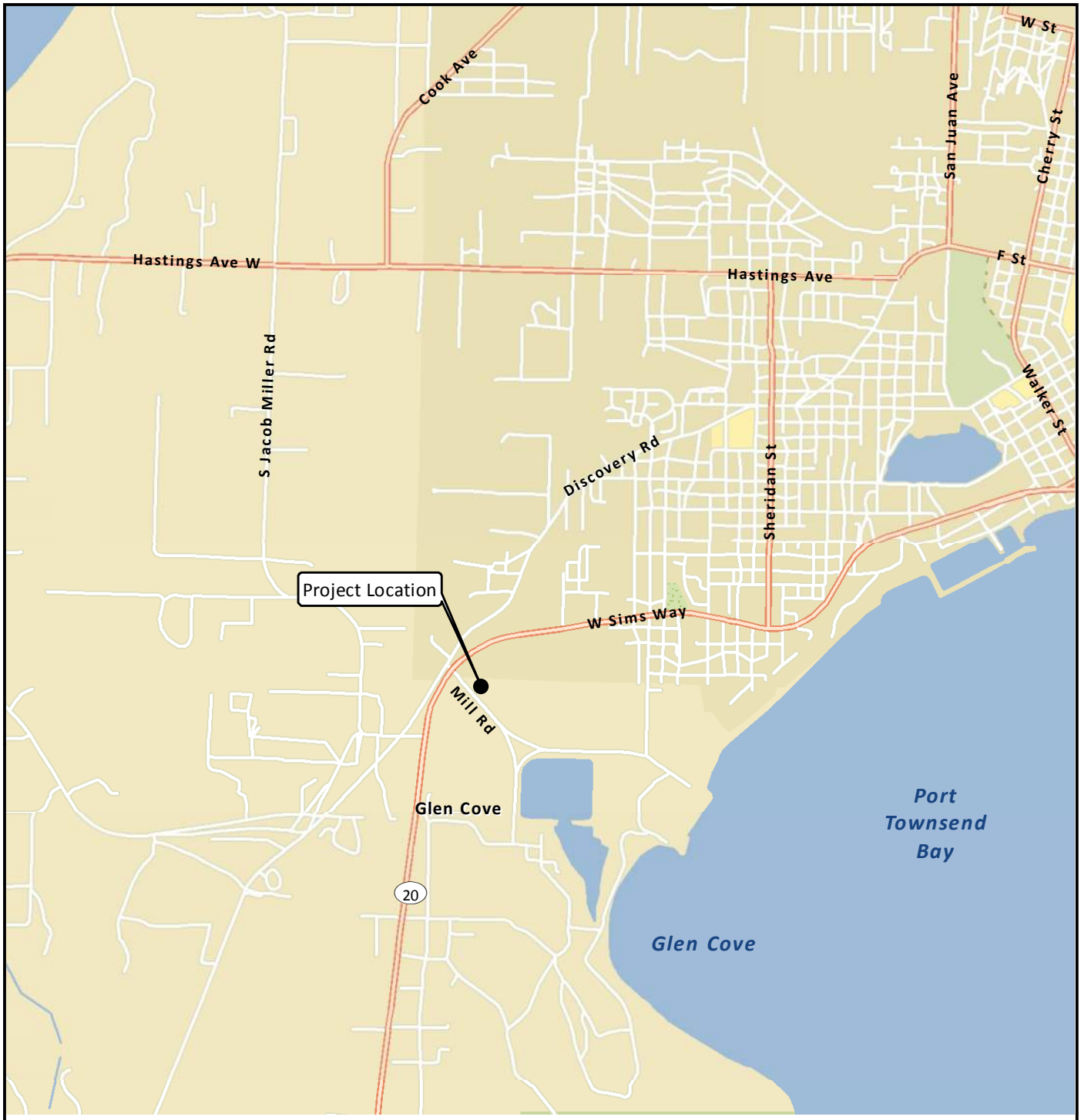

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Data Source: Esri 2012

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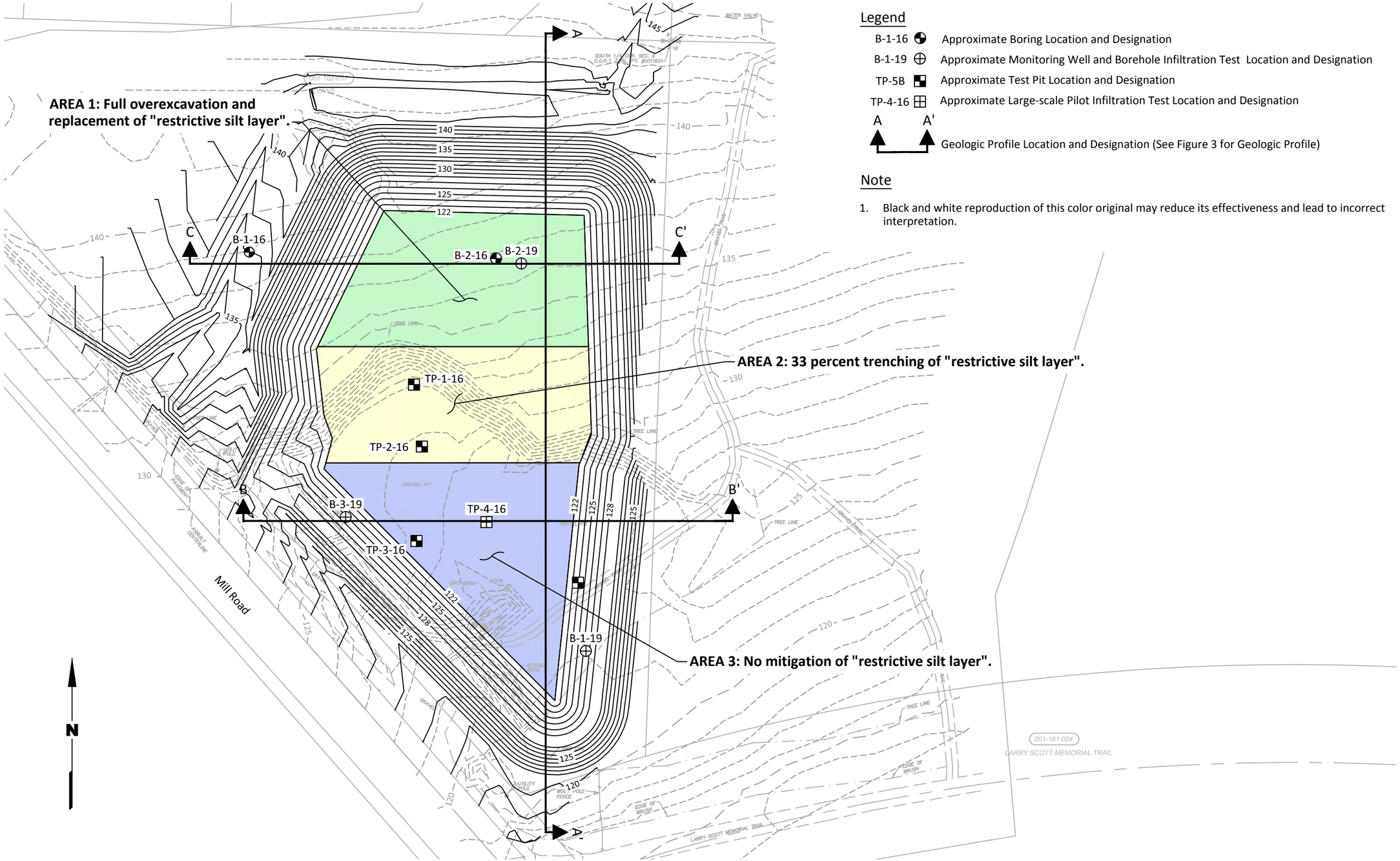
Groundwater Mounding Analysis Rainier Street Regional Stormwater Pond Port Townsend, Washington	**Vicinity Map**	Figure 1



Legend

B-1-16	Approximate Boring Location and Designation
B-1-19	Approximate Monitoring Well and Borehole Infiltration Test Location and Designation
TP-5B	Approximate Test Pit Location and Designation
TP-4-16	Approximate Large-scale Pilot Infiltration Test Location and Designation
A A'	Geologic Profile Location and Designation (See Figure 3 for Geologic Profile)

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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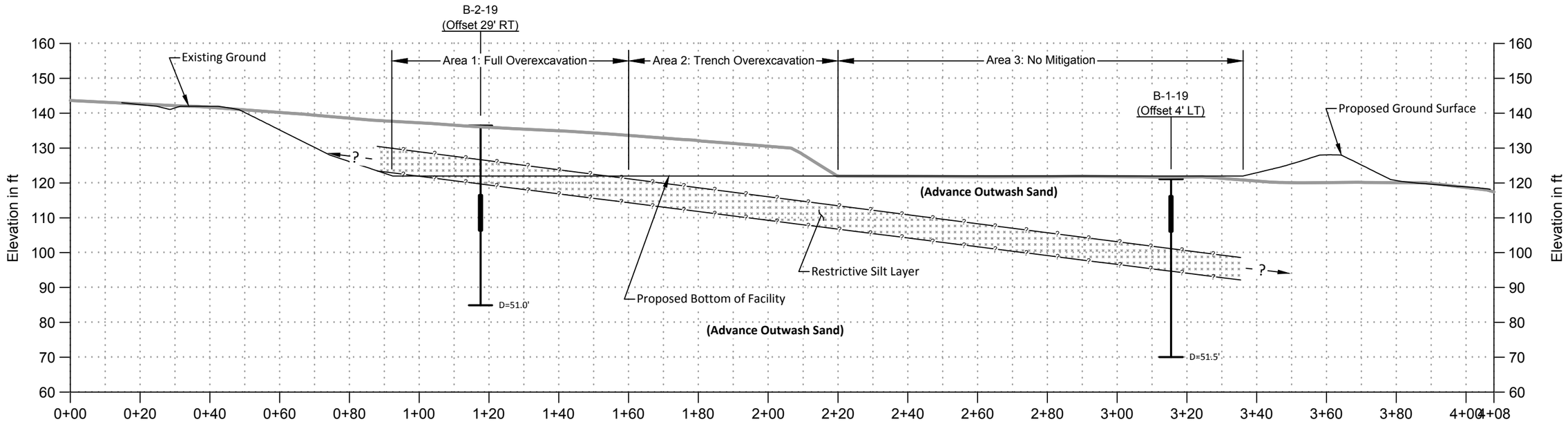
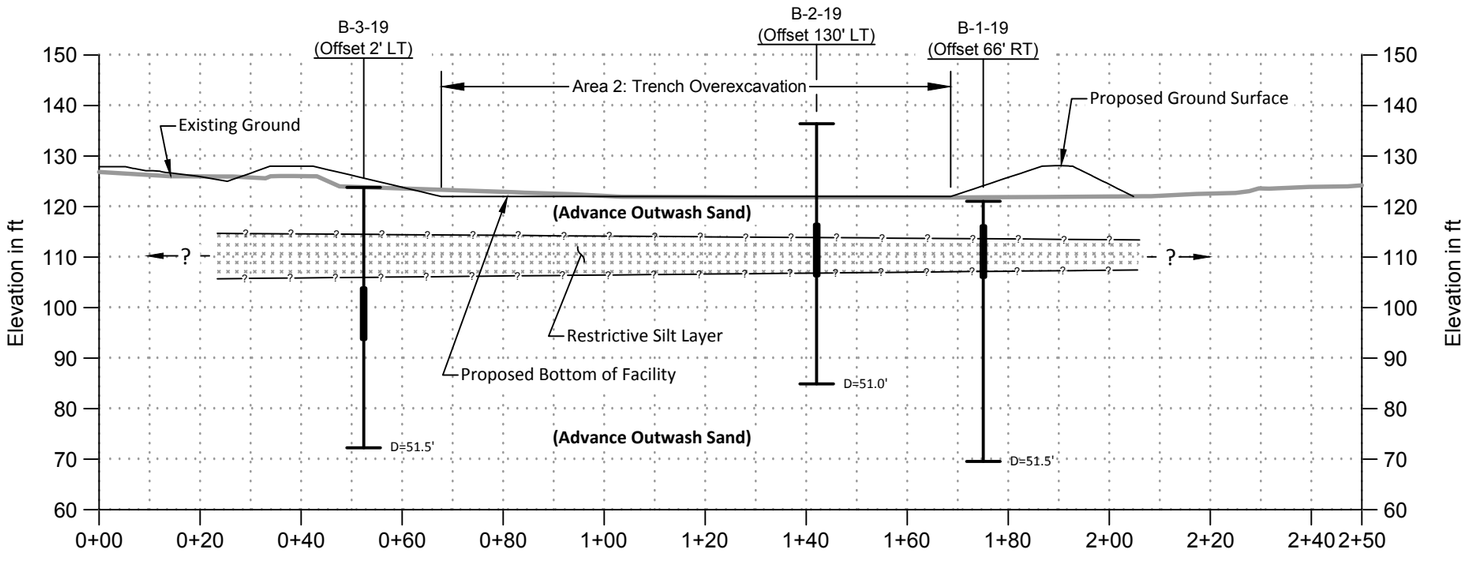
Groundwater Mounding Analysis Rainier Street Regional Stormwater Pond Port Townsend, Washington	**Infiltration Facility Layout**	Figure 2



A-A' PROFILE



B-B' PROFILE

Legend

B-1-19 — Project Exploration Designation
(Offset 33' LT) — Offset Distance in Feet and Direction
Top of Exploration
Monitoring Well Screen Interval and Borehole Infiltration Test Location
Bottom of Exploration
D = 51.0' — Depth of Exploration

0 30 60
Scale in Feet

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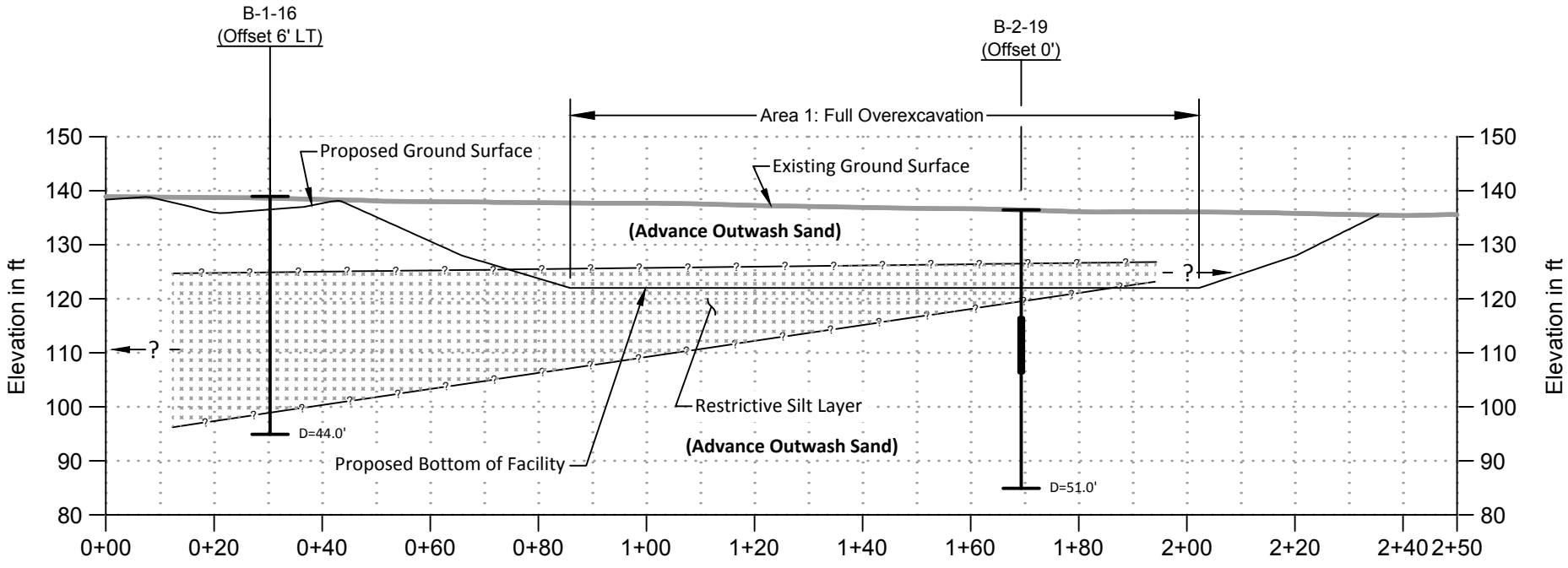
Groundwater Mounding Analysis Rainier Street Regional Stormwater Pond Port Townsend, Washington	**Geologic Cross Sections A-A' and B-B'**	Figure 3



C-C' PROFILE

Legend

B-1-19 — Project Exploration Designation

(Offset 33' LT) — Offset Distance in Feet and Direction

Top of Exploration

Monitoring Well Screen Interval and Borehole Infiltration Test Location

Bottom of Exploration

D = 51.0' — Depth of Exploration

0 30 60

Scale in Feet

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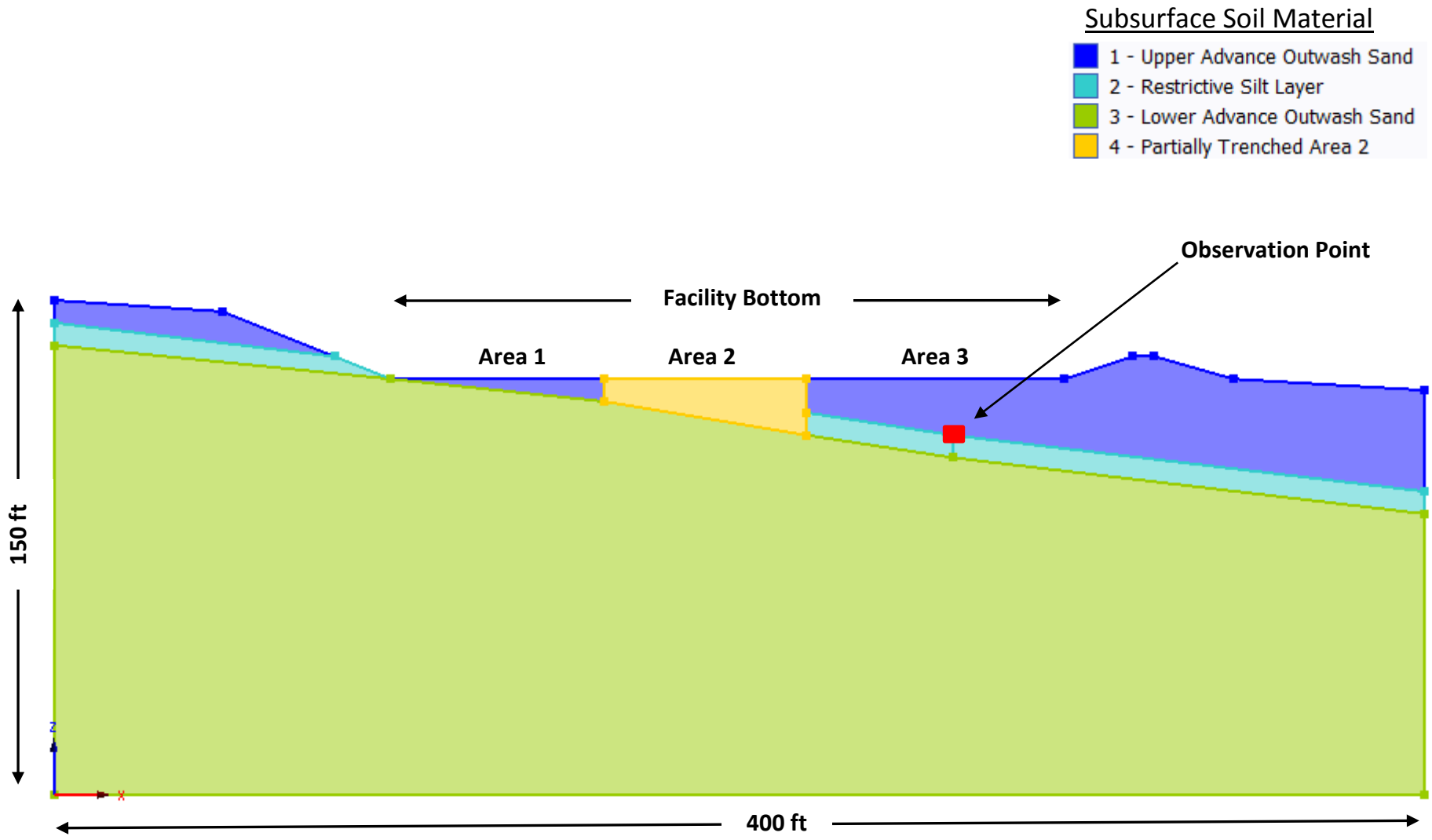
Groundwater Mounding Analysis Rainier Street Regional Stormwater Pond Port Townsend, Washington	**Geologic Cross Section C-C'**	Figure 4



Note

1) The model domain/profile was chosen to be in a north (left) to south (right) orientation similar to cross-section A-A' of Figure 3.
2) The top of the model domain is set to a time-variable flux boundary condition (different monthly rates for the facility and outside the facility); the bottom and sides of the model domain is set to free drainage boundary condition.

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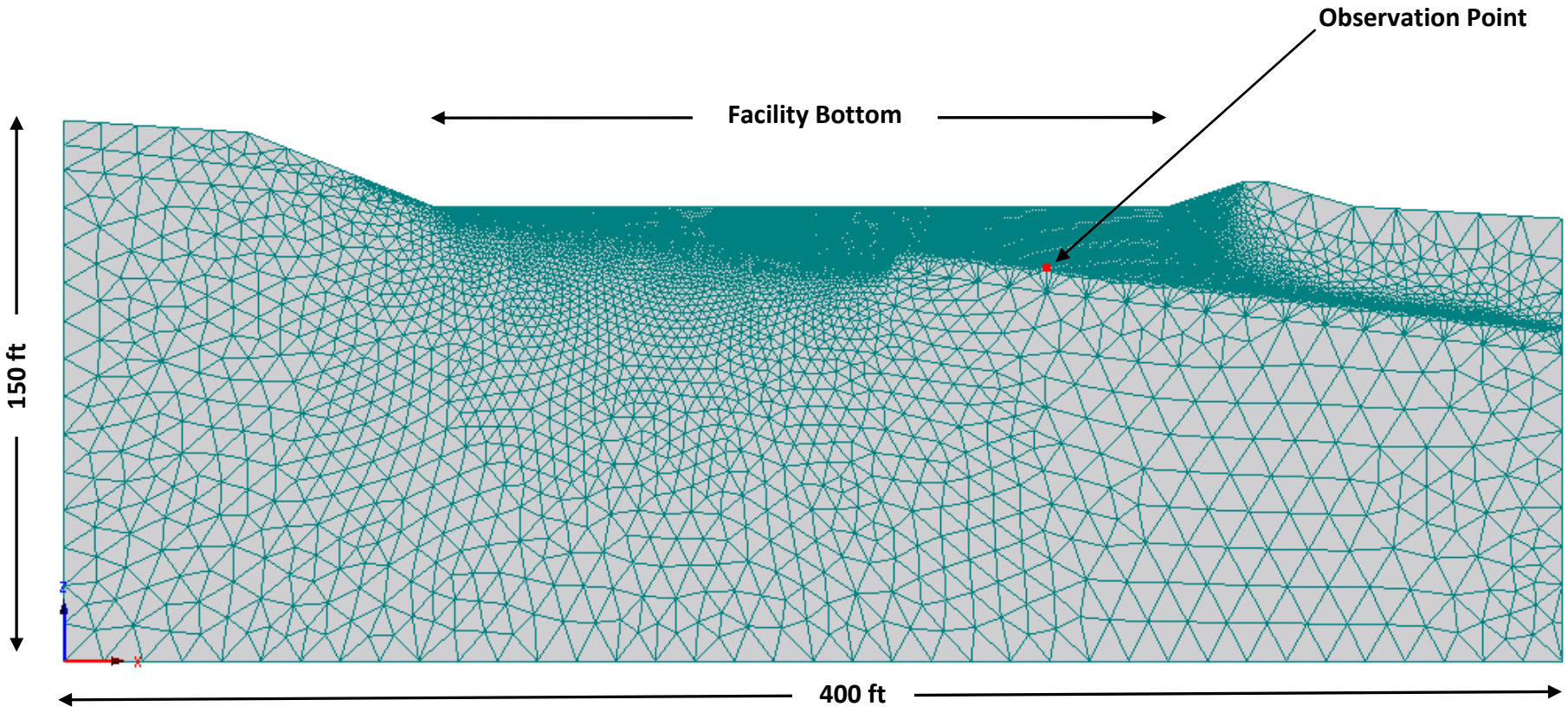
Groundwater Mounding Analysis Rainier Street Regional Stormwater Pond Port Townsend, Washington	**Model Subsurface Soil Material**	Figure 5



Note
Default mesh node spacing is approximately 10 ft; refined mesh node spacing at the facility bottom surface and near top of restrictive silt layer is approximately 0.8 ft.

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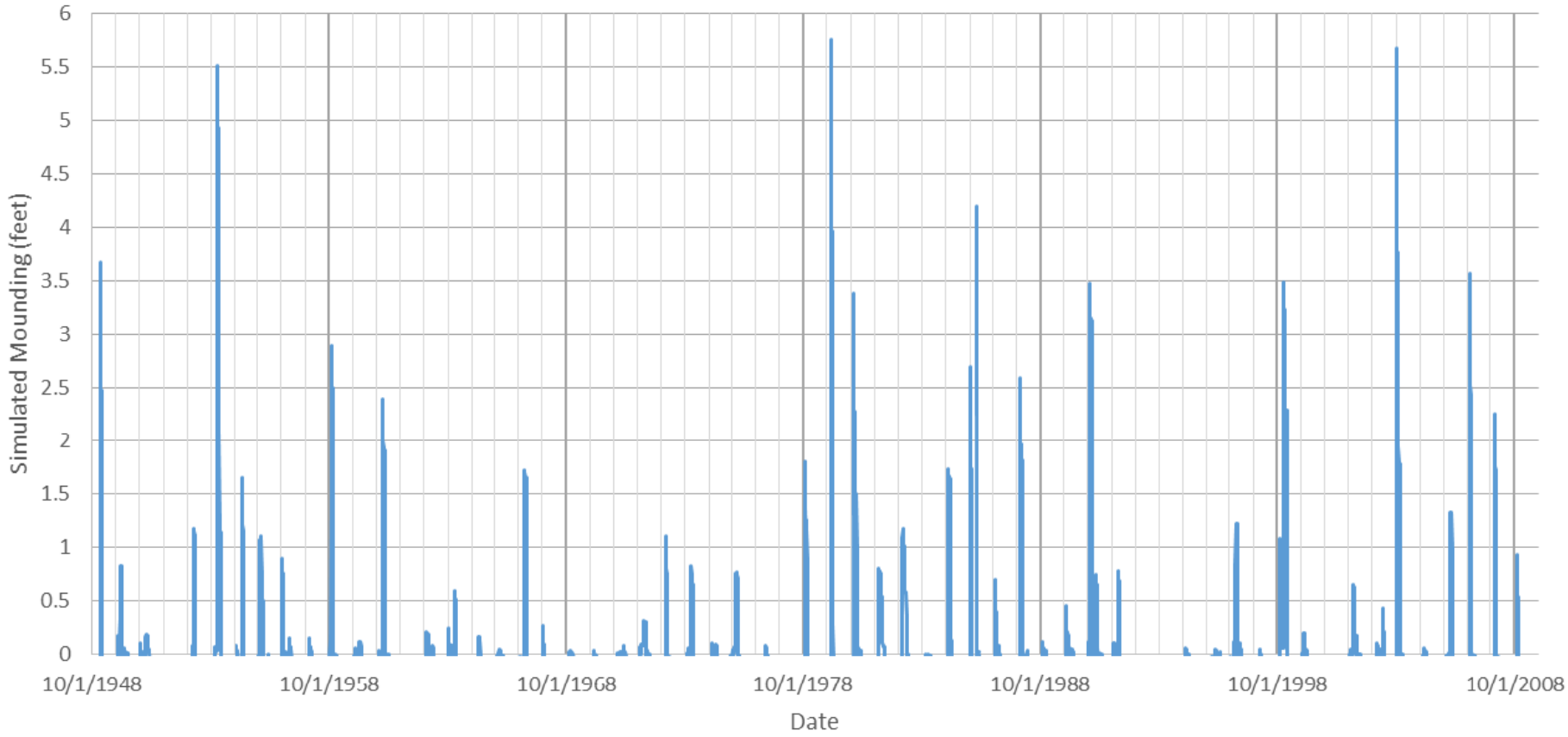
Groundwater Mounding Analysis Rainier Street Regional Stormwater Pond Port Townsend, Washington	**Model Finite Element Mesh**	Figure 6



Note
Simulated groundwater mounding is shown here as positive pressure heads at the observation point at the top of the restrictive silt layer beneath Area 3 of the facility.

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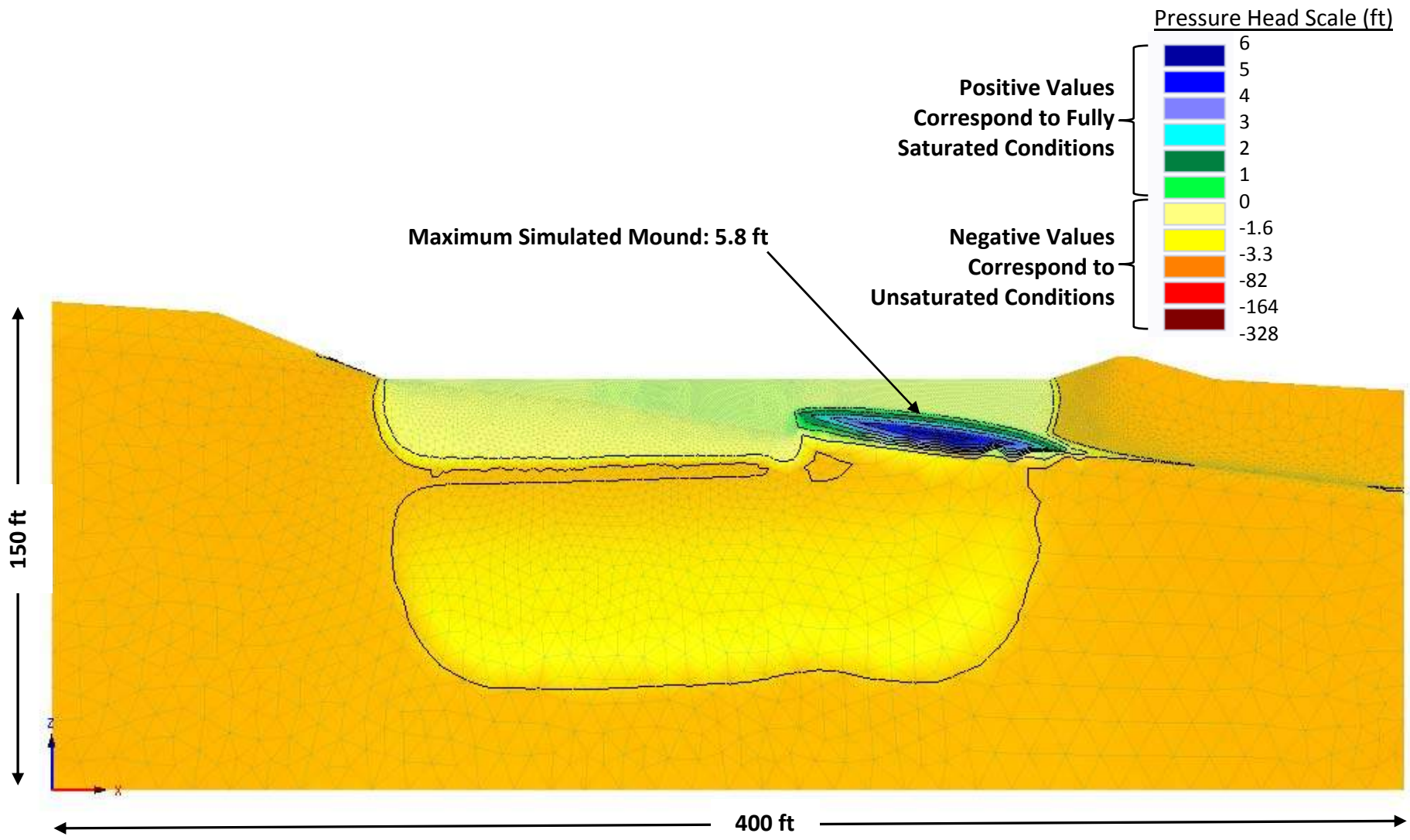
Groundwater Mounding Analysis Rainier Street Regional Stormwater Pond Port Townsend, Washington	**Simulated Groundwater Mounding Timeseries**	Figure 7



Note
Simulated pressure heads (positive = saturated conditions; negative = unsaturated conditions) shown here are from December, 1979.

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Groundwater Mounding Analysis Rainier Street Regional Stormwater Pond Port Townsend, Washington	**Maximum Simulated Mounding**	Figure 8

ATTACHMENT 1

WWHM Output Mass Balance and Calculated Facility Recharge Rates

Attachment 1a
WWHM Output Mass Balance and
Calculated Facility Recharge Rates
Groundwater Mounding Analysis
Rainier Street Regional Pond
Port Townsend, Washington

Month and Year	Number of Days	Rainfall (in)	Precipitation Volume (acre-feet)	Parcel 1094006 Basin Recharge (acre-feet)	Rainier St Basin Recharge (acre-feet)	Proposed Facility Recharge (acre-feet)	Proposed Facility Overflow (acre-feet)	Existing Outfall Flow (acre-feet)	Evapotran-spiration (acre-feet)	**Facility Recharge (ft/day)**
October-1948	31	1.3920	4.5669	0.0595	0.0269	0.6248	0.0000	1.4691	2.3866	**0.0394**
November-1948	30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	**0.0000**
December-1948	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
January-1949	31	0.6720	2.2047	0.0146	0.0100	0.2291	0.0000	0.5419	1.4092	**0.0144**
February-1949	28	5.1200	16.7979	0.6329	2.1650	5.3948	0.0000	6.6918	1.9134	**0.3766**
March-1949	31	0.5840	1.9160	0.0169	0.0092	0.1090	0.0000	0.2625	1.5184	**0.0069**
April-1949	30	0.6560	2.1522	0.0225	0.0125	0.1676	0.0000	0.3886	1.5610	**0.0109**
May-1949	31	0.4640	1.5223	0.0019	0.0014	0.0750	0.0000	0.1538	1.2901	**0.0047**
June-1949	30	0.3520	1.1548	0.0000	0.0000	0.0219	0.0000	0.0693	1.0636	**0.0014**
July-1949	31	0.2960	0.9711	0.0000	0.0000	0.0000	0.0000	0.0005	0.9706	**0.0000**
August-1949	31	0.5440	1.7848	0.0002	0.0001	0.0495	0.0000	0.1158	1.6191	**0.0031**
September-1949	30	0.9920	3.2546	0.0031	0.0021	0.4244	0.0000	0.9561	1.8689	**0.0277**
October-1949	31	1.3040	4.2782	0.0090	0.0063	0.6484	0.0000	1.4960	2.1185	**0.0409**
November-1949	30	4.1360	13.5695	0.3043	0.1558	2.6488	0.0000	6.3902	4.0703	**0.1726**
December-1949	31	5.8240	19.1075	1.2675	0.4694	4.0495	0.0000	8.9052	4.4160	**0.2554**
January-1950	31	2.6720	8.7665	1.2019	0.5112	1.2168	0.0000	5.0653	0.7712	**0.0767**
February-1950	28	3.1840	10.4462	0.8386	0.3077	2.0142	0.0000	4.7020	2.5836	**0.1406**
March-1950	31	3.3360	10.9449	0.6593	0.2227	2.2438	0.0000	5.1554	2.6637	**0.1415**
April-1950	30	0.9760	3.2021	0.0467	0.0293	0.2670	0.0000	0.6491	2.2100	**0.0174**
May-1950	31	0.7120	2.3361	0.0308	0.0132	0.1444	0.0000	0.3470	1.8007	**0.0091**
June-1950	30	0.2720	0.8924	0.0000	0.0000	0.0023	0.0000	0.0051	0.8849	**0.0002**
July-1950	31	0.4400	1.4436	0.0073	0.0055	0.1345	0.0000	0.3108	0.9856	**0.0085**
August-1950	31	0.8080	2.6509	0.0109	0.0082	0.3192	0.0000	0.7446	1.5681	**0.0201**
September-1950	30	0.1840	0.6037	0.0000	0.0000	0.0000	0.0000	0.0000	0.6037	**0.0000**
October-1950	31	3.4400	11.2861	0.1137	0.0682	1.9411	0.0000	4.5615	4.6016	**0.1224**
November-1950	30	3.7360	12.2572	0.6128	0.3004	2.1566	0.0000	5.3780	3.8093	**0.1405**
December-1950	31	2.3440	7.6903	0.6957	0.3127	1.2047	0.0000	3.7049	1.7722	**0.0760**

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January-1951	31	4.4368	14.5564	1.3328	0.4820	3.0178	0.0000	7.6122	2.1117	**0.1903**
February-1951	28	3.4400	11.2861	1.0806	0.3880	2.2392	0.0000	5.5982	1.9801	**0.1563**
March-1951	31	1.4528	4.7664	0.2160	0.0821	0.7208	0.0000	1.7453	2.0022	**0.0455**
April-1951	30	0.1600	0.5249	0.0053	0.0040	0.0260	0.0000	0.0654	0.4243	**0.0017**
May-1951	31	1.3840	4.5407	0.1567	0.0690	0.5508	0.0000	1.3810	2.3832	**0.0347**
June-1951	30	0.2080	0.6824	0.0027	0.0021	0.0250	0.0000	0.0618	0.5907	**0.0016**
July-1951	31	0.0800	0.2625	0.0000	0.0000	0.0000	0.0000	0.0000	0.2625	**0.0000**
August-1951	31	0.5440	1.7848	0.0032	0.0024	0.1908	0.0000	0.4405	1.1480	**0.0120**
September-1951	30	0.8400	2.7559	0.0047	0.0033	0.4559	0.0000	0.7736	1.5185	**0.0297**
October-1951	31	2.0000	6.5616	0.0366	0.0223	0.9412	0.0000	2.4497	3.1118	**0.0594**
November-1951	30	2.6880	8.8189	0.2070	0.1092	1.4920	0.0000	3.4433	3.5675	**0.0972**
December-1951	31	1.9920	6.5354	0.3757	0.1899	1.0090	0.0000	2.9402	2.0207	**0.0636**
January-1952	31	1.6640	5.4593	0.3382	0.1645	0.7048	0.0000	1.9124	2.3394	**0.0444**
February-1952	29	1.4720	4.8294	0.3274	0.1473	0.6418	0.0000	1.8269	1.8859	**0.0433**
March-1952	31	1.3680	4.4881	0.1429	0.0689	0.5246	0.0000	1.2770	2.4747	**0.0331**
April-1952	30	0.9920	3.2546	0.0823	0.0452	0.3320	0.0000	0.6698	2.1253	**0.0216**
May-1952	31	0.2960	0.9712	0.0000	0.0000	0.0034	0.0000	0.1892	0.7786	**0.0002**
June-1952	30	0.6880	2.2572	0.0000	0.0000	0.0048	0.0000	0.0104	2.2421	**0.0003**
July-1952	31	0.4320	1.4173	0.0033	0.0025	0.1292	0.0000	0.2868	0.9955	**0.0082**
August-1952	31	0.1840	0.6037	0.0000	0.0000	0.0095	0.0000	0.0214	0.5728	**0.0006**
September-1952	30	0.2160	0.7087	0.0000	0.0000	0.0000	0.0000	0.0000	0.7087	**0.0000**
October-1952	31	0.5840	1.9160	0.0007	0.0005	0.1971	0.0000	0.4439	1.2738	**0.0124**
November-1952	30	0.5040	1.6535	0.0011	0.0007	0.1694	0.0000	0.3947	1.0876	**0.0110**
December-1952	31	2.8400	9.3175	0.0793	0.0423	1.7041	0.0000	3.9745	3.5173	**0.1075**
January-1953	31	7.0160	23.0183	1.6035	0.6647	4.3568	0.0000	11.1693	5.2240	**0.2747**
February-1953	28	1.8640	6.1155	0.5723	0.2212	0.9049	0.0000	2.7765	1.6405	**0.0632**
March-1953	31	1.0400	3.4121	0.0647	0.0336	0.2474	0.0000	0.6149	2.4514	**0.0156**
April-1953	30	0.4160	1.3648	0.0000	0.0000	0.0134	0.0000	0.0293	1.3221	**0.0009**
May-1953	31	0.8160	2.6772	0.0200	0.0143	0.1655	0.0000	0.3772	2.1001	**0.0104**
June-1953	30	0.9040	2.9659	0.0112	0.0085	0.1197	0.0000	0.2728	2.5536	**0.0078**
July-1953	31	0.3040	0.9974	0.0024	0.0018	0.0643	0.0000	0.1522	0.7767	**0.0041**

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August-1953	31	0.5360	1.7585	0.0016	0.0012	0.1245	0.0000	0.2790	1.3523	**0.0078**
September-1953	30	1.7680	5.8005	0.0223	0.0137	1.0330	0.0000	1.9224	2.8091	**0.0673**
October-1953	31	1.4080	4.6194	0.0332	0.0206	0.6388	0.0000	1.7386	2.1882	**0.0403**
November-1953	30	2.3040	7.5590	0.1823	0.0954	1.2814	0.0000	3.3269	2.6731	**0.0835**
December-1953	31	4.1520	13.6220	0.8665	0.3815	2.4098	0.0000	5.3814	4.5829	**0.1520**
January-1954	31	8.2640	27.1128	2.2814	5.2928	11.0899	0.0000	11.9638	0.0000	**0.6993**
February-1954	28	4.4560	14.6194	1.1493	0.8228	3.9594	0.0000	7.6078	1.0800	**0.2764**
March-1954	31	0.4800	1.5748	0.0697	0.0325	0.1270	0.0000	0.3544	0.9912	**0.0080**
April-1954	30	0.8240	2.7034	0.0922	0.0472	0.2040	0.0000	0.5469	1.8131	**0.0133**
May-1954	31	0.0720	0.2362	0.0000	0.0000	0.0000	0.0000	0.0000	0.2362	**0.0000**
June-1954	30	0.7040	2.3097	0.0119	0.0090	0.0932	0.0000	0.1289	2.0667	**0.0061**
July-1954	31	0.3120	1.0236	0.0125	0.0091	0.1115	0.0000	0.3728	0.5178	**0.0070**
August-1954	31	1.6576	5.4383	0.0237	0.0173	0.8002	0.0000	1.7875	2.8096	**0.0505**
September-1954	30	0.6480	2.1260	0.0086	0.0062	0.2587	0.0000	0.6572	1.1952	**0.0169**
October-1954	31	2.2480	7.3754	0.0765	0.0516	1.3257	0.0000	3.1284	2.7932	**0.0836**
November-1954	30	3.7088	12.1680	0.4464	0.2387	2.2712	0.0000	5.7828	3.4289	**0.1480**
December-1954	31	2.2720	7.4541	0.4667	0.2164	1.2845	0.0000	3.4299	2.0565	**0.0810**
January-1955	31	0.9040	2.9659	0.1974	0.0902	0.2798	0.0000	0.8442	1.5543	**0.0176**
February-1955	28	3.4720	11.3910	0.6574	1.6578	3.9488	0.0000	3.7920	1.3350	**0.2757**
March-1955	31	1.8080	5.9317	0.3574	0.1450	0.6654	0.0000	2.3470	2.4168	**0.0420**
April-1955	30	1.7040	5.5905	0.1447	0.0679	0.6786	0.0000	1.6897	3.0096	**0.0442**
May-1955	31	0.3680	1.2074	0.0000	0.0000	0.0028	0.0000	0.0013	1.2033	**0.0002**
June-1955	30	1.2960	4.2520	0.0523	0.0359	0.4608	0.0000	1.0917	2.6112	**0.0300**
July-1955	31	1.0400	3.4121	0.0086	0.0065	0.1212	0.0000	0.2593	3.0164	**0.0076**
August-1955	31	0.0160	0.0525	0.0000	0.0000	0.0000	0.0000	0.0000	0.0525	**0.0000**
September-1955	30	0.1280	0.4199	0.0000	0.0000	0.0000	0.0000	0.0000	0.4199	**0.0000**
October-1955	31	2.4880	8.1627	0.0427	0.0274	1.4047	0.0000	3.2446	3.4433	**0.0886**
November-1955	30	4.8720	15.9842	0.6603	1.3464	4.1604	0.0000	6.7485	3.0686	**0.2711**
December-1955	31	4.1680	13.6745	1.2483	1.3654	3.5957	0.0000	6.3504	1.1148	**0.2267**
January-1956	31	2.9040	9.5275	0.9276	0.3413	1.6642	0.0000	4.3812	2.2131	**0.1049**
February-1956	29	0.5600	1.8373	0.0365	0.0136	0.2004	0.0000	0.4773	1.1095	**0.0135**

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March-1956	31	3.1120	10.2100	0.7032	0.2583	1.6211	0.0000	4.1108	3.5165	**0.1022**
April-1956	30	0.0160	0.0525	0.0043	0.0007	0.0004	0.0000	0.0010	0.0462	**0.0000**
May-1956	31	0.2320	0.7612	0.0069	0.0052	0.0409	0.0000	0.1042	0.6039	**0.0026**
June-1956	30	1.0640	3.4908	0.0599	0.0383	0.3235	0.0000	0.7873	2.2819	**0.0211**
July-1956	31	0.0400	0.1312	0.0000	0.0000	0.0000	0.0000	0.0000	0.1312	**0.0000**
August-1956	31	0.6240	2.0472	0.0106	0.0079	0.2895	0.0000	0.6798	1.0593	**0.0183**
September-1956	30	1.7680	5.8005	0.0148	0.0108	0.7853	0.0000	1.7628	3.2267	**0.0512**
October-1956	31	5.9200	19.4225	0.5134	0.3401	3.8931	0.0000	9.2412	5.4348	**0.2455**
November-1956	30	0.9200	3.0184	0.2153	0.0968	0.4435	0.0000	1.2485	1.0142	**0.0289**
December-1956	31	2.9840	9.7900	0.7858	0.3036	1.8112	0.0000	4.7393	2.1501	**0.1142**
January-1957	31	1.3888	4.5564	0.3220	0.1439	0.6131	0.0000	1.6867	1.7907	**0.0387**
February-1957	28	2.9360	9.6325	0.7675	0.5722	2.2555	0.0000	4.5122	1.5252	**0.1575**
March-1957	31	1.3760	4.5144	0.3051	0.1297	0.4823	0.0000	1.3655	2.2318	**0.0304**
April-1957	30	1.3280	4.3569	0.1129	0.0488	0.4830	0.0000	1.2042	2.5081	**0.0315**
May-1957	31	0.2880	0.9449	0.0000	0.0000	0.0048	0.0000	0.0001	0.9401	**0.0003**
June-1957	30	0.8880	2.9134	0.0216	0.0158	0.1669	0.0000	0.3973	2.3117	**0.0109**
July-1957	31	0.3840	1.2598	0.0008	0.0006	0.0269	0.0000	0.0561	1.1754	**0.0017**
August-1957	31	0.3360	1.1024	0.0006	0.0004	0.0480	0.0000	0.1097	0.9437	**0.0030**
September-1957	30	0.3840	1.2598	0.0017	0.0013	0.1406	0.0000	0.3266	0.7896	**0.0092**
October-1957	31	1.2400	4.0682	0.0076	0.0052	0.5743	0.0000	1.3075	2.1737	**0.0362**
November-1957	30	1.4160	4.6456	0.0289	0.0176	0.7735	0.0000	1.8160	2.0096	**0.0504**
December-1957	31	4.0960	13.4383	0.4656	0.2216	2.5810	0.0000	6.4470	3.7230	**0.1628**
January-1958	31	2.5200	8.2677	0.5331	0.2276	1.3653	0.0000	3.5543	2.5874	**0.0861**
February-1958	28	1.8080	5.9318	0.4944	0.2043	0.8304	0.0000	2.3524	2.0503	**0.0580**
March-1958	31	0.8960	2.9396	0.0485	0.0220	0.2169	0.0000	0.5214	2.1308	**0.0137**
April-1958	30	1.6000	5.2493	0.1815	0.0719	0.5699	0.0000	1.4254	3.0005	**0.0371**
May-1958	31	0.8160	2.6771	0.0466	0.0293	0.2364	0.0000	0.4779	1.8869	**0.0149**
June-1958	30	1.0080	3.3071	0.0385	0.0192	0.4516	0.0000	1.1623	1.6355	**0.0294**
July-1958	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	**0.0000**
August-1958	31	0.3600	1.1811	0.0003	0.0002	0.0346	0.0000	0.0798	1.0662	**0.0022**
September-1958	30	0.6720	2.2047	0.0018	0.0013	0.2009	0.0000	0.4443	1.5564	**0.0131**

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October-1958	31	3.0960	10.1574	0.0929	0.0545	1.8968	0.0000	4.3592	3.7541	**0.1196**
November-1958	30	6.6192	21.7165	1.1851	2.2043	6.3893	0.0000	9.8999	2.0379	**0.4163**
December-1958	31	3.0320	9.9475	0.9674	0.3682	1.7172	0.0000	4.4030	2.4917	**0.1083**
January-1959	31	3.1840	10.4461	0.9683	0.3574	2.0083	0.0000	5.1846	1.9275	**0.1266**
February-1959	28	1.4640	4.8031	0.4125	0.1602	0.6075	0.0000	1.6214	2.0015	**0.0424**
March-1959	31	2.4720	8.1102	0.4321	0.1685	1.2037	0.0000	2.4070	3.8988	**0.0759**
April-1959	30	1.3520	4.4357	0.2029	0.0828	0.5255	0.0000	1.7502	1.8742	**0.0342**
May-1959	31	0.9680	3.1758	0.0709	0.0332	0.2186	0.0000	0.6607	2.1924	**0.0138**
June-1959	30	0.6640	2.1785	0.0400	0.0231	0.1665	0.0000	0.4090	1.5399	**0.0108**
July-1959	31	0.1440	0.4724	0.0000	0.0000	0.0000	0.0000	0.0000	0.4724	**0.0000**
August-1959	31	0.2320	0.7611	0.0000	0.0000	0.0090	0.0000	0.0150	0.7371	**0.0006**
September-1959	30	1.5840	5.1968	0.0132	0.0098	0.5896	0.0000	1.3423	3.2419	**0.0384**
October-1959	31	2.6000	8.5301	0.0886	0.0574	1.4980	0.0000	3.5490	3.3371	**0.0945**
November-1959	30	3.6560	11.9947	0.4815	0.2479	2.2764	0.0000	5.8233	3.1656	**0.1483**
December-1959	31	3.4800	11.4173	0.9020	0.3702	2.0707	0.0000	5.4763	2.5981	**0.1306**
January-1960	31	3.0960	10.1574	0.7199	1.0240	2.8310	0.0000	3.7082	1.8744	**0.1785**
February-1960	29	1.9856	6.5144	0.6285	0.2224	1.2240	0.0000	3.6627	0.7768	**0.0825**
March-1960	31	2.6720	8.7663	0.5751	0.2337	1.3004	0.0000	3.2509	3.4063	**0.0820**
April-1960	30	0.9840	3.2283	0.1141	0.0511	0.3286	0.0000	0.9136	1.8209	**0.0214**
May-1960	31	0.9600	3.1496	0.0060	0.0045	0.1511	0.0000	0.3226	2.6654	**0.0095**
June-1960	30	0.2640	0.8661	0.0073	0.0055	0.0474	0.0000	0.1167	0.6892	**0.0031**
July-1960	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
August-1960	31	1.1040	3.6220	0.0069	0.0052	0.3093	0.0000	0.6811	2.6195	**0.0195**
September-1960	30	0.5280	1.7323	0.0020	0.0015	0.1519	0.0000	0.3510	1.2258	**0.0099**
October-1960	31	1.3840	4.5407	0.0129	0.0093	0.6327	0.0000	1.3817	2.5041	**0.0399**
November-1960	30	3.0560	10.0262	0.2080	0.1196	1.8810	0.0000	4.6273	3.1902	**0.1226**
December-1960	31	2.0000	6.5616	0.3136	0.1645	1.0088	0.0000	2.6404	2.4343	**0.0636**
January-1961	31	5.3120	17.4278	1.1419	2.2097	5.6092	0.0000	7.4755	0.9915	**0.3537**
February-1961	28	3.5360	11.6010	1.0746	0.3993	1.9632	0.0000	4.9821	3.1819	**0.1371**
March-1961	31	3.4160	11.2073	1.0881	0.4114	2.0433	0.0000	5.5075	2.1570	**0.1289**
April-1961	30	0.7920	2.5984	0.0517	0.0352	0.1586	0.0000	0.4292	1.9236	**0.0103**

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May-1961	31	0.5680	1.8635	0.0157	0.0118	0.0585	0.0000	0.1538	1.6237	**0.0037**
June-1961	30	0.1280	0.4199	0.0000	0.0000	0.0000	0.0000	0.0000	0.4199	**0.0000**
July-1961	31	0.8320	2.7296	0.0276	0.0188	0.4599	0.0000	1.0882	1.1351	**0.0290**
August-1961	31	0.5600	1.8373	0.0042	0.0031	0.2136	0.0000	0.3012	1.3152	**0.0135**
September-1961	30	0.2880	0.9449	0.0002	0.0002	0.0193	0.0000	0.2273	0.6980	**0.0013**
October-1961	31	1.2800	4.1995	0.0081	0.0059	0.4871	0.0000	1.1177	2.5806	**0.0307**
November-1961	30	2.0640	6.7716	0.0640	0.0403	1.2033	0.0000	2.7511	2.7129	**0.0784**
December-1961	31	2.8800	9.4488	0.3469	0.1837	1.6961	0.0000	4.3813	2.8408	**0.1070**
January-1962	31	1.9280	6.3254	0.3923	0.1975	0.9378	0.0000	2.5848	2.2129	**0.0591**
February-1962	28	1.0240	3.3596	0.0949	0.0509	0.3527	0.0000	0.4443	2.4167	**0.0246**
March-1962	31	1.8800	6.1679	0.3390	0.1416	0.9249	0.0000	2.8713	1.8911	**0.0583**
April-1962	30	1.0400	3.4121	0.1091	0.0566	0.3586	0.0000	0.9161	1.9718	**0.0234**
May-1962	31	0.9360	3.0709	0.0254	0.0183	0.1402	0.0000	0.3228	2.5641	**0.0088**
June-1962	30	0.3840	1.2598	0.0157	0.0074	0.1889	0.0000	0.4496	0.5983	**0.0123**
July-1962	31	0.3280	1.0761	0.0046	0.0034	0.0712	0.0000	0.1643	0.8326	**0.0045**
August-1962	31	1.0320	3.3858	0.0146	0.0109	0.3915	0.0000	0.9126	2.0562	**0.0247**
September-1962	30	1.0000	3.2808	0.0097	0.0072	0.4686	0.0000	1.0764	1.7189	**0.0305**
October-1962	31	1.9440	6.3779	0.0516	0.0338	1.0855	0.0000	2.5512	2.6559	**0.0684**
November-1962	30	4.7760	15.6692	0.5793	0.2911	2.9396	0.0000	7.3067	4.5525	**0.1916**
December-1962	31	2.5600	8.3989	0.6639	0.2843	1.4535	0.0000	4.0225	1.9748	**0.0917**
January-1963	31	0.8160	2.6772	0.2096	0.0793	0.4153	0.0000	1.1282	0.8447	**0.0262**
February-1963	28	3.0000	9.8425	0.7421	0.2850	1.8281	0.0000	4.5303	2.4571	**0.1276**
March-1963	31	1.2560	4.1207	0.2550	0.1032	0.4901	0.0000	1.4877	1.7847	**0.0309**
April-1963	30	0.8320	2.7296	0.0505	0.0251	0.1917	0.0000	0.4515	2.0107	**0.0125**
May-1963	31	0.5520	1.8110	0.0787	0.0354	0.1446	0.0000	0.4272	1.1251	**0.0091**
June-1963	30	1.1840	3.8845	0.0340	0.0216	0.3785	0.0000	0.8363	2.6141	**0.0247**
July-1963	31	1.1344	3.7218	0.0495	0.0356	0.4647	0.0000	1.1846	1.9874	**0.0293**
August-1963	31	0.3120	1.0236	0.0000	0.0000	0.0000	0.0000	0.0000	1.0236	**0.0000**
September-1963	30	1.0400	3.4121	0.0120	0.0088	0.4536	0.0000	1.0509	1.8867	**0.0296**
October-1963	31	3.8160	12.5196	0.2073	0.4039	2.6261	0.0000	5.3994	3.8829	**0.1656**
November-1963	30	4.2720	14.0157	0.7782	0.3554	2.6004	0.0000	6.7794	3.5022	**0.1694**

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December-1963	31	2.7440	9.0026	0.8698	0.3608	1.3552	0.0000	3.7264	2.6904	**0.0855**
January-1964	31	5.3520	17.5590	1.6576	0.5995	3.6089	0.0000	8.7903	2.9028	**0.2276**
February-1964	29	1.3440	4.4095	0.3665	0.1390	0.7099	0.0000	1.6096	1.5845	**0.0479**
March-1964	31	2.4160	7.9266	0.5780	0.2284	1.0233	0.0000	3.1214	2.9755	**0.0645**
April-1964	30	0.7440	2.4409	0.0497	0.0352	0.1620	0.0000	0.6052	1.5889	**0.0106**
May-1964	31	0.7440	2.4409	0.0290	0.0131	0.1518	0.0000	0.3686	1.8784	**0.0096**
June-1964	30	1.3840	4.5407	0.1409	0.0681	0.5783	0.0000	1.4522	2.3012	**0.0377**
July-1964	31	0.4560	1.4960	0.0065	0.0049	0.0685	0.0000	0.1561	1.2600	**0.0043**
August-1964	31	1.1040	3.6220	0.0243	0.0173	0.3884	0.0000	0.9173	2.2747	**0.0245**
September-1964	30	1.6560	5.4331	0.0510	0.0370	0.9064	0.0000	1.2317	3.2070	**0.0591**
October-1964	31	0.8800	2.8871	0.0304	0.0221	0.3081	0.0000	1.5601	0.9664	**0.0194**
November-1964	30	2.0720	6.7979	0.1690	0.1106	1.1945	0.0000	2.7206	2.6032	**0.0778**
December-1964	31	2.2256	7.3018	0.4174	0.2399	1.2887	0.0000	3.8930	1.4628	**0.0813**
January-1965	31	4.8240	15.8268	1.2004	0.5055	2.9709	0.0000	7.6768	3.4731	**0.1873**
February-1965	28	2.9360	9.6325	1.0760	0.4148	1.6302	0.0000	4.8339	1.6776	**0.1138**
March-1965	31	0.5360	1.7585	0.0398	0.0193	0.1126	0.0000	0.3125	1.2743	**0.0071**
April-1965	30	1.5360	5.0394	0.2670	0.1079	0.6439	0.0000	1.7026	2.3178	**0.0420**
May-1965	31	0.7600	2.4934	0.0512	0.0242	0.2447	0.0000	0.5959	1.5774	**0.0154**
June-1965	30	0.2640	0.8661	0.0058	0.0044	0.0455	0.0000	0.1066	0.7039	**0.0030**
July-1965	31	0.3680	1.2073	0.0027	0.0020	0.0473	0.0000	0.1100	1.0453	**0.0030**
August-1965	31	1.0640	3.4908	0.0136	0.0102	0.4577	0.0000	1.0638	1.9455	**0.0289**
September-1965	30	0.4640	1.5223	0.0043	0.0032	0.1802	0.0000	0.4159	0.9188	**0.0117**
October-1965	31	1.0560	3.4645	0.0086	0.0064	0.3854	0.0000	0.8916	2.1726	**0.0243**
November-1965	30	2.6400	8.6614	0.1346	0.0864	1.5478	0.0000	3.7098	3.1829	**0.1009**
December-1965	31	3.9600	12.9921	0.7472	0.3776	2.3414	0.0000	6.2517	3.2743	**0.1476**
January-1966	31	3.2608	10.6981	0.8834	0.3398	1.9377	0.0000	5.1658	2.3715	**0.1222**
February-1966	28	1.1520	3.7795	0.1994	0.0871	0.4741	0.0000	1.1257	1.8932	**0.0331**
March-1966	31	1.9120	6.2729	0.5099	0.2045	0.9623	0.0000	2.7084	1.8879	**0.0607**
April-1966	30	0.8640	2.8346	0.1296	0.0624	0.2854	0.0000	0.7757	1.5816	**0.0186**
May-1966	31	0.9040	2.9659	0.0837	0.0385	0.2933	0.0000	0.7513	1.7990	**0.0185**
June-1966	30	0.7040	2.3097	0.0086	0.0065	0.0896	0.0000	0.2071	1.9978	**0.0058**

July-1966	31	0.8000	2.6247	0.0290	0.0210	0.3153	0.0000	0.7541	1.5053	**0.0199**
August-1966	31	0.2160	0.7086	0.0003	0.0002	0.0264	0.0000	0.0610	0.6208	**0.0017**
September-1966	30	0.9280	3.0446	0.0045	0.0033	0.3388	0.0000	0.7737	1.9243	**0.0221**
October-1966	31	2.3360	7.6640	0.0594	0.0377	1.3637	0.0000	3.2043	2.9990	**0.0860**
November-1966	30	2.8320	9.2913	0.2734	0.1437	1.6215	0.0000	3.3975	3.8552	**0.1057**
December-1966	31	3.2400	10.6299	0.7480	0.3483	1.8372	0.0000	5.2330	2.4633	**0.1159**
January-1967	31	5.3600	17.5853	1.4717	1.8885	5.1425	0.0000	8.2622	0.8203	**0.3243**
February-1967	28	1.6880	5.5380	0.5119	0.2080	0.8185	0.0000	2.1493	1.8504	**0.0571**
March-1967	31	1.1760	3.8582	0.1504	0.0709	0.2770	0.0000	0.8307	2.5292	**0.0175**
April-1967	30	1.6800	5.5118	0.2663	0.1121	0.6858	0.0000	1.7926	2.6550	**0.0447**
May-1967	31	0.4480	1.4698	0.0021	0.0016	0.0372	0.0000	0.0974	1.3316	**0.0023**
June-1967	30	0.4080	1.3386	0.0187	0.0125	0.1870	0.0000	0.4593	0.6611	**0.0122**
July-1967	31	0.2400	0.7874	0.0023	0.0018	0.0491	0.0000	0.1159	0.6184	**0.0031**
August-1967	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
September-1967	30	1.2480	4.0945	0.0059	0.0044	0.4210	0.0000	0.8961	2.7671	**0.0274**
October-1967	31	4.5088	14.7926	0.2434	0.1328	2.6115	0.0000	6.2418	5.5631	**0.1647**
November-1967	30	1.1120	3.6483	0.1520	0.0836	0.5242	0.0000	1.4056	1.4829	**0.0342**
December-1967	31	2.7680	9.0813	0.6811	0.3203	1.5371	0.0000	4.2786	2.2641	**0.0969**
January-1968	31	3.1760	10.4199	0.9223	0.3726	1.7147	0.0000	4.4427	2.9676	**0.1081**
February-1968	29	2.1760	7.1391	0.6699	0.2502	1.3519	0.0000	3.7787	1.0884	**0.0911**
March-1968	31	1.7520	5.7480	0.3649	0.1581	0.7484	0.0000	1.9958	2.4808	**0.0472**
April-1968	30	0.6880	2.2572	0.0533	0.0266	0.1657	0.0000	0.4225	1.5891	**0.0108**
May-1968	31	0.7200	2.3622	0.0452	0.0257	0.2072	0.0000	0.5237	1.5603	**0.0131**
June-1968	30	1.1680	3.8320	0.0584	0.0389	0.2199	0.0000	0.5786	2.9363	**0.0143**
July-1968	31	0.3760	1.2336	0.0009	0.0007	0.0351	0.0000	0.0758	1.1211	**0.0022**
August-1968	31	1.7040	5.5905	0.0335	0.0240	0.8392	0.0000	1.9496	2.7441	**0.0529**
September-1968	30	1.2480	4.0945	0.0319	0.0227	0.5703	0.0000	1.3254	2.1442	**0.0372**
October-1968	31	1.4720	4.8294	0.0407	0.0286	0.5465	0.0000	1.2783	2.9353	**0.0345**
November-1968	30	2.9680	9.7375	0.2919	0.1718	1.7976	0.0000	4.3922	3.0840	**0.1171**
December-1968	31	4.2720	14.0158	1.3707	0.6644	2.2536	0.0000	6.4036	3.3236	**0.1421**
January-1969	31	3.7280	12.2310	1.4931	0.6502	1.8061	0.0000	5.7080	2.5737	**0.1139**

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February-1969	28	0.9520	3.1233	0.3285	0.1286	0.4761	0.0000	1.6774	0.5127	**0.0332**
March-1969	31	1.1680	3.8320	0.1487	0.0671	0.3812	0.0000	0.9842	2.2508	**0.0240**
April-1969	30	1.2240	4.0157	0.1650	0.0730	0.5594	0.0000	1.4473	1.7711	**0.0364**
May-1969	31	0.6960	2.2835	0.0788	0.0466	0.2999	0.0000	0.7774	1.0808	**0.0189**
June-1969	30	0.5040	1.6535	0.0278	0.0202	0.2078	0.0000	0.5344	0.8633	**0.0135**
July-1969	31	0.0720	0.2362	0.0000	0.0000	0.0000	0.0000	0.0000	0.2362	**0.0000**
August-1969	31	0.3680	1.2073	0.0003	0.0002	0.0317	0.0000	0.0628	1.1124	**0.0020**
September-1969	30	1.7920	5.8793	0.0202	0.0142	0.8032	0.0000	1.8220	3.2198	**0.0523**
October-1969	31	0.4800	1.5748	0.0045	0.0034	0.1241	0.0000	0.3089	1.1340	**0.0078**
November-1969	30	1.3840	4.5407	0.0284	0.0194	0.6418	0.0000	1.4931	2.3580	**0.0418**
December-1969	31	3.2880	10.7874	0.3102	0.1758	1.9839	0.0000	4.9448	3.3727	**0.1251**
January-1970	31	3.0800	10.1050	0.6159	0.2907	1.6721	0.0000	4.4193	3.1069	**0.1054**
February-1970	28	1.0000	3.2808	0.2818	0.1295	0.4536	0.0000	1.4132	1.0027	**0.0317**
March-1970	31	0.5760	1.8898	0.0857	0.0374	0.2291	0.0000	0.6068	0.9307	**0.0144**
April-1970	30	2.0640	6.7716	0.3216	0.1408	1.0580	0.0000	2.7290	2.5222	**0.0689**
May-1970	31	0.8800	2.8871	0.0678	0.0430	0.2986	0.0000	0.7613	1.7165	**0.0188**
June-1970	30	0.0880	0.2887	0.0000	0.0000	0.0000	0.0000	0.0012	0.2876	**0.0000**
July-1970	31	0.3440	1.1286	0.0011	0.0008	0.0649	0.0000	0.1485	0.9133	**0.0041**
August-1970	31	0.1760	0.5774	0.0000	0.0000	0.0000	0.0000	0.0006	0.5768	**0.0000**
September-1970	30	1.8800	6.1680	0.0189	0.0131	0.9864	0.0000	2.2597	2.8899	**0.0643**
October-1970	31	2.0720	6.7978	0.0733	0.0479	1.1670	0.0000	2.7741	2.7355	**0.0736**
November-1970	30	2.6080	8.5564	0.1918	0.1022	1.5251	0.0000	3.6962	3.0412	**0.0994**
December-1970	31	3.7440	12.2835	0.9353	0.4381	2.0963	0.0000	5.1604	3.6535	**0.1322**
January-1971	31	3.7120	12.1784	1.1265	0.4459	2.2734	0.0000	6.6090	1.7237	**0.1434**
February-1971	28	1.7920	5.8792	0.4617	0.1767	0.9446	0.0000	2.4086	1.8876	**0.0659**
March-1971	31	3.8160	12.5197	1.0255	0.3757	2.2829	0.0000	5.7954	3.0403	**0.1440**
April-1971	30	0.3120	1.0236	0.0161	0.0028	0.0338	0.0000	0.0796	0.8913	**0.0022**
May-1971	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
June-1971	30	0.9200	3.0184	0.0191	0.0132	0.1520	0.0000	0.3601	2.4738	**0.0099**
July-1971	31	0.2720	0.8924	0.0000	0.0000	0.0000	0.0000	0.0000	0.8924	**0.0000**
August-1971	31	0.2320	0.7612	0.0012	0.0009	0.0543	0.0000	0.1250	0.5797	**0.0034**

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September-1971	30	0.9280	3.0446	0.0030	0.0023	0.2269	0.0000	0.5196	2.2928	**0.0148**
October-1971	31	1.8720	6.1417	0.0346	0.0234	0.9059	0.0000	1.7649	3.4129	**0.0571**
November-1971	30	3.5520	11.6535	0.4098	0.2213	2.2069	0.0000	5.8774	2.9380	**0.1438**
December-1971	31	4.7120	15.4593	1.5138	0.6646	2.7389	0.0000	7.8459	2.6961	**0.1727**
January-1972	31	5.0080	16.4304	1.4805	0.5586	3.3771	0.0000	8.2840	2.7302	**0.2130**
February-1972	29	1.8640	6.1155	0.3977	0.1463	1.1567	0.0000	2.3273	2.0876	**0.0780**
March-1972	31	2.0960	6.8766	0.3885	0.5844	2.1054	0.0000	3.4767	0.3217	**0.1328**
April-1972	30	1.2000	3.9371	0.1615	0.0857	0.2423	0.0000	0.7020	2.7456	**0.0158**
May-1972	31	0.0640	0.2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.2100	**0.0000**
June-1972	30	0.8160	2.6773	0.0336	0.0236	0.2558	0.0000	0.6312	1.7330	**0.0167**
July-1972	31	0.5680	1.8635	0.0281	0.0207	0.2053	0.0000	0.5105	1.0990	**0.0129**
August-1972	31	0.4960	1.6273	0.0083	0.0062	0.2241	0.0000	0.5217	0.8669	**0.0141**
September-1972	30	2.3680	7.7689	0.0678	0.0463	1.3447	0.0000	3.1672	3.1429	**0.0876**
October-1972	31	0.4080	1.3386	0.0061	0.0044	0.1248	0.0000	0.3012	0.9021	**0.0079**
November-1972	30	1.4336	4.7034	0.0636	0.0424	0.6772	0.0000	1.1133	2.8068	**0.0441**
December-1972	31	5.3360	17.5065	0.9569	0.9021	3.9689	0.0000	9.2875	2.3912	**0.2503**
January-1973	31	2.6544	8.7086	0.7808	0.4636	1.8148	0.0000	4.2234	1.4260	**0.1144**
February-1973	28	0.4800	1.5748	0.0457	0.0267	0.1073	0.0000	0.2970	1.0980	**0.0075**
March-1973	31	0.9600	3.1497	0.1581	0.0790	0.2821	0.0000	0.7994	1.8310	**0.0178**
April-1973	30	0.1680	0.5512	0.0000	0.0000	0.0000	0.0000	0.0000	0.5512	**0.0000**
May-1973	31	0.3840	1.2598	0.0110	0.0083	0.0915	0.0000	0.2291	0.9199	**0.0058**
June-1973	30	0.5280	1.7323	0.0000	0.0000	0.0120	0.0000	0.0186	1.7017	**0.0008**
July-1973	31	0.0400	0.1312	0.0000	0.0000	0.0000	0.0000	0.0000	0.1312	**0.0000**
August-1973	31	0.2960	0.9711	0.0009	0.0007	0.0758	0.0000	0.1762	0.7176	**0.0048**
September-1973	30	0.3920	1.2861	0.0009	0.0007	0.1327	0.0000	0.3022	0.8496	**0.0086**
October-1973	31	2.3200	7.6115	0.0335	0.0209	1.3129	0.0000	2.6785	3.5657	**0.0828**
November-1973	30	3.6721	12.0474	0.5278	0.2649	2.2412	0.0000	5.9891	3.0244	**0.1460**
December-1973	31	2.2640	7.4278	0.6230	0.2909	1.1240	0.0000	3.2729	2.1171	**0.0709**
January-1974	31	5.2320	17.1654	1.8976	1.5587	3.8459	0.0000	7.6087	2.2545	**0.2425**
February-1974	28	1.8800	6.1680	0.7039	0.2970	0.8231	0.0000	2.7802	1.5637	**0.0575**
March-1974	31	1.2080	3.9632	0.2194	0.0904	0.5327	0.0000	1.4217	1.6990	**0.0336**

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April-1974	30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
May-1974	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
June-1974	30	0.4640	1.5223	0.0115	0.0087	0.0728	0.0000	0.1782	1.2511	**0.0047**
July-1974	31	0.4640	1.5223	0.0121	0.0090	0.1398	0.0000	0.3424	1.0190	**0.0088**
August-1974	31	0.0800	0.2625	0.0000	0.0000	0.0000	0.0000	0.0000	0.2625	**0.0000**
September-1974	30	0.0640	0.2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.2100	**0.0000**
October-1974	31	0.5040	1.6535	0.0012	0.0009	0.1323	0.0000	0.3021	1.2169	**0.0083**
November-1974	30	2.6800	8.7926	0.0701	0.0394	1.7134	0.0000	4.0079	2.9619	**0.1116**
December-1974	31	3.0000	9.8425	0.3269	0.1576	1.7959	0.0000	4.4851	3.0770	**0.1133**
January-1975	31	4.1920	13.7533	1.0207	0.3915	2.7013	0.0000	6.9417	2.6981	**0.1703**
February-1975	28	0.0000	0.0000	0.0071	0.0011	-0.0011	0.0000	0.0001	0.0000	**-0.0001**
March-1975	31	0.9840	3.2283	0.1082	0.0496	0.3623	0.0000	0.9238	1.7845	**0.0228**
April-1975	30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
May-1975	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
June-1975	30	0.2240	0.7349	0.0000	0.0000	0.0000	0.0000	0.0000	0.7349	**0.0000**
July-1975	31	0.2720	0.8924	0.0000	0.0000	0.0135	0.0000	0.0329	0.8459	**0.0009**
August-1975	31	2.5360	8.3202	0.0319	0.0204	1.3780	0.0000	3.1542	3.7357	**0.0869**
September-1975	30	0.0400	0.1312	0.0002	0.0001	0.0001	0.0000	0.0123	0.1185	**0.0000**
October-1975	31	3.1920	10.4724	0.1350	0.0844	1.8260	0.0000	4.3394	4.0876	**0.1151**
November-1975	30	4.1120	13.4908	0.6645	0.3282	2.4145	0.0000	6.1563	3.9273	**0.1573**
December-1975	31	5.4720	17.9528	2.0845	1.5581	3.9691	0.0000	8.7202	1.6209	**0.2503**
January-1976	31	3.7760	12.3886	1.5844	0.6346	2.0110	0.0000	5.8921	2.2665	**0.1268**
February-1976	29	2.8160	9.2389	1.0890	0.4328	1.4798	0.0000	4.2255	2.0119	**0.0998**
March-1976	31	1.1200	3.6745	0.1792	0.0706	0.3502	0.0000	0.9256	2.1489	**0.0221**
April-1976	30	1.0560	3.4646	0.1041	0.0463	0.3564	0.0000	0.8823	2.0754	**0.0232**
May-1976	31	0.9360	3.0709	0.0357	0.0150	0.2541	0.0000	0.5958	2.1702	**0.0160**
June-1976	30	0.1360	0.4462	0.0019	0.0014	0.0189	0.0000	0.0461	0.3779	**0.0012**
July-1976	31	0.2400	0.7874	0.0017	0.0013	0.0252	0.0000	0.0645	0.6948	**0.0016**
August-1976	31	0.9760	3.2021	0.0296	0.0221	0.4749	0.0000	1.1218	1.5537	**0.0299**
September-1976	30	0.2880	0.9449	0.0022	0.0017	0.0688	0.0000	0.1592	0.7129	**0.0045**
October-1976	31	0.6400	2.0997	0.0069	0.0052	0.2410	0.0000	0.5620	1.2846	**0.0152**

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November-1976	30	0.9200	3.0184	0.0159	0.0115	0.4610	0.0000	1.0760	1.4540	**0.0300**
December-1976	31	1.1680	3.8320	0.0382	0.0261	0.5912	0.0000	1.4095	1.7670	**0.0373**
January-1977	31	1.0816	3.5486	0.0681	0.0448	0.6260	0.0000	1.5413	1.2684	**0.0395**
February-1977	28	1.0720	3.5170	0.0497	0.0321	0.3457	0.0000	0.6321	2.4574	**0.0241**
March-1977	31	3.4320	11.2598	0.4685	0.2505	2.0708	0.0000	5.5696	2.9004	**0.1306**
April-1977	30	0.4080	1.3386	0.0028	0.0021	0.0298	0.0000	0.0704	1.2334	**0.0019**
May-1977	31	0.9120	2.9921	0.0278	0.0174	0.3442	0.0000	0.8214	1.7814	**0.0217**
June-1977	30	0.2480	0.8136	0.0114	0.0084	0.1182	0.0000	0.2893	0.3863	**0.0077**
July-1977	31	0.5200	1.7060	0.0026	0.0019	0.0775	0.0000	0.1732	1.4508	**0.0049**
August-1977	31	1.2960	4.2520	0.0160	0.0109	0.7559	0.0000	1.7350	1.7341	**0.0477**
September-1977	30	0.5600	1.8373	0.0025	0.0019	0.1531	0.0000	0.3516	1.3281	**0.0100**
October-1977	31	1.7840	5.8530	0.0339	0.0221	1.0683	0.0000	2.4808	2.2480	**0.0674**
November-1977	30	2.7840	9.1338	0.2242	0.1237	1.5578	0.0000	3.7493	3.4788	**0.1015**
December-1977	31	2.4800	8.1365	0.5496	0.2720	1.4622	0.0000	4.0795	1.7732	**0.0922**
January-1978	31	1.7680	5.8006	0.5170	0.2539	0.7196	0.0000	2.2066	2.1035	**0.0454**
February-1978	28	1.4720	4.8295	0.3461	0.1661	0.5110	0.0000	1.4335	2.3728	**0.0357**
March-1978	31	0.9120	2.9921	0.1297	0.0609	0.3884	0.0000	1.0948	1.3184	**0.0245**
April-1978	30	0.9200	3.0184	0.0706	0.0410	0.2509	0.0000	0.6371	2.0188	**0.0163**
May-1978	31	0.9680	3.1758	0.0914	0.0464	0.3512	0.0000	0.9016	1.7853	**0.0221**
June-1978	30	0.1040	0.3412	0.0000	0.0000	0.0000	0.0000	0.0000	0.3412	**0.0000**
July-1978	31	0.4080	1.3386	0.0021	0.0016	0.0687	0.0000	0.1504	1.1159	**0.0043**
August-1978	31	0.6240	2.0472	0.0008	0.0006	0.0668	0.0000	0.0837	1.8954	**0.0042**
September-1978	30	1.0160	3.3333	0.0049	0.0037	0.3282	0.0000	0.8123	2.1842	**0.0214**
October-1978	31	0.2240	0.7349	0.0007	0.0006	0.0699	0.0000	0.1628	0.5009	**0.0044**
November-1978	30	4.9520	16.2467	0.3288	1.3038	4.2762	0.0000	5.8266	4.5114	**0.2786**
December-1978	31	1.0800	3.5433	0.1824	0.0950	0.6266	0.0000	2.2757	0.3636	**0.0395**
January-1979	31	0.6240	2.0472	0.0389	0.0184	0.2346	0.0000	0.5766	1.1787	**0.0148**
February-1979	28	2.4080	7.9003	0.4962	0.2233	1.2182	0.0000	3.2735	2.6890	**0.0850**
March-1979	31	0.3600	1.1811	0.0630	0.0322	0.1093	0.0000	0.3230	0.6535	**0.0069**
April-1979	30	0.7440	2.4409	0.0389	0.0206	0.1774	0.0000	0.4321	1.7719	**0.0116**
May-1979	31	0.2320	0.7612	0.0000	0.0000	0.0000	0.0000	0.0000	0.7612	**0.0000**

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June-1979	30	0.2000	0.6562	0.0000	0.0000	0.0000	0.0000	0.0000	0.6562	**0.0000**
July-1979	31	0.1600	0.5249	0.0000	0.0000	0.0000	0.0000	0.0000	0.5249	**0.0000**
August-1979	31	0.3200	1.0499	0.0002	0.0002	0.0422	0.0000	0.0991	0.9081	**0.0027**
September-1979	30	1.7600	5.7742	0.0155	0.0103	0.9830	0.0000	2.2685	2.4969	**0.0641**
October-1979	31	2.1600	7.0866	0.0547	0.0338	1.3153	0.0000	3.0772	2.6056	**0.0829**
November-1979	30	0.4000	1.3123	0.0159	0.0108	0.1425	0.0000	0.3471	0.7960	**0.0093**
December-1979	31	8.0800	26.5091	1.3446	3.4799	9.1150	0.0000	11.5711	0.9985	**0.5748**
January-1980	31	2.3200	7.6115	0.5367	0.1760	1.5822	0.0000	3.6908	1.6258	**0.0998**
February-1980	29	2.0800	6.8241	0.3866	0.1402	1.3051	0.0000	3.0649	1.9275	**0.0880**
March-1980	31	1.6800	5.5118	0.2780	0.0958	0.7936	0.0000	1.9703	2.3741	**0.0500**
April-1980	30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
May-1980	31	1.1200	3.6745	0.0707	0.0366	0.4862	0.0000	1.1745	1.9066	**0.0307**
June-1980	30	2.0000	6.5617	0.1058	0.0571	0.9308	0.0000	2.2089	3.2591	**0.0607**
July-1980	31	0.4000	1.3123	0.0093	0.0066	0.1039	0.0000	0.2442	0.9484	**0.0065**
August-1980	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
September-1980	30	1.4240	4.6719	0.0195	0.0145	0.5943	0.0000	1.3512	2.6924	**0.0387**
October-1980	31	0.3200	1.0499	0.0011	0.0008	0.0498	0.0000	0.1367	0.8615	**0.0031**
November-1980	30	6.5600	21.5222	0.5542	1.5684	5.9539	0.0000	9.3700	4.0757	**0.3880**
December-1980	31	4.6080	15.1181	1.2931	3.4464	4.9885	0.0000	3.7089	1.6813	**0.3146**
January-1981	31	0.7040	2.3097	0.1773	0.0898	1.5627	0.0000	2.8939	0.0000	**0.0985**
February-1981	28	2.9600	9.7113	0.6793	0.2308	2.1229	0.0000	4.9657	1.7125	**0.1482**
March-1981	31	0.7200	2.3622	0.0337	0.0156	0.1307	0.0000	0.2681	1.9140	**0.0082**
April-1981	30	2.0000	6.5617	0.2103	0.0792	0.9151	0.0000	2.2542	3.1028	**0.0596**
May-1981	31	1.3600	4.4619	0.1034	0.0421	0.5801	0.0000	1.3989	2.3375	**0.0366**
June-1981	30	1.3600	4.4619	0.0730	0.0327	0.4156	0.0000	0.9578	2.9829	**0.0271**
July-1981	31	0.4000	1.3123	0.0110	0.0079	0.1504	0.0000	0.3572	0.7858	**0.0095**
August-1981	31	0.1600	0.5249	0.0000	0.0000	0.0000	0.0000	0.0000	0.5249	**0.0000**
September-1981	30	1.7600	5.7742	0.0376	0.0265	0.9792	0.0000	2.2744	2.4566	**0.0638**
October-1981	31	2.3200	7.6115	0.1287	0.0794	1.2792	0.0000	3.0866	3.0377	**0.0807**
November-1981	30	2.7200	8.9239	0.3317	0.1718	1.5802	0.0000	3.9472	2.8930	**0.1030**
December-1981	31	5.4400	17.8477	1.2213	0.4224	3.9755	0.0000	9.8242	2.4044	**0.2507**

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January-1982	31	4.7200	15.4855	1.1286	0.4223	3.6308	0.0000	8.1207	2.1831	**0.2290**
February-1982	28	3.2800	10.7611	0.6910	0.2337	2.3940	0.0000	5.2720	2.1705	**0.1671**
March-1982	31	1.4400	4.7244	0.2316	0.0804	0.7257	0.0000	1.6604	2.0263	**0.0458**
April-1982	30	1.5280	5.0131	0.1138	0.0494	0.6227	0.0000	1.4994	2.7278	**0.0406**
May-1982	31	0.1520	0.4987	0.0000	0.0000	0.0000	0.0000	0.0000	0.4987	**0.0000**
June-1982	30	0.5120	1.6798	0.0236	0.0174	0.2098	0.0000	0.5077	0.9213	**0.0137**
July-1982	31	0.7200	2.3622	0.0166	0.0122	0.2246	0.0000	0.5445	1.5643	**0.0142**
August-1982	31	0.4000	1.3123	0.0042	0.0031	0.1721	0.0000	0.3961	0.7368	**0.0109**
September-1982	30	0.5600	1.8373	0.0015	0.0011	0.1231	0.0000	0.2801	1.4314	**0.0080**
October-1982	31	1.7600	5.7743	0.0223	0.0151	0.8958	0.0000	2.0700	2.7711	**0.0565**
November-1982	30	1.5040	4.9345	0.0537	0.0341	0.7254	0.0000	1.7244	2.3968	**0.0473**
December-1982	31	5.2000	17.0603	0.7262	0.9337	4.2329	0.0000	8.3356	2.8318	**0.2669**
January-1983	31	4.0800	13.3858	0.8721	1.0422	3.7508	0.0000	6.2187	1.5020	**0.2365**
February-1983	28	2.7200	8.9239	0.6435	0.2173	1.8515	0.0000	4.3664	1.8452	**0.1293**
March-1983	31	2.2400	7.3491	0.3657	0.1288	1.2709	0.0000	2.9581	2.6256	**0.0801**
April-1983	30	0.6080	1.9948	0.0174	0.0126	0.0675	0.0000	0.1545	1.7428	**0.0044**
May-1983	31	1.0400	3.4121	0.0514	0.0207	0.4012	0.0000	0.9624	1.9764	**0.0253**
June-1983	30	1.0400	3.4121	0.0250	0.0152	0.2749	0.0000	0.6428	2.4542	**0.0179**
July-1983	31	1.0400	3.4121	0.0230	0.0173	0.3146	0.0000	0.7260	2.3312	**0.0198**
August-1983	31	0.0800	0.2625	0.0000	0.0000	0.0000	0.0000	0.0000	0.2625	**0.0000**
September-1983	30	2.1120	6.9292	0.0545	0.0393	1.1142	0.0000	2.6263	3.0949	**0.0726**
October-1983	31	0.7920	2.5984	0.0077	0.0057	0.1614	0.0000	0.3569	2.0666	**0.0102**
November-1983	30	2.7200	8.9239	0.1809	0.1173	1.7066	0.0000	4.1904	2.7287	**0.1112**
December-1983	31	3.2000	10.4987	0.4699	0.2388	1.9328	0.0000	4.9789	2.8782	**0.1219**
January-1984	31	3.2480	10.6561	0.8952	0.3603	2.0386	0.0000	5.5217	1.8403	**0.1286**
February-1984	29	1.0400	3.4121	0.1433	0.0592	0.4176	0.0000	1.0615	1.7305	**0.0281**
March-1984	31	1.7600	5.7743	0.2480	0.1000	0.7866	0.0000	1.9682	2.6714	**0.0496**
April-1984	30	0.6400	2.0997	0.0057	0.0030	0.0510	0.0000	0.1174	1.9226	**0.0033**
May-1984	31	0.8800	2.8871	0.0091	0.0069	0.1019	0.0000	0.2367	2.5326	**0.0064**
June-1984	30	0.5184	1.7008	0.0255	0.0187	0.2170	0.0000	0.1320	1.3075	**0.0141**
July-1984	31	0.5184	1.7008	0.0417	0.0293	0.3636	0.0000	1.3008	0.0000	**0.0229**

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August-1984	31	0.5600	1.8373	0.0035	0.0026	0.1427	0.0000	0.3337	1.3548	**0.0090**
September-1984	30	1.1200	3.6745	0.0133	0.0096	0.6002	0.0000	1.3945	1.6569	**0.0391**
October-1984	31	2.4576	8.0630	0.1005	0.0628	1.5976	0.0000	2.3951	3.9070	**0.1007**
November-1984	30	5.5840	18.3201	0.9409	1.7751	4.9699	0.0000	9.1810	1.4532	**0.3238**
December-1984	31	3.5200	11.5485	0.8164	0.3063	2.8504	0.0000	6.4240	1.1514	**0.1797**
January-1985	31	0.4000	1.3123	0.1647	0.0588	0.1620	0.0000	0.5317	0.3951	**0.0102**
February-1985	28	1.9200	6.2992	0.4540	0.1559	1.2624	0.0000	3.0148	1.4121	**0.0881**
March-1985	31	0.5600	1.8373	0.0754	0.0254	0.2489	0.0000	0.5866	0.9009	**0.0157**
April-1985	30	0.8800	2.8871	0.0646	0.0267	0.2913	0.0000	0.7084	1.7961	**0.0190**
May-1985	31	0.6481	2.1262	0.0047	0.0035	0.0424	0.0000	0.0773	1.9983	**0.0027**
June-1985	30	0.7920	2.5985	0.0894	0.0557	0.4060	0.0000	1.0628	0.9846	**0.0265**
July-1985	31	0.1600	0.5249	0.0011	0.0009	0.0545	0.0000	0.0862	0.3822	**0.0034**
August-1985	31	0.4800	1.5748	0.0009	0.0007	0.0536	0.0000	0.1598	1.3598	**0.0034**
September-1985	30	0.6400	2.0997	0.0006	0.0004	0.0717	0.0000	0.1540	1.8730	**0.0047**
October-1985	31	5.6800	18.6351	0.2894	1.6938	5.1844	0.0000	7.0143	4.4533	**0.3269**
November-1985	30	2.4000	7.8740	0.4596	0.1764	1.5310	0.0000	3.9479	1.7591	**0.0998**
December-1985	31	0.4000	1.3123	0.1460	0.0555	0.2146	0.0000	0.6027	0.2936	**0.0135**
January-1986	31	4.9600	16.2729	0.8646	3.3310	7.0636	0.0375	5.6836	0.0000	**0.4454**
February-1986	28	2.9600	9.7113	0.6819	0.2307	2.0714	0.0000	4.8158	1.9114	**0.1446**
March-1986	31	0.7120	2.3361	0.0005	0.0000	0.0152	0.0000	0.0164	2.3040	**0.0010**
April-1986	30	0.7200	2.3622	0.0245	0.0167	0.1820	0.0000	0.4433	1.6957	**0.0119**
May-1986	31	0.8000	2.6247	0.0241	0.0130	0.1652	0.0000	0.3910	2.0314	**0.0104**
June-1986	30	0.2400	0.7874	0.0000	0.0000	0.0000	0.0000	0.0000	0.7874	**0.0000**
July-1986	31	0.2400	0.7874	0.0000	0.0000	0.0000	0.0000	0.0000	0.7874	**0.0000**
August-1986	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
September-1986	30	0.6400	2.0997	0.0010	0.0007	0.1841	0.0000	0.4209	1.4930	**0.0120**
October-1986	31	0.9600	3.1496	0.0067	0.0045	0.5761	0.0000	1.3094	1.2529	**0.0363**
November-1986	30	4.7200	15.4855	0.3629	0.1575	3.2956	0.0000	8.0053	3.6643	**0.2147**
December-1986	31	1.2800	4.1995	0.2435	0.0948	0.6754	0.0000	1.7345	1.4513	**0.0426**
January-1987	31	3.2800	10.7611	0.7562	0.2640	2.1012	0.0000	4.8358	2.8040	**0.1325**
February-1987	28	1.1200	3.6745	0.2377	0.0752	1.0173	0.0000	2.5731	0.0000	**0.0710**

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March-1987	31	1.2000	3.9370	0.2202	0.0787	0.6441	0.0000	1.5702	1.4237	**0.0406**
April-1987	30	0.8000	2.6247	0.0354	0.0143	0.1715	0.0000	0.4018	2.0017	**0.0112**
May-1987	31	0.6400	2.0997	0.0173	0.0130	0.1639	0.0000	0.3805	1.5249	**0.0103**
June-1987	30	0.3200	1.0499	0.0050	0.0037	0.0894	0.0000	0.2281	0.7237	**0.0058**
July-1987	31	0.8080	2.6510	0.0118	0.0088	0.2295	0.0000	0.5411	1.8598	**0.0145**
August-1987	31	0.4800	1.5748	0.0059	0.0044	0.2680	0.0000	0.6255	0.6709	**0.0169**
September-1987	30	0.7200	2.3622	0.0046	0.0032	0.4479	0.0000	1.0415	0.8651	**0.0292**
October-1987	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
November-1987	30	1.3600	4.4619	0.0121	0.0078	0.7452	0.0000	1.7318	1.9649	**0.0486**
December-1987	31	4.9720	16.3123	0.5811	2.2324	5.4424	0.0000	6.6389	1.4176	**0.3432**
January-1988	31	2.0800	6.8241	0.3807	0.1368	1.2802	0.0000	3.1603	1.8661	**0.0807**
February-1988	29	0.8800	2.8871	0.1680	0.0678	0.3421	0.0000	0.9002	1.4091	**0.0231**
March-1988	31	3.1200	10.2362	0.5270	0.1833	1.9028	0.0000	4.6056	3.0175	**0.1200**
April-1988	30	1.7600	5.7742	0.3274	0.1120	1.0383	0.0000	2.4122	1.8844	**0.0677**
May-1988	31	1.2800	4.1995	0.0826	0.0308	0.4223	0.0000	1.0546	2.6091	**0.0266**
June-1988	30	0.4800	1.5748	0.0225	0.0124	0.1479	0.0000	0.3598	1.0322	**0.0096**
July-1988	31	0.4800	1.5748	0.0032	0.0024	0.0548	0.0000	0.1249	1.3895	**0.0035**
August-1988	31	0.2400	0.7874	0.0010	0.0008	0.0551	0.0000	0.1236	0.6069	**0.0035**
September-1988	30	1.0400	3.4121	0.0084	0.0060	0.5547	0.0000	1.2780	1.5649	**0.0361**
October-1988	31	1.6880	5.5381	0.0331	0.0225	0.8786	0.0000	1.9339	2.6700	**0.0554**
November-1988	30	3.7600	12.3359	0.3563	0.1860	2.3609	0.0000	5.9730	3.4597	**0.1538**
December-1988	31	3.6800	12.0734	0.7604	0.2963	2.3702	0.0000	5.4144	3.2322	**0.1495**
January-1989	31	2.6400	8.6614	0.6131	0.2082	1.6539	0.0000	4.4732	1.7130	**0.1043**
February-1989	28	1.6000	5.2493	0.3975	0.1380	0.9812	0.0000	2.5564	1.1763	**0.0685**
March-1989	31	2.4000	7.8740	0.4246	0.1423	1.1639	0.0000	2.7700	3.3733	**0.0734**
April-1989	30	1.2800	4.1994	0.1834	0.0631	0.6516	0.0000	1.5416	1.7598	**0.0425**
May-1989	31	0.4800	1.5748	0.0052	0.0039	0.0662	0.0000	0.1558	1.3437	**0.0042**
June-1989	30	0.2400	0.7874	0.0000	0.0000	0.0000	0.0000	0.0000	0.7874	**0.0000**
July-1989	31	0.3200	1.0499	0.0017	0.0013	0.0565	0.0000	0.1269	0.8635	**0.0036**
August-1989	31	0.9600	3.1496	0.0083	0.0060	0.4611	0.0000	1.0677	1.6066	**0.0291**
September-1989	30	0.4800	1.5748	0.0020	0.0015	0.1664	0.0000	0.3910	1.0139	**0.0108**

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October-1989	31	1.0400	3.4121	0.0046	0.0034	0.3696	0.0000	0.8293	2.2052	**0.0233**
November-1989	30	4.4800	14.6981	0.3077	0.1574	2.9641	0.0000	7.1994	4.0695	**0.1931**
December-1989	31	2.8000	9.1864	0.6452	0.6220	2.0055	0.0000	4.0941	1.8195	**0.1265**
January-1990	31	4.2320	13.8845	1.3423	0.5374	2.4937	0.0000	6.7164	2.7947	**0.1573**
February-1990	28	3.2000	10.4987	0.9854	0.3504	2.0977	0.0000	5.1847	1.8804	**0.1465**
March-1990	31	0.8000	2.6247	0.0457	0.0192	0.2263	0.0000	0.5241	1.8094	**0.0143**
April-1990	30	1.2000	3.9370	0.0669	0.0319	0.4124	0.0000	0.9668	2.4591	**0.0269**
May-1990	31	1.2800	4.1995	0.0754	0.0348	0.4782	0.0000	1.0499	2.5612	**0.0302**
June-1990	30	0.7200	2.3622	0.0225	0.0138	0.1365	0.0000	0.4139	1.7754	**0.0089**
July-1990	31	0.2400	0.7874	0.0042	0.0032	0.0502	0.0000	0.1247	0.6051	**0.0032**
August-1990	31	1.2000	3.9370	0.0166	0.0120	0.6035	0.0000	1.0545	2.2504	**0.0381**
September-1990	30	0.0800	0.2625	0.0000	0.0000	0.0004	0.0000	0.3491	0.0000	**0.0000**
October-1990	31	3.6800	12.0734	0.1221	0.0731	2.0238	0.0000	4.6920	5.1625	**0.1276**
November-1990	30	7.9200	25.9841	1.3498	1.9102	7.4297	0.0000	12.4529	2.8416	**0.4841**
December-1990	31	3.4081	11.1813	1.2097	0.4758	2.4267	0.0000	6.4099	0.6592	**0.1530**
January-1991	31	2.7760	9.1076	1.1766	0.4769	1.4786	0.0000	4.4129	1.5626	**0.0932**
February-1991	28	4.1600	13.6483	0.8088	0.2761	3.4532	0.0000	7.3579	1.7522	**0.2411**
March-1991	31	2.4000	7.8740	0.3204	0.1157	1.4858	0.0000	3.2568	2.6953	**0.0937**
April-1991	30	2.7360	8.9764	0.7319	0.5730	2.0060	0.0000	3.8337	1.8319	**0.1307**
May-1991	31	0.4800	1.5748	0.0114	0.0069	0.0923	0.0000	0.2294	1.2348	**0.0058**
June-1991	30	0.4560	1.4961	0.0212	0.0160	0.0746	0.0000	0.2020	1.1822	**0.0049**
July-1991	31	0.4240	1.3911	0.0000	0.0000	0.0000	0.0000	0.0000	1.3911	**0.0000**
August-1991	31	1.1200	3.6745	0.0162	0.0120	0.4432	0.0000	0.9296	2.2734	**0.0279**
September-1991	30	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0747	0.0000	**0.0000**
October-1991	31	1.6800	5.5118	0.0266	0.0180	0.9578	0.0000	1.8090	2.7004	**0.0604**
November-1991	30	3.8400	12.5984	0.3336	0.1708	2.4904	0.0000	6.5574	3.0461	**0.1623**
December-1991	31	2.2400	7.3491	0.4270	0.1604	1.4953	0.0000	3.7647	1.5017	**0.0943**
January-1992	31	4.8800	16.0105	0.9249	0.8522	3.8939	0.0000	5.8334	4.5060	**0.2455**
February-1992	29	2.0000	6.5617	0.5041	0.1707	1.5795	0.0000	5.0110	0.0000	**0.1065**
March-1992	31	0.8800	2.8871	0.1107	0.0368	0.4263	0.0000	1.0232	1.2901	**0.0269**
April-1992	30	1.7600	5.7743	0.1283	0.0555	0.6385	0.0000	1.5162	3.4358	**0.0416**

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May-1992	31	0.1600	0.5249	0.0001	0.0001	0.0008	0.0000	0.0287	0.4952	**0.0001**
June-1992	30	1.1200	3.6745	0.0503	0.0332	0.5576	0.0000	1.2448	1.7886	**0.0363**
July-1992	31	0.5600	1.8373	0.0214	0.0145	0.2386	0.0000	0.6672	0.8955	**0.0150**
August-1992	31	0.4000	1.3123	0.0047	0.0035	0.1146	0.0000	0.2646	0.9250	**0.0072**
September-1992	30	1.2000	3.9370	0.0133	0.0096	0.6723	0.0000	1.5673	1.6745	**0.0438**
October-1992	31	1.0400	3.4121	0.0095	0.0070	0.4460	0.0000	0.8879	2.0617	**0.0281**
November-1992	30	2.8000	9.1863	0.0887	0.0556	1.4908	0.0000	3.5828	3.9684	**0.0971**
December-1992	31	2.0800	6.8241	0.1814	0.1008	1.1256	0.0000	2.7749	2.6414	**0.0710**
January-1993	31	2.2400	7.3491	0.3986	0.1849	1.4845	0.0000	3.9399	1.3412	**0.0936**
February-1993	28	0.2400	0.7874	0.0223	0.0117	0.0446	0.0000	0.1335	0.5752	**0.0031**
March-1993	31	1.0400	3.4121	0.1922	0.0814	0.5704	0.0000	1.4923	1.0758	**0.0360**
April-1993	30	0.9600	3.1496	0.2246	0.0991	0.3759	0.0000	1.0553	1.3948	**0.0245**
May-1993	31	1.9200	6.2992	0.1866	0.0800	0.8860	0.0000	1.5712	3.5754	**0.0559**
June-1993	30	0.7200	2.3622	0.0831	0.0471	0.3050	0.0000	1.3943	0.5329	**0.0199**
July-1993	31	0.7200	2.3622	0.0218	0.0148	0.2933	0.0000	0.7052	1.3271	**0.0185**
August-1993	31	0.4000	1.3123	0.0092	0.0068	0.2208	0.0000	0.5242	0.5514	**0.0139**
September-1993	30	0.0800	0.2625	0.0000	0.0000	0.0000	0.0000	0.0000	0.2625	**0.0000**
October-1993	31	1.2800	4.1995	0.0119	0.0085	0.5789	0.0000	1.3377	2.2625	**0.0365**
November-1993	30	0.9600	3.1496	0.0125	0.0083	0.3624	0.0000	0.5905	2.1760	**0.0236**
December-1993	31	1.3600	4.4619	0.0745	0.0447	0.9553	0.0000	2.5434	0.8440	**0.0602**
January-1994	31	1.2480	4.0945	0.0739	0.0449	0.5399	0.0000	1.3197	2.1160	**0.0340**
February-1994	28	2.0617	6.7641	0.2640	0.1462	1.0471	0.0000	2.7028	2.6039	**0.0731**
March-1994	31	1.7722	5.8142	0.2984	0.1564	0.7504	0.0000	2.0448	2.5641	**0.0473**
April-1994	30	1.7722	5.8142	0.2046	0.1091	0.6531	0.0000	1.6397	3.2076	**0.0426**
May-1994	31	0.6090	1.9981	0.0067	0.0050	0.0448	0.0000	0.1565	1.7850	**0.0028**
June-1994	30	0.8387	2.7515	0.0237	0.0172	0.2513	0.0000	0.6103	1.8491	**0.0164**
July-1994	31	0.1448	0.4750	0.0000	0.0000	0.0046	0.0000	0.0108	0.4596	**0.0003**
August-1994	31	0.0749	0.2457	0.0000	0.0000	0.0000	0.0000	0.0000	0.2457	**0.0000**
September-1994	30	0.7788	2.5550	0.0022	0.0017	0.1888	0.0000	0.4397	1.9226	**0.0123**
October-1994	31	1.8071	5.9288	0.0200	0.0129	0.9513	0.0000	1.9131	3.0315	**0.0600**
November-1994	30	3.5293	11.5792	0.3270	0.1658	2.1217	0.0000	5.0489	3.9158	**0.1383**

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December-1994	31	3.5743	11.7266	0.9551	0.4206	2.0978	0.0000	6.2533	1.9999	**0.1323**
January-1995	31	2.0767	6.8132	0.6378	0.2805	0.9701	0.0000	2.6244	2.3004	**0.0612**
February-1995	28	1.1631	3.8161	0.3466	0.1505	0.4963	0.0000	1.6509	1.1717	**0.0347**
March-1995	31	2.5459	8.3527	0.6402	0.2592	1.0867	0.0000	2.9834	3.3831	**0.0685**
April-1995	30	1.3928	4.5694	0.1243	0.0604	0.4069	0.0000	0.9842	2.9936	**0.0265**
May-1995	31	0.7987	2.6205	0.0817	0.0365	0.2538	0.0000	0.6364	1.6121	**0.0160**
June-1995	30	0.5791	1.8998	0.0263	0.0192	0.1356	0.0000	0.3459	1.3728	**0.0088**
July-1995	31	0.7438	2.4403	0.0244	0.0181	0.2998	0.0000	0.7265	1.3716	**0.0189**
August-1995	31	1.7173	5.6340	0.0373	0.0276	0.5836	0.0000	1.3429	3.6426	**0.0368**
September-1995	30	0.6440	2.1127	0.0045	0.0034	0.1882	0.0000	0.3791	1.5376	**0.0123**
October-1995	31	2.5859	8.4838	0.0579	0.0413	1.1563	0.0000	2.6961	4.5322	**0.0729**
November-1995	30	3.0202	9.9087	0.2312	0.1462	1.5530	0.0000	3.7912	4.1872	**0.1012**
December-1995	31	3.1999	10.4982	0.7001	0.3719	1.7646	0.0000	4.9304	2.7313	**0.1113**
January-1996	31	2.7406	8.9915	0.9311	0.4127	1.5675	0.0000	4.6069	1.4733	**0.0988**
February-1996	29	3.3746	11.0715	1.1793	0.4450	2.1674	0.0000	5.8027	1.4771	**0.1461**
March-1996	31	0.9285	3.0463	0.2689	0.1078	0.3361	0.0000	0.6957	1.6377	**0.0212**
April-1996	30	2.6108	8.5656	0.8464	0.3145	1.7027	0.0000	4.5700	1.1320	**0.1110**
May-1996	31	2.4211	7.9433	0.2980	0.1233	0.8043	0.0000	1.9875	4.7303	**0.0507**
June-1996	30	0.7288	2.3912	0.0379	0.0196	0.2797	0.0000	0.6631	1.3908	**0.0182**
July-1996	31	0.3844	1.2611	0.0000	0.0000	0.0000	0.0000	0.0000	1.2611	**0.0000**
August-1996	31	0.6290	2.0636	0.0214	0.0162	0.1875	0.0000	0.4189	1.4196	**0.0118**
September-1996	30	1.6074	5.2737	0.0290	0.0215	0.5879	0.0000	1.3728	3.2624	**0.0383**
October-1996	31	3.1949	10.4819	0.1448	0.1023	1.4942	0.0000	3.5796	5.1610	**0.0942**
November-1996	30	2.4660	8.0907	0.2629	0.1659	1.2331	0.0000	3.1043	3.3245	**0.0804**
December-1996	31	5.0469	16.5581	1.0772	1.3826	2.7657	0.0000	5.0759	6.2566	**0.1744**
January-1997	31	3.5194	11.5464	1.3944	1.6309	4.5650	0.0000	7.3846	0.0000	**0.2879**
February-1997	28	1.5176	4.9789	0.5845	0.2341	0.8246	0.0000	2.4128	0.9229	**0.0576**
March-1997	31	3.5493	11.6447	1.2717	0.4741	2.4434	0.0000	6.3004	1.1552	**0.1541**
April-1997	30	0.0000	0.0000	0.0461	0.0156	-0.0086	0.0000	0.0289	0.0000	**-0.0006**
May-1997	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
June-1997	30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**

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July-1997	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
August-1997	31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
September-1997	30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
October-1997	31	1.0054	3.2985	0.0096	0.0067	0.5555	0.0000	1.1836	1.5432	**0.0350**
November-1997	30	1.9998	6.5610	0.0670	0.0397	1.1090	0.0000	2.6827	2.6626	**0.0723**
December-1997	31	1.5954	5.2344	0.1288	0.0696	0.7802	0.0000	1.9368	2.3190	**0.0492**
January-1998	31	3.7520	12.3097	0.8552	0.4026	2.0454	0.0000	5.6059	3.4006	**0.1290**
February-1998	28	1.7567	5.7634	0.4639	0.2122	0.6349	0.0000	1.8816	2.5708	**0.0443**
March-1998	31	2.2065	7.2390	0.4680	0.2083	0.8698	0.0000	2.4269	3.2660	**0.0548**
April-1998	30	1.1102	3.6425	0.1857	0.0796	0.4745	0.0000	1.2458	1.6568	**0.0309**
May-1998	31	1.6623	5.4539	0.2083	0.1140	0.5642	0.0000	1.5173	3.0500	**0.0356**
June-1998	30	1.3249	4.3467	0.0386	0.0244	0.4415	0.0000	1.0511	2.7911	**0.0288**
July-1998	31	0.3085	1.0122	0.0000	0.0000	0.0070	0.0000	0.0003	1.0049	**0.0004**
August-1998	31	0.1782	0.5847	0.0006	0.0004	0.0312	0.0000	0.0699	0.4826	**0.0020**
September-1998	30	0.4473	1.4675	0.0016	0.0012	0.1394	0.0000	0.3219	1.0033	**0.0091**
October-1998	31	2.0887	6.8525	0.0338	0.0231	1.0701	0.0000	2.4894	3.2361	**0.0675**
November-1998	30	6.1680	20.2362	0.9058	0.5067	4.0794	0.0000	9.9276	4.8167	**0.2658**
December-1998	31	4.0160	13.1758	1.1824	0.4465	2.5954	0.0000	6.6967	2.2547	**0.1637**
January-1999	31	6.4080	21.0236	1.4362	3.4507	7.8170	0.0000	7.5531	0.7666	**0.4929**
February-1999	28	6.2160	20.3937	1.8346	1.1495	5.5950	0.0000	10.9778	0.8368	**0.3906**
March-1999	31	2.6080	8.5564	0.5732	0.2195	1.5150	0.0000	4.0496	2.1991	**0.0955**
April-1999	30	1.1280	3.7008	0.1074	0.0349	0.7433	0.0000	1.5221	1.2931	**0.0484**
May-1999	31	0.7920	2.5984	0.0227	0.0171	0.1290	0.0000	0.3176	2.1120	**0.0081**
June-1999	30	0.9920	3.2546	0.0297	0.0213	0.1715	0.0000	0.4167	2.6154	**0.0112**
July-1999	31	0.8240	2.7034	0.0317	0.0218	0.3821	0.0000	0.9161	1.3517	**0.0241**
August-1999	31	0.6480	2.1260	0.0060	0.0046	0.1062	0.0000	0.2497	1.7595	**0.0067**
September-1999	30	0.1120	0.3675	0.0000	0.0000	0.0000	0.0000	0.0000	0.3675	**0.0000**
October-1999	31	2.8160	9.2388	0.0707	0.0447	1.6751	0.0000	3.1587	4.2896	**0.1056**
November-1999	30	4.9760	16.3254	0.8848	0.4199	2.9602	0.0000	7.9994	4.0611	**0.1929**
December-1999	31	3.5040	11.4961	0.9916	0.3910	2.4024	0.0000	6.5864	1.1247	**0.1515**
January-2000	31	2.5040	8.2152	0.7781	0.2960	1.3176	0.0000	3.5690	2.2546	**0.0831**

February-2000	29	1.2560	4.1207	0.2875	0.1126	0.5942	0.0000	1.5223	1.6042	**0.0401**
March-2000	31	1.3040	4.2782	0.1481	0.0613	0.3437	0.0000	0.8986	2.8265	**0.0217**
April-2000	30	1.5200	4.9869	0.1200	0.0454	0.6483	0.0000	1.4863	2.6869	**0.0422**
May-2000	31	1.5520	5.0918	0.0746	0.0439	0.2906	0.0000	0.7084	3.9743	**0.0183**
June-2000	30	0.9040	2.9659	0.0187	0.0078	0.3378	0.0000	0.7778	1.8238	**0.0220**
July-2000	31	0.3840	1.2598	0.0063	0.0048	0.0493	0.0000	0.1198	1.0796	**0.0031**
August-2000	31	0.2160	0.7087	0.0000	0.0000	0.0000	0.0000	0.0000	0.7087	**0.0000**
September-2000	30	0.9760	3.2021	0.0057	0.0042	0.3661	0.0000	0.6883	2.1378	**0.0239**
October-2000	31	2.0080	6.5879	0.0471	0.0301	1.0743	0.0000	2.6701	2.7663	**0.0677**
November-2000	30	2.3760	7.7953	0.1770	0.0994	1.3392	0.0000	3.1211	3.0587	**0.0873**
December-2000	31	1.4560	4.7769	0.1885	0.1011	0.7520	0.0000	2.1002	1.6350	**0.0474**
January-2001	31	2.2800	7.4803	0.4221	0.2008	1.1902	0.0000	3.1924	2.4748	**0.0751**
February-2001	28	1.5600	5.1181	0.3551	0.1540	0.7536	0.0000	2.0378	1.8177	**0.0526**
March-2001	31	1.5840	5.1968	0.1269	0.0616	0.4298	0.0000	0.9881	3.5905	**0.0271**
April-2001	30	2.3680	7.7690	0.3235	0.1281	1.2376	0.0000	2.9196	3.1602	**0.0806**
May-2001	31	0.8560	2.8084	0.0347	0.0255	0.2390	0.0000	0.7496	1.7596	**0.0151**
June-2001	30	0.7120	2.3360	0.0019	0.0014	0.0486	0.0000	0.0865	2.1975	**0.0032**
July-2001	31	0.1680	0.5512	0.0000	0.0000	0.0000	0.0000	0.0000	0.5512	**0.0000**
August-2001	31	0.7920	2.5984	0.0030	0.0023	0.1544	0.0000	0.3446	2.0941	**0.0097**
September-2001	30	0.6080	1.9947	0.0020	0.0015	0.2085	0.0000	0.4760	1.3066	**0.0136**
October-2001	31	2.6480	8.6876	0.0554	0.0341	1.3830	0.0000	3.0025	4.2127	**0.0872**
November-2001	30	3.4240	11.2336	0.4305	0.2168	2.0277	0.0000	5.3255	3.2330	**0.1321**
December-2001	31	4.3680	14.3307	1.1026	1.2296	3.8229	0.0000	6.9073	1.2682	**0.2411**
January-2002	31	4.3840	14.3832	1.2187	0.6319	3.0106	0.0000	6.8013	2.7206	**0.1898**
February-2002	28	2.7440	9.0026	0.8503	0.3150	1.7316	0.0000	4.3604	1.7453	**0.1209**
March-2002	31	3.2880	10.7874	0.8561	0.3102	2.0518	0.0000	4.9521	2.6173	**0.1294**
April-2002	30	2.2720	7.4540	0.3210	0.1158	1.2689	0.0000	2.9759	2.7723	**0.0827**
May-2002	31	0.5360	1.7585	0.0277	0.0152	0.1052	0.0000	0.2691	1.3413	**0.0066**
June-2002	30	0.4240	1.3911	0.0000	0.0000	0.0000	0.0000	0.0000	1.3911	**0.0000**
July-2002	31	0.0400	0.1312	0.0000	0.0000	0.0000	0.0000	0.0000	0.1312	**0.0000**
August-2002	31	0.1200	0.3937	0.0000	0.0000	0.0000	0.0000	0.0000	0.3937	**0.0000**

Attachment 1a
WWHM Output Mass Balance and
Calculated Facility Recharge Rates
Groundwater Mounding Analysis
Rainier Street Regional Pond
Port Townsend, Washington

September-2002	30	0.4400	1.4436	0.0020	0.0015	0.1531	0.0000	0.3543	0.9327	**0.0100**
October-2002	31	0.6400	2.0997	0.0044	0.0032	0.3075	0.0000	0.7071	1.0775	**0.0194**
November-2002	30	2.1360	7.0078	0.0517	0.0327	1.2791	0.0000	2.9804	2.6640	**0.0833**
December-2002	31	4.2080	13.8057	0.4926	0.2394	2.6723	0.0000	6.6954	3.7060	**0.1685**
January-2003	31	4.1520	13.6220	1.1713	0.4642	2.4573	0.0000	6.5069	3.0223	**0.1550**
February-2003	28	0.4640	1.5223	0.0887	0.0383	0.1272	0.0000	0.5231	0.7450	**0.0089**
March-2003	31	4.6960	15.4068	1.0969	0.7718	3.0976	0.0000	6.2056	4.2348	**0.1953**
April-2003	30	2.1920	7.1916	0.2665	0.0886	1.0740	0.0000	2.4717	3.2908	**0.0700**
May-2003	31	0.8640	2.8346	0.0228	0.0172	0.1083	0.0000	0.2547	2.4317	**0.0068**
June-2003	30	0.4240	1.3911	0.0153	0.0105	0.1501	0.0000	0.2607	0.9544	**0.0098**
July-2003	31	0.1760	0.5774	0.0000	0.0000	0.0122	0.0000	0.1331	0.4321	**0.0008**
August-2003	31	0.2000	0.6562	0.0000	0.0000	0.0087	0.0000	0.0206	0.6268	**0.0005**
September-2003	30	0.6160	2.0210	0.0030	0.0022	0.1827	0.0000	0.4120	1.4211	**0.0119**
October-2003	31	7.2160	23.6745	0.6987	3.8748	8.5103	0.0000	8.3306	2.2601	**0.5367**
November-2003	30	4.9920	16.3779	1.2717	2.1178	5.1956	0.0000	6.8356	0.9572	**0.3386**
December-2003	31	3.1360	10.2887	0.9488	0.3479	2.1273	0.0000	5.2654	1.5995	**0.1341**
January-2004	31	2.8080	9.2126	0.7610	0.2858	1.5553	0.0000	3.1909	3.4196	**0.0981**
February-2004	29	0.5680	1.8635	0.1309	0.0522	0.2113	0.0000	1.2566	0.2125	**0.0142**
March-2004	31	1.8400	6.0367	0.3527	0.1493	0.7775	0.0000	2.0419	2.7153	**0.0490**
April-2004	30	1.4080	4.6194	0.1375	0.0535	0.7484	0.0000	1.7200	1.9601	**0.0488**
May-2004	31	1.0240	3.3596	0.0457	0.0282	0.2084	0.0000	0.5133	2.5640	**0.0131**
June-2004	30	0.4400	1.4436	0.0021	0.0016	0.0270	0.0000	0.0553	1.3576	**0.0018**
July-2004	31	0.3760	1.2336	0.0047	0.0035	0.0516	0.0000	0.1173	1.0564	**0.0033**
August-2004	31	2.1280	6.9816	0.0485	0.0343	1.1111	0.0000	2.6010	3.1867	**0.0701**
September-2004	30	1.1600	3.8057	0.0135	0.0099	0.3095	0.0000	0.6860	2.7868	**0.0202**
October-2004	31	1.3440	4.4094	0.0317	0.0235	0.5648	0.0000	1.3300	2.4595	**0.0356**
November-2004	30	2.8560	9.3700	0.2248	0.1437	1.6151	0.0000	4.0045	3.3820	**0.1052**
December-2004	31	3.5520	11.6535	0.6595	0.5251	2.3514	0.0000	5.5002	2.6173	**0.1483**
January-2005	31	2.0080	6.5879	0.5171	0.2278	0.9605	0.0000	2.6990	2.1835	**0.0606**
February-2005	28	0.8480	2.7821	0.2282	0.0911	0.3761	0.0000	1.0505	1.0362	**0.0263**
March-2005	31	2.2880	7.5065	0.4066	0.1713	1.1304	0.0000	2.9387	2.8596	**0.0713**

April-2005	30	2.3600	7.7427	0.3447	0.1230	1.1756	0.0000	2.7460	3.3534	**0.0766**
May-2005	31	1.5680	5.1443	0.0768	0.0382	0.4076	0.0000	0.9620	3.6597	**0.0257**
June-2005	30	1.0320	3.3858	0.0416	0.0233	0.2826	0.0000	0.6876	2.3507	**0.0184**
July-2005	31	0.3760	1.2336	0.0077	0.0058	0.0708	0.0000	0.1723	0.9771	**0.0045**
August-2005	31	0.7840	2.5722	0.0103	0.0077	0.3917	0.0000	0.9142	1.2483	**0.0247**
September-2005	30	0.6640	2.1785	0.0064	0.0047	0.3437	0.0000	0.6991	1.1246	**0.0224**
October-2005	31	1.5760	5.1706	0.0140	0.0094	0.4838	0.0000	0.9481	3.7153	**0.0305**
November-2005	30	2.7040	8.8714	0.1848	0.1069	1.5979	0.0000	4.1193	2.8624	**0.1041**
December-2005	31	3.4160	11.2073	0.6290	0.3017	2.1021	0.0000	5.3204	2.8541	**0.1326**
January-2006	31	6.3040	20.6824	1.6829	1.0059	4.7276	0.0000	9.5927	3.6733	**0.2981**
February-2006	28	1.6960	5.5643	0.4488	0.1567	1.1934	0.0000	3.7561	0.0093	**0.0833**
March-2006	31	1.6000	5.2493	0.2591	0.0969	0.8280	0.0000	1.9509	2.1144	**0.0522**
April-2006	30	1.9360	6.3517	0.2020	0.0774	0.9432	0.0000	2.1642	2.9649	**0.0615**
May-2006	31	0.8080	2.6509	0.0505	0.0316	0.1633	0.0000	0.4201	1.9853	**0.0103**
June-2006	30	0.5680	1.8635	0.0495	0.0268	0.2252	0.0000	0.5672	0.9948	**0.0147**
July-2006	31	0.1600	0.5249	0.0000	0.0000	0.0000	0.0000	0.0000	0.5249	**0.0000**
August-2006	31	0.2160	0.7087	0.0006	0.0004	0.0329	0.0000	0.0754	0.5993	**0.0021**
September-2006	30	0.5920	1.9422	0.0023	0.0017	0.1996	0.0000	0.4562	1.2824	**0.0130**
October-2006	31	1.2400	4.0682	0.0079	0.0057	0.5307	0.0000	1.2099	2.3140	**0.0335**
November-2006	30	8.5760	28.1364	1.2708	0.5965	5.9913	0.0000	14.3955	5.8823	**0.3904**
December-2006	31	2.2400	7.3491	0.6783	0.2471	1.4551	0.0000	3.8536	1.1148	**0.0918**
January-2007	31	2.6080	8.5564	0.6129	0.2061	2.0291	0.0000	4.5399	1.1685	**0.1280**
February-2007	28	0.2880	0.9449	0.0068	0.0051	0.0563	0.0000	0.1398	0.7369	**0.0039**
March-2007	31	1.3440	4.4094	0.1263	0.0512	0.6133	0.0000	1.4873	2.1313	**0.0387**
April-2007	30	0.3120	1.0236	0.0000	0.0000	0.0000	0.0000	0.0000	1.0236	**0.0000**
May-2007	31	0.2000	0.6562	0.0059	0.0045	0.0490	0.0000	0.1216	0.4752	**0.0031**
June-2007	30	0.3360	1.1024	0.0003	0.0002	0.0236	0.0000	0.0557	1.0226	**0.0015**
July-2007	31	0.1440	0.4724	0.0000	0.0000	0.0000	0.0000	0.0015	0.4708	**0.0000**
August-2007	31	0.8640	2.8346	0.0053	0.0038	0.3590	0.0000	0.8182	1.6484	**0.0226**
September-2007	30	0.0560	0.1837	0.0000	0.0000	0.0000	0.0000	0.0000	0.1837	**0.0000**
October-2007	31	1.3280	4.3570	0.0099	0.0063	0.7317	0.0000	1.6749	1.9341	**0.0461**

Attachment 1a
WWHM Output Mass Balance and Calculated Facility Recharge Rates
Groundwater Mounding Analysis
Rainier Street Regional Pond
Port Townsend, Washington

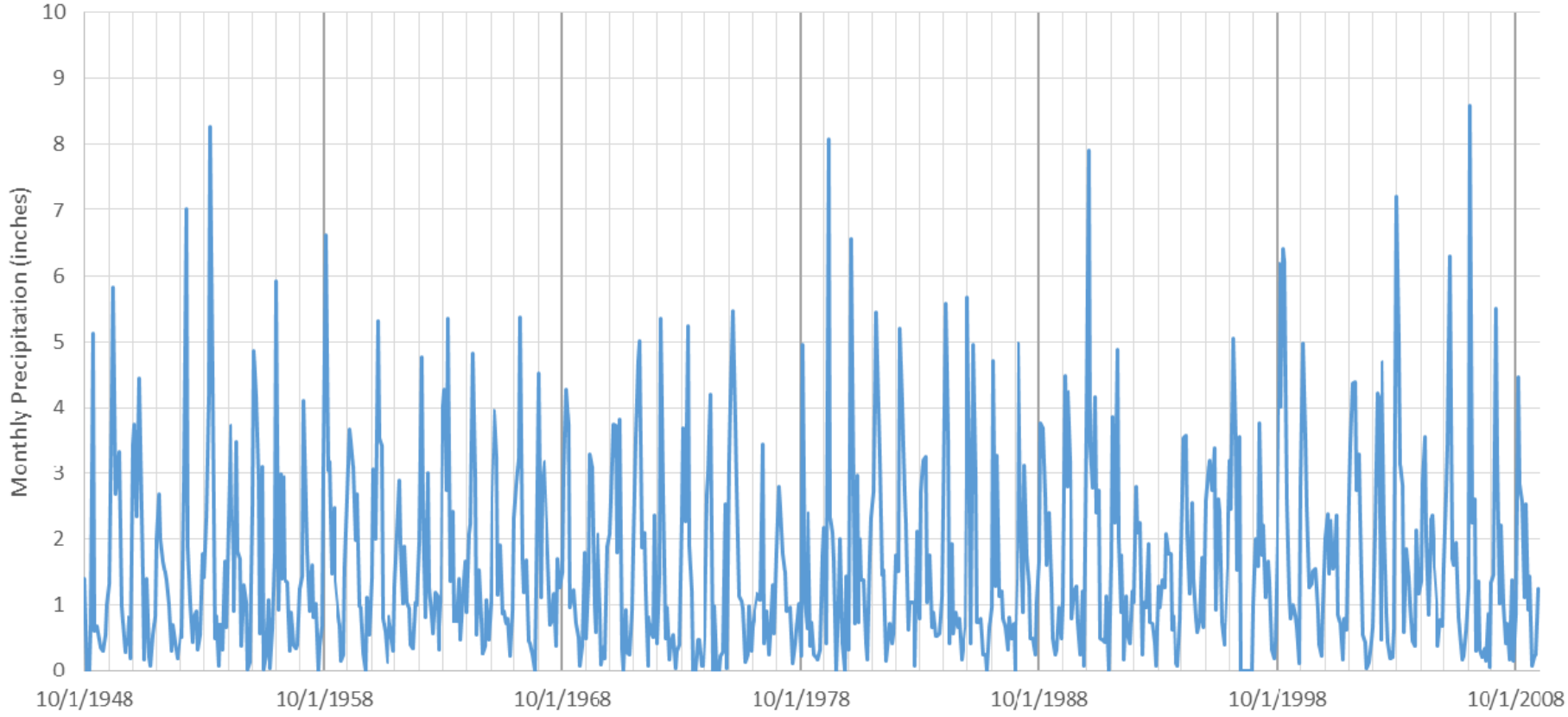
November-2007	30	1.4480	4.7506	0.0293	0.0173	0.7392	0.0000	1.7102	2.2547	**0.0482**
December-2007	31	5.5120	18.0839	0.8642	2.0808	5.2522	0.0000	7.3000	2.5868	**0.3312**
January-2008	31	3.2800	10.7611	0.9494	0.3632	1.8415	0.0000	4.8364	2.7706	**0.1161**
February-2008	29	1.0240	3.3596	0.3090	0.1232	0.4132	0.0000	1.2761	1.2381	**0.0279**
March-2008	31	2.2080	7.2441	0.3083	0.1197	0.9326	0.0000	2.2905	3.5930	**0.0588**
April-2008	30	1.0160	3.3333	0.0488	0.0233	0.2391	0.0000	0.5728	2.4493	**0.0156**
May-2008	31	0.4000	1.3123	0.0047	0.0036	0.0358	0.0000	0.0785	1.1897	**0.0023**
June-2008	30	0.7280	2.3884	0.0182	0.0135	0.1539	0.0000	0.3614	1.8415	**0.0100**
July-2008	31	0.1680	0.5512	0.0000	0.0000	0.0000	0.0000	0.0000	0.5512	**0.0000**
August-2008	31	1.3600	4.4619	0.0111	0.0083	0.4902	0.0000	1.1159	2.8364	**0.0309**
September-2008	30	0.1440	0.4724	0.0000	0.0000	0.0115	0.0000	0.0255	0.4354	**0.0007**
October-2008	31	0.8560	2.8084	0.0017	0.0013	0.1743	0.0000	0.3925	2.2386	**0.0110**
November-2008	30	4.4560	14.6194	0.3249	0.7627	3.4721	0.0000	6.4312	3.6284	**0.2262**
December-2008	31	2.8320	9.2913	0.6251	0.2965	1.4677	0.0000	3.9842	2.9179	**0.0926**
January-2009	31	2.5680	8.4252	0.7644	0.2938	1.5978	0.0000	4.3326	1.4366	**0.1008**
February-2009	28	1.1120	3.6483	0.1778	0.0773	0.5111	0.0000	1.3325	1.5496	**0.0357**
March-2009	31	2.5280	8.2940	0.4587	0.1732	1.2370	0.0000	3.0442	3.3809	**0.0780**
April-2009	30	0.9200	3.0184	0.1473	0.0615	0.3608	0.0000	0.9579	1.4909	**0.0235**
May-2009	31	1.4160	4.6456	0.1294	0.0668	0.4039	0.0000	1.0358	3.0097	**0.0255**
June-2009	30	0.0640	0.2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.2100	**0.0000**
July-2009	31	0.2240	0.7349	0.0000	0.0000	0.0059	0.0000	0.0120	0.7170	**0.0004**
August-2009	31	0.2480	0.8136	0.0004	0.0003	0.0282	0.0000	0.0628	0.7220	**0.0018**
September-2009	30	1.2320	4.0420	0.0067	0.0050	0.4410	0.0000	1.0073	2.5820	**0.0287**

Notes

1) Monthly precipitation rate (inch per month) was converted to monthly precipitation volume (acre-feet per month) by multiplying by the total contributing area of 39.37 acres. Monthly precipitation rates over time from WWHM throughout the entire model duration are shown in the timeseries plot (Attachment 1b) for comparative reference to simulated mounding conditions from HYDRUS 2D/3D output (Figure 7).

2) Proposed facility recharge monthly volumes were calculated by subtracting WWHM recharge output with infiltration turned off, from WWHM recharge output with infiltration turned on. See footnote 4 of the technical memorandum for a detailed description.

3) Monthly evapotranspiration volumes were calculated by subtracting all recharge, overflow, and outfall flows from monthly precipitation volumes. There were a small number of mathematical discrepancies (i.e., months with calculated negative recharge volumes), which were attributed to an internal time lag effect between timesteps within WWHM modeling. Negative evapotranspiration volumes were corrected to zero for the purposes of this technical memorandum.



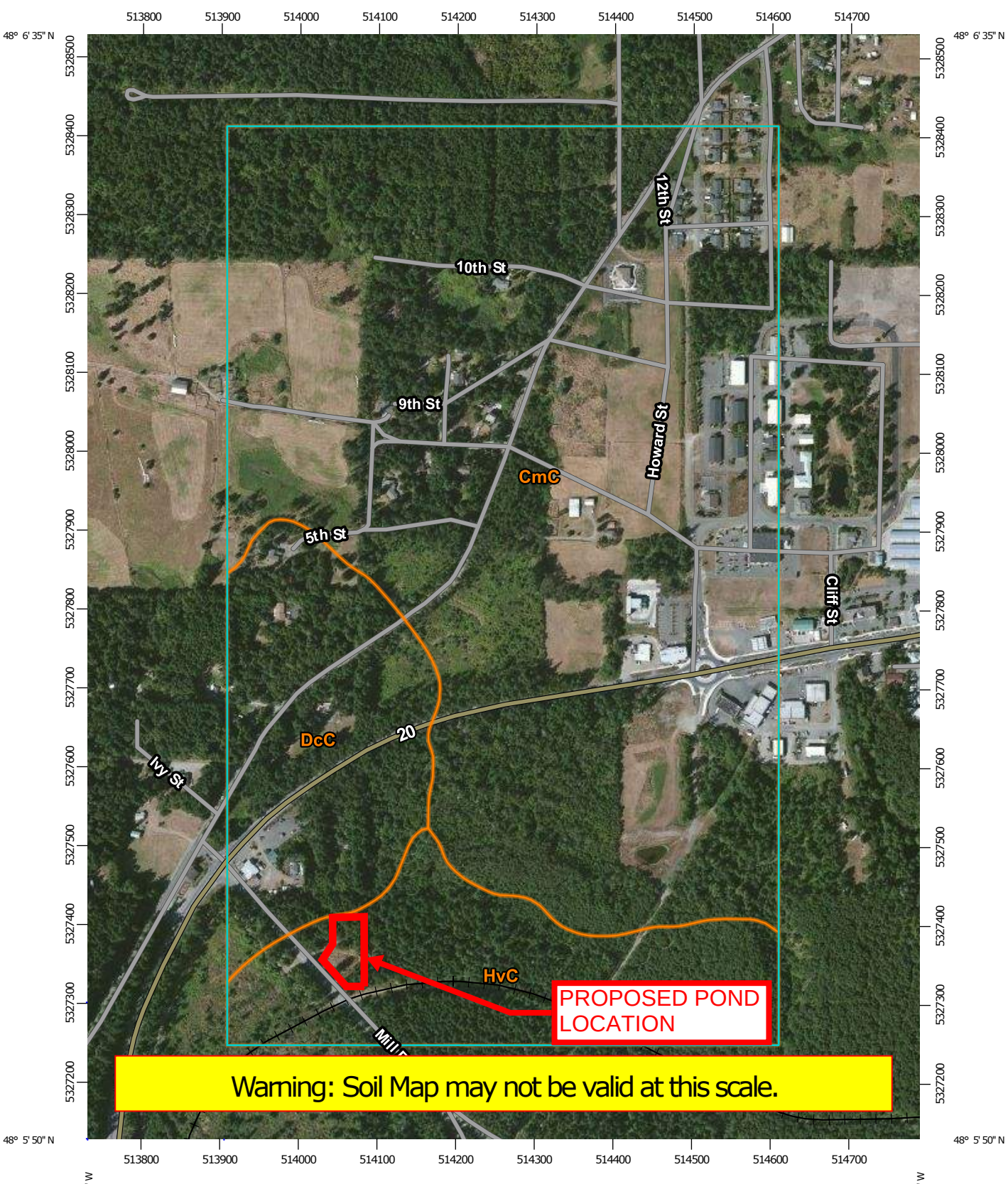
Note
Monthly precipitation shown is taken directly from WWHM model output data for the project.

LANDAU ASSOCIATES

Groundwater Mounding Analysis Rainier St. Regional Pond Port Townsend, Washington	**Precipitation Timeseries**	Attachment 1b

Custom Soil Resource Report
Soil Map

NRCS MAPPING AND SOILS DESCRIPTIONS



Warning: Soil Map may not be valid at this scale.

Map Scale: 1:6,820 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 100 200 400 600

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

C-2

Jefferson County Area, Washington

CmC—Clallam gravelly sandy loam, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2gqp
Mean annual precipitation: 23 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 160 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Clallam and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Clallam

Setting

Parent material: Basal till

Typical profile

H1 - 0 to 3 inches: gravelly sandy loam
H2 - 3 to 23 inches: very gravelly sandy loam
H3 - 23 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 19 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): 6s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Other vegetative classification: Limited Depth Soils (G002XN302WA)
Hydric soil rating: No

DcC—Dick loamy sand, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2gqx
Mean annual precipitation: 21 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 160 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Dick and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dick

Setting

Landform: Terraces, plains
Parent material: Glacial outwash

Typical profile

H1 - 0 to 4 inches: loamy sand
H2 - 4 to 37 inches: loamy sand
H3 - 37 to 60 inches: stratified sand to loamy sand

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Other vegetative classification: Droughty Soils (G002XN402WA)
Hydric soil rating: No

HvC—Hoypus gravelly sandy loam, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2grq
Mean annual precipitation: 24 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 200 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hoypus and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hoypus

Setting

Landform: Terraces
Parent material: Glacial outwash

Typical profile

H1 - 0 to 2 inches: gravelly fine sandy loam
H2 - 2 to 10 inches: gravelly sandy loam
H3 - 10 to 26 inches: gravelly loamy sand
H4 - 26 to 60 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Other vegetative classification: Droughty Soils (G002XN402WA)
Hydric soil rating: No

APPENDIX – F

Standard Plans

PORT TOWNSEND REGIONAL STORMWATER FACILITY

SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065

OWNER/APPLICANT

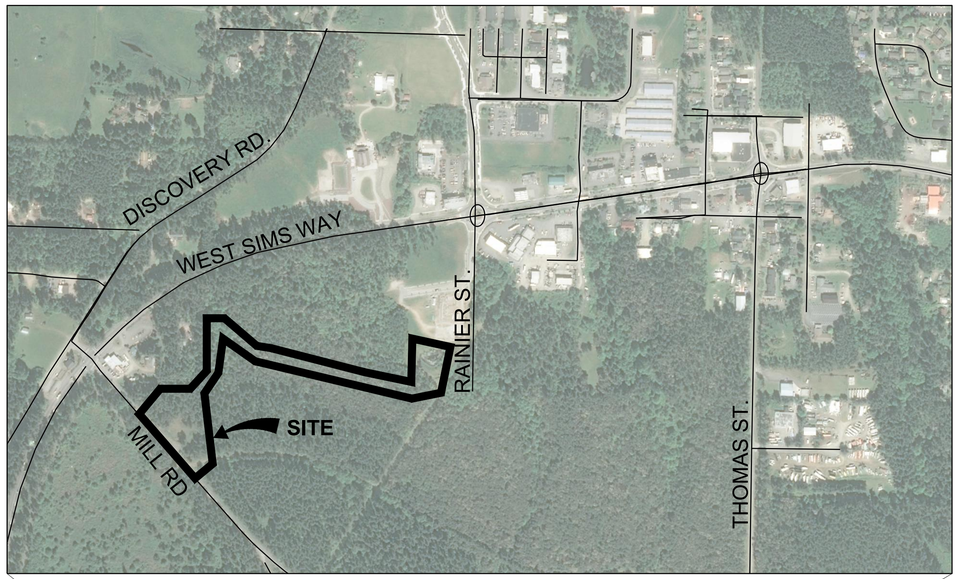
CITY OF PORT TOWNSEND
250 MADISON STREET
PORT TOWNSEND, WA 98368
PHONE: 360-379-5096
CONTACT: DAVID PETERSON, PE
EMAIL: DPETERSON@CITYOFPT.US

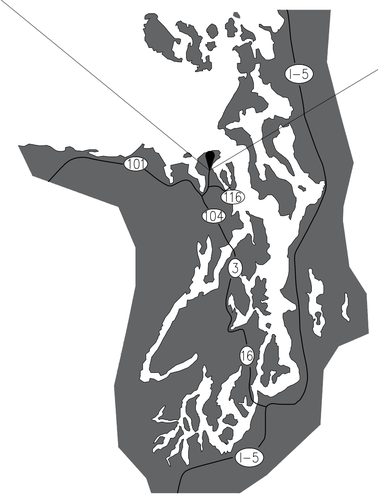
CIVIL ENGINEER

AHBL INC.
2215 NORTH 30TH STREET, SUITE 300
TACOMA, WA 98403
PHONE: (253) 383-2422
CONTACT: DAN OSIER, PE
EMAIL: DOSIER@AHBL.COM

SURVEYOR

VAN ALLER SURVEYING
PHONE: 360-683-3438
CONTACT: BRIAN VAN ALLER, PLS
EMAIL: VANSURV@OLYPEN.COM





N

HORIZONTAL SCALE
0 200 400 800
1" = 400 FEET

VERTICAL DATUM

NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988

BASIS OF BEARING

WASHINGTON COORDINATE SYSTEM OF 1983, ADJUSTMENT 1991, NORTH ZONE, NORTH AMERICAN DATUM (NAD 83/91)

SHEET INDEX

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TACOMA · SEATTLE · SPOKANE · TRI-CITIES
2215 North 30th Street, Suite 300 Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:
PORT TOWNSEND REGIONAL STORMWATER FACILITY

Client:
CITY OF PORT TOWNSEND

250 MADISON STREET
PORT TOWNSEND, WA 98368

WORK ORDER # 8028

Project No.
2160137

Issue Set & Date:
BID SET
03/19/2020

DOREEN S. GAVIN — STATE OF WASHINGTON — 23467 — REGISTERED PROFESSIONAL ENGINEER — 03/19/20

4
3
2
1
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Sheet Title:
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DO	SK	DG

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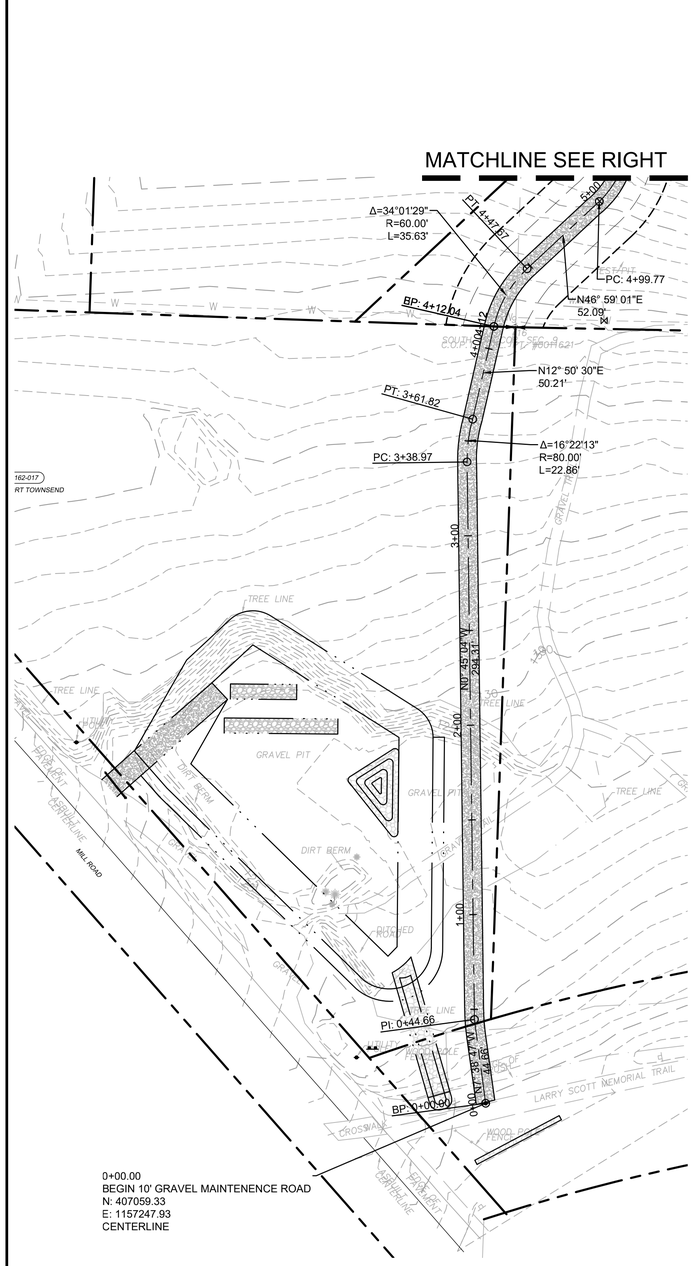
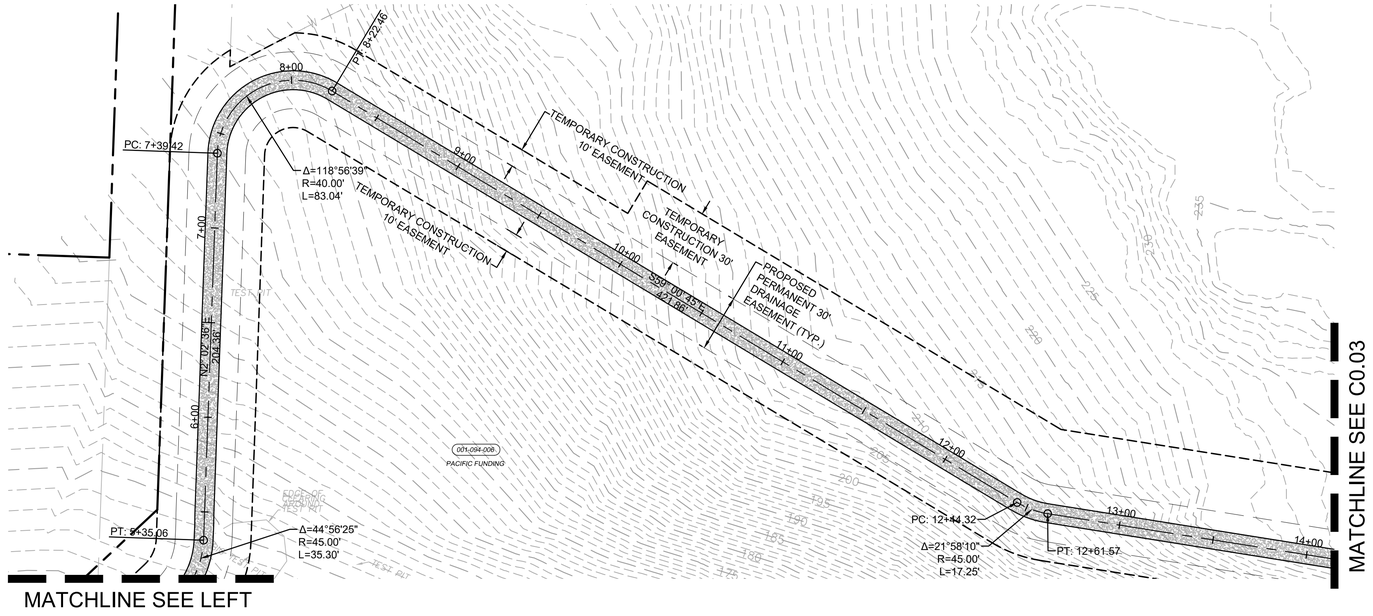
PORT TOWNSEND REGIONAL STORMWATER FACILITY

SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065





LEGEND

- RIGHT-OF-WAY / PROPERTY LINE
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR

N

HORIZONTAL SCALE

0 20 40 80

1" = 40 FEET

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DOREEN S. GAY
STATE OF WASHINGTON
23457
REGISTERED
PROFESSIONAL ENGINEER
03/19/20

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HORIZONTAL CONTROL AND ACCESS PLAN

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PORT TOWNSEND REGIONAL STORMWATER FACILITY

SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065

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N

HORIZONTAL SCALE

0 20 40 80

1" = 40 FEET

DATE: March 18, 2020 FILENAME: Q:\2016\2160137\10_CIV\CAD\2160137-SH-HZ CONTROL- 22X34.dwg

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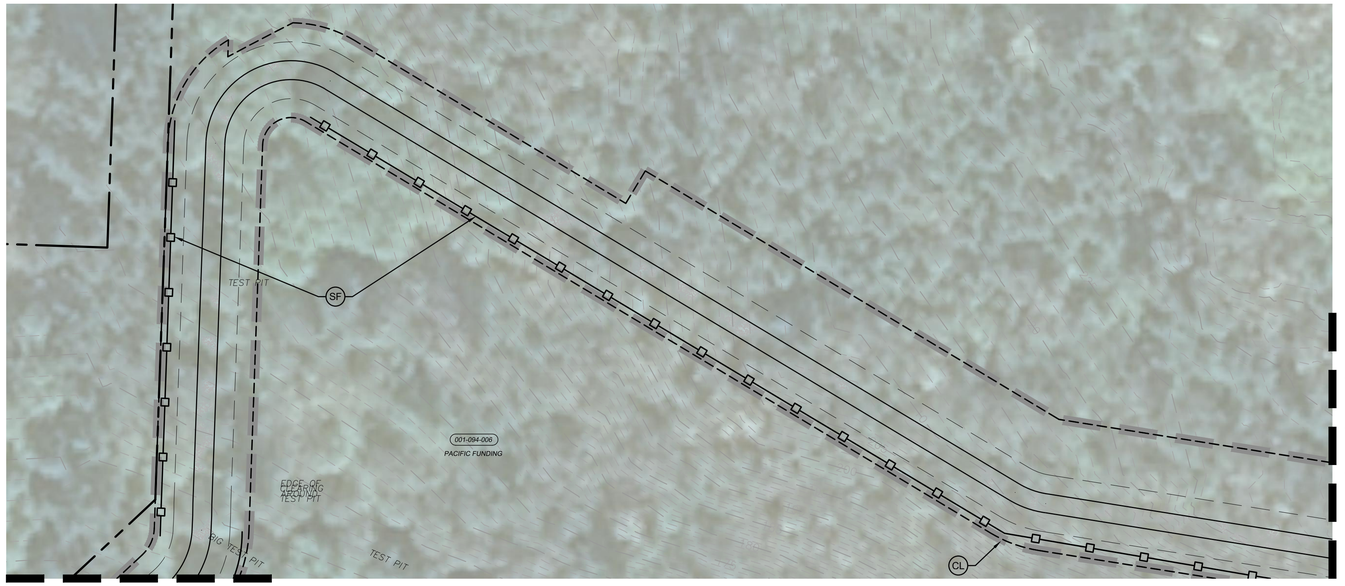

LEGEND

- RIGHT-OF-WAY / PROPERTY LINE
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- CL — CLEARING / PROJECT LIMITS
- SF — SILT FENCE (1 / C1.10)
- EXISTING MINOR CONTOUR (XXX)
- EXISTING MAJOR CONTOUR (XXX)
- CE — CONSTRUCTION ENTRANCE (2 / C1.10)

CLEARING NOTE

CLEARING/PROJECT LIMITS AND LOCATION OF SILT FENCE SHOWN IS APPROXIMATE. EXTENT OF CLEARING /PROJECT LIMITS AND EXACT LOCATION OF SILT FENCE TO BE DETERMINED BY CONTRACTOR BASED ON PROPOSED CONSTRUCTION METHODS, BUT SHALL NOT CROSS THE TEMPORARY EASEMENTS DEPICTED HEREON WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. PAYMENT FOR CLEARING AND GRUBBING SHALL NOT EXCEED BID QUANTITY.

N

HORIZONTAL SCALE

0 20 40 80

1" = 40 FEET

811 Know what's **below.** **Call** before you dig.

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TESC AND DEMOLITION PLAN

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C1.00

4 of 17 Sheets

PORT TOWNSEND REGIONAL STORMWATER FACILITY

SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065

LEGEND

- RIGHT-OF-WAY / PROPERTY LINE
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- (CL) CLEARING / PROJECT LIMITS
- (SF) SILT FENCE — 1 / C1.10
- EXISTING MINOR CONTOUR
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N

HORIZONTAL SCALE

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1" = 40 FEET

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03/19/2020

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PORT TOWNSEND REGIONAL STORMWATER FACILITY

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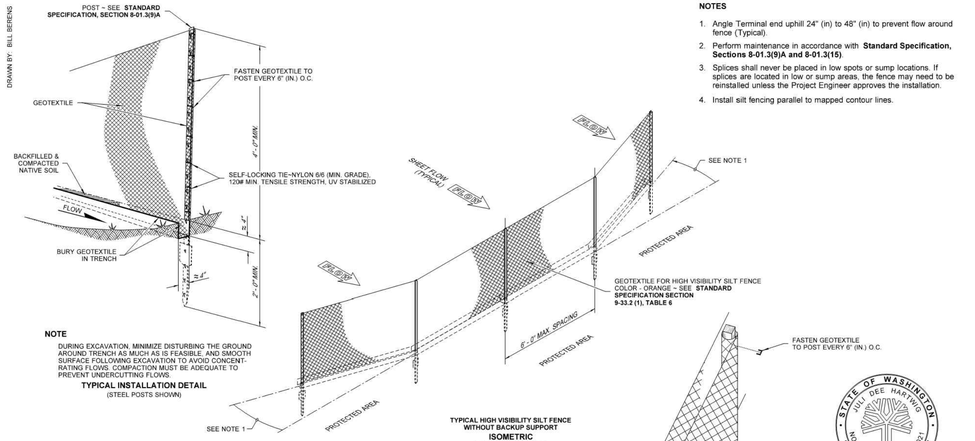
CERB CONTRACT NO. 515-790AO-065

DRAWN BY: BILL BERENS



NOTE

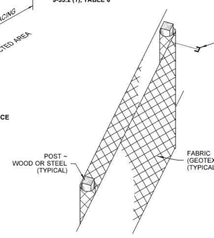
DURING EXCAVATION, MINIMIZE DISTURBING THE GROUND AROUND TRENCH AS MUCH AS IS FEASIBLE, AND SMOOTH SURFACE FOLLOWING EXCAVATION TO AVOID CONCENTRATING FLOWS. COMPACTION MUST BE ADEQUATE TO PREVENT UNDERCUTTING FLOWS.

TYPICAL INSTALLATION DETAIL
(STEEL POSTS SHOWN)

TYPICAL HIGH VISIBILITY SILT FENCE WITHOUT BACKUP SUPPORT
ISOMETRIC
(STEEL POSTS SHOWN)

NOTES

1. Angle Terminal end uphill 24" (in) to 48" (in) to prevent flow around fence (Typical).
2. Perform maintenance in accordance with **Standard Specification, Sections 8-01.3(9)A and 8-01.3(15)**.
3. Splices shall never be placed in low spots or sump locations. If splices are located in low or sump areas, the fence may need to be reinstalled unless the Project Engineer approves the installation.
4. Install silt fencing parallel to mapped contour lines.



SPLICED FENCE SECTIONS SHALL BE CLOSE ENOUGH TOGETHER TO PREVENT SILT LADEN WATER FROM ESCAPING THROUGH THE FENCE AT THE OVERLAP. JOINING SECTIONS SHALL NOT BE PLACED IN LOW SPOTS OR IN SUMP LOCATIONS.

SPLICE DETAIL
(WOOD POSTS SHOWN)

STATE OF WASHINGTON — JAY DEE HARTWIG — NO. 14621 — EXP. 09/11/2017 — REGISTERED LANDSCAPE ARCHITECT

Hartwig, Jak
Jun 4 2019 10:48 AM

HIGH VISIBILITY SILT FENCE

STANDARD PLAN I-30.17-01

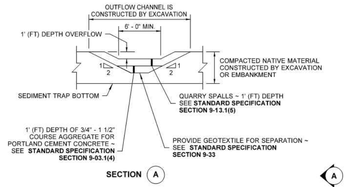
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Rueck, Nicole
Jun 12 2019 7:42 AM
STATE DESIGN ENGINEER
Washington State Department of Transportation

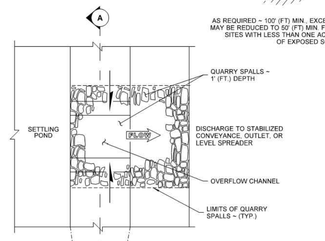
1 SILT FENCE

NOT TO SCALE

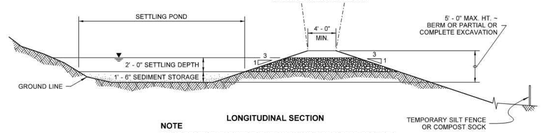
DRAWN BY: FERN LODELL



SECTION (A)



PARTIAL PLAN VIEW OF BERM
SHOWN LARGER FOR CLARITY

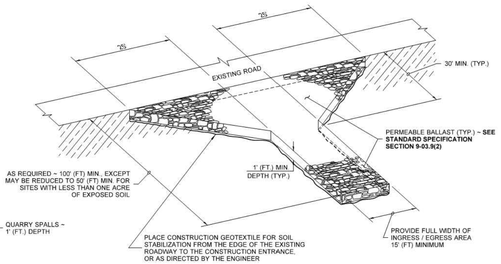


LONGITUDINAL SECTION

NOTE

PLACE GEOTEXTILE UNDER THE SPILLWAY AND SIDE SLOPES. PROVIDE A CONTINUOUS LAYER BETWEEN THE GRAVEL/ROCK AND THE NATIVE EARTHEN MATERIAL.

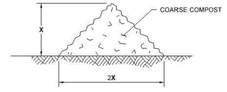
TEMPORARY SEDIMENT TRAP



ISOMETRIC VIEW

STABILIZED CONSTRUCTION ENTRANCE

STABILIZED CONSTRUCTION ENTRANCE SHALL MEET THE REQUIREMENTS OF **STANDARD SPECIFICATION SECTION 8-01.3(7).**



X = 1' - 0" FOR SLOPES 4H:1V OR FLATTER
X = 1' - 6" FOR SLOPES STEEPER THAN 4H:1V

TYPICAL SECTION
COMPOST BERM DETAIL

STATE OF WASHINGTON — REGISTERED LANDSCAPE ARCHITECT — JAY DEE HARTWIG — LICENSE NO. 1422 — DATE 06-21-17

MISCELLANEOUS EROSION CONTROL DETAILS

STANDARD PLAN I-80.10-02

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Engineer, Jeff
Jul 15 2016 2:36 PM
STATE DESIGN ENGINEER
Washington State Department of Transportation

2 CONSTRUCTION ENTRANCE

NOT TO SCALE

TESC & DEMOLITION NOTES

1. CONTRACTOR TO PRESERVE AND PROTECT ALL EXISTING UTILITES ON PRIVATE PROPERTY AND IN PUBLIC RIGHTS-OF-WAY.
2. WHERE POSSIBLE NATURAL VEGETATION WILL BE MAINTAINED FOR SILT CONTROL.
3. AS CONSTRUCTION PROGRESSES AND SEASONAL CONDITIONS DICTATE, THE EROSION CONTROL FACILITIES SHALL BE MAINTAINED AND/OR ALTERED AS REQUIRED BY THE CESCL TO ENSURE CONTINUING EROSION/SEDIMENTATION CONTROL.
4. TEMPORARY SILTATION PONDS AND ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED, PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL, AND THE POTENTIAL FOR EROSION HAS PASSED.
5. PUBLIC RIGHTS-OF-WAY SHALL BE KEPT CLEAN. TRACKING OF MUD AND DEBRIS FROM THE SITE WILL NOT BE ALLOWED. FAILURE TO COMPLY WITH THIS CONDITION WILL RESULT IN ALL WORK ON THE SITE BEING STOPPED.

CONSTRUCTION SEQUENCE

1. INSTALL TREE PROTECTION FENCING IN ACCORDANCE WITH APPROVED PLANS.
2. STAKE AND FLAG CLEARING AND CONSTRUCTION LIMITS. BY CITY SURVEYOR.
3. CONSTRUCT CONSTRUCTION ENTRANCE.
4. CONSTRUCT ALL TEMPORARY EROSION CONTROL BMP's ACCORDING TO THE PLAN.
5. INSPECTION NUMBER 1: EROSION CONTROL, MLA 18-8056 INSPECTION.
6. DEMOLISH EXISTING SITE FEATURES INDICATED FOR REMOVAL.
7. ROUGH GRADE SITE, ALL GRADING SHALL BE DONE IN CONFORMANCE WITH THE PLAN AND THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
8. APPLY EROSION CONTROL MULCH AND SEEDING, PLASTIC COVERING, OR EQUAL. ALL DISTURBED LAND AREAS THAT WILL BE LEFT FOR 30 DAYS OR MORE DURING THE PERIOD OF MAY 1 TO OCTOBER 1 SHALL BE IMMEDIATELY SEEDED. IN ADDITION TO SEEDING, SLOPES OF 15% OR GREATER WILL BE MULCHED WITH 2 TONS OF STRAW PER ACRE, OR WITH AN APPROVED EQUAL. DURING THE REST OF THE YEAR, TEMPORARY SOIL STABILIZATION MUST BE APPLIED IMMEDIATELY TO DISTURBED AREAS THAT WILL BE LEFT EXPOSED FOR 7 DAYS OR MORE, AND IMMEDIATELY TO SLOPES GREATER THAN 15% THAT WILL BE LEFT EXPOSED FOR 2 DAYS OR MORE.
9. CONSTRUCT UTILITIES AND STORM DRAINAGE FEATURES. INSTALL STORM DRAIN INLET PROTECTION FOR ALL CATCH BASINS W/GRATED LIDS SUBJECT TO ON-SITE AND OFF-SITE RUNOFF.
10. RELOCATE EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH COUNTY SWPPP MINIMUM REQUIREMENTS.
11. FINAL GRADE SITE, CONSTRUCT FINAL SURFACING TREATMENTS. ENSURE SURFACE WATER IS POSITIVELY DRAINED TOWARDS PROPOSED STORMWATER CONTROL FACILITIES.
12. INSPECTION NUMBER 2: COMPLETION OF EXCAVATION, FILL, AND EARTHWORK, MLA 18-8056 INSPECTION.
13. REMOVE THE REMAINING TEMPORARY EROSION CONTROL ITEMS ONCE SITE HAS BEEN STABILIZED AND UPON APPROVAL.
14. COMPLETE FINAL LANDSCAPING AS APPLICABLE.

811 Know what's **below.** **Call** before you dig.

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Revisions:
4
3
2
1

Sheet Title:
TESC AND DEMOLITION DETAILS AND NOTES

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DO	SK	DG

Sheet No.
C1.10
6 of 17 Sheets

PORT TOWNSEND REGIONAL STORMWATER FACILITY

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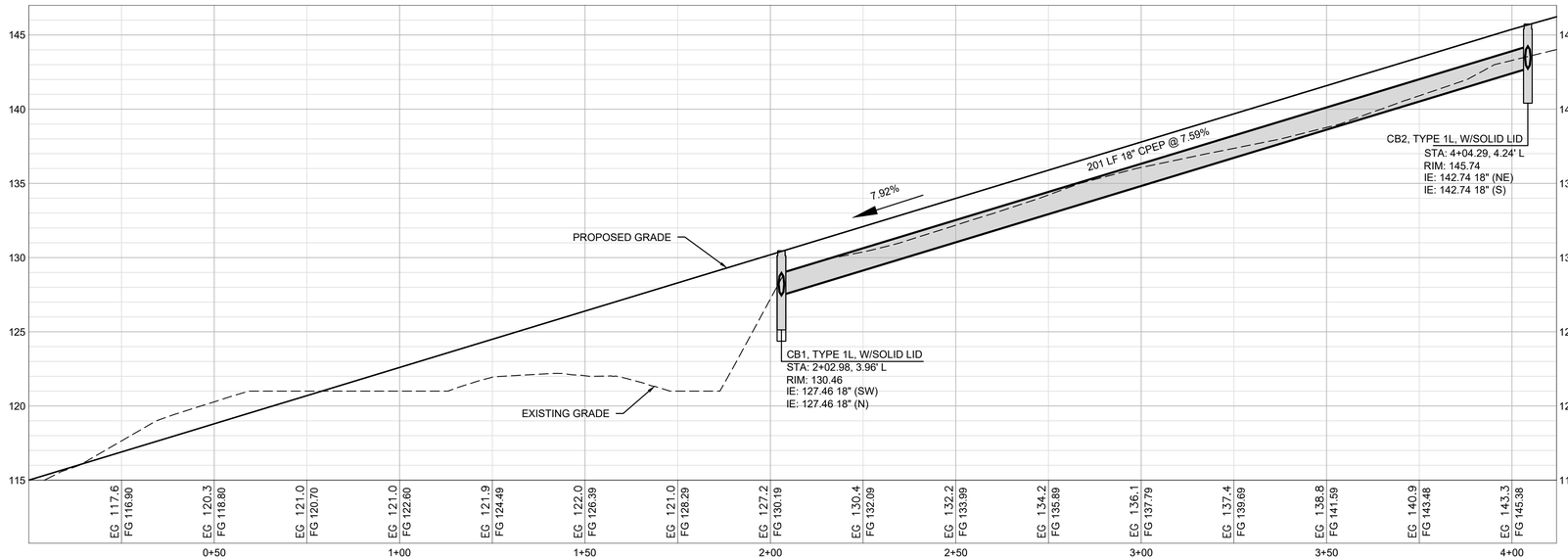
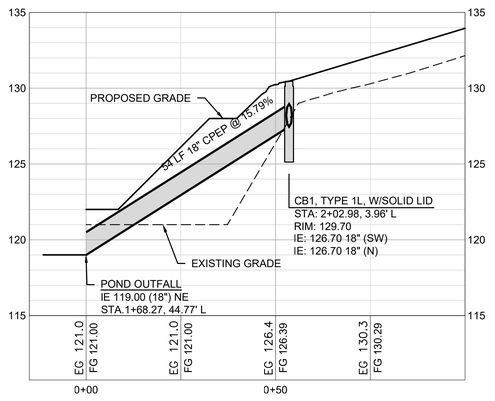


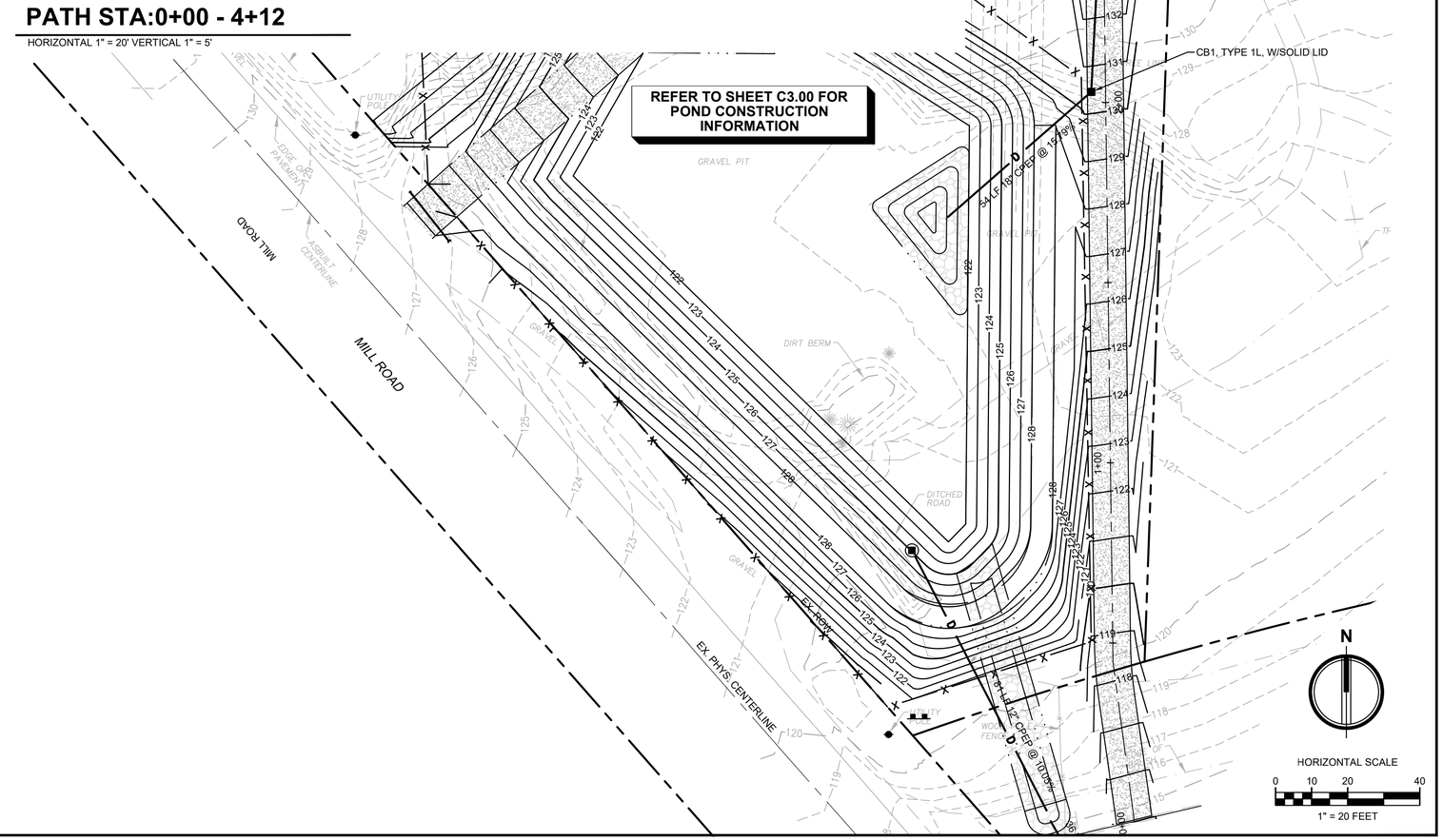


CB1 TO POND INLET

HORIZONTAL 1" = 20' VERTICAL 1" = 5'

PATH STA:0+00 - 4+12

HORIZONTAL 1" = 20' VERTICAL 1" = 5'



LEGEND

- RIGHT-OF-WAY / PROPERTY LINE
- CENTERLINE
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- 123 PROPOSED MINOR CONTOUR
- 123 PROPOSED MAJOR CONTOUR
- X X CHAINLINK FENCE (2 / C3.11)
- GRAVEL MAINTENANCE ROAD (1 / C3.12)
- SPILLWAY RIPRAP
- CB TYPE 1L (1 / C3.10)
- CB TYPE 2 (8 / C3.10)
- D STORM PIPE

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Revisions:
3
2
1
0

Sheet Title:
GRADING, STORM, AND SURFACING PLAN

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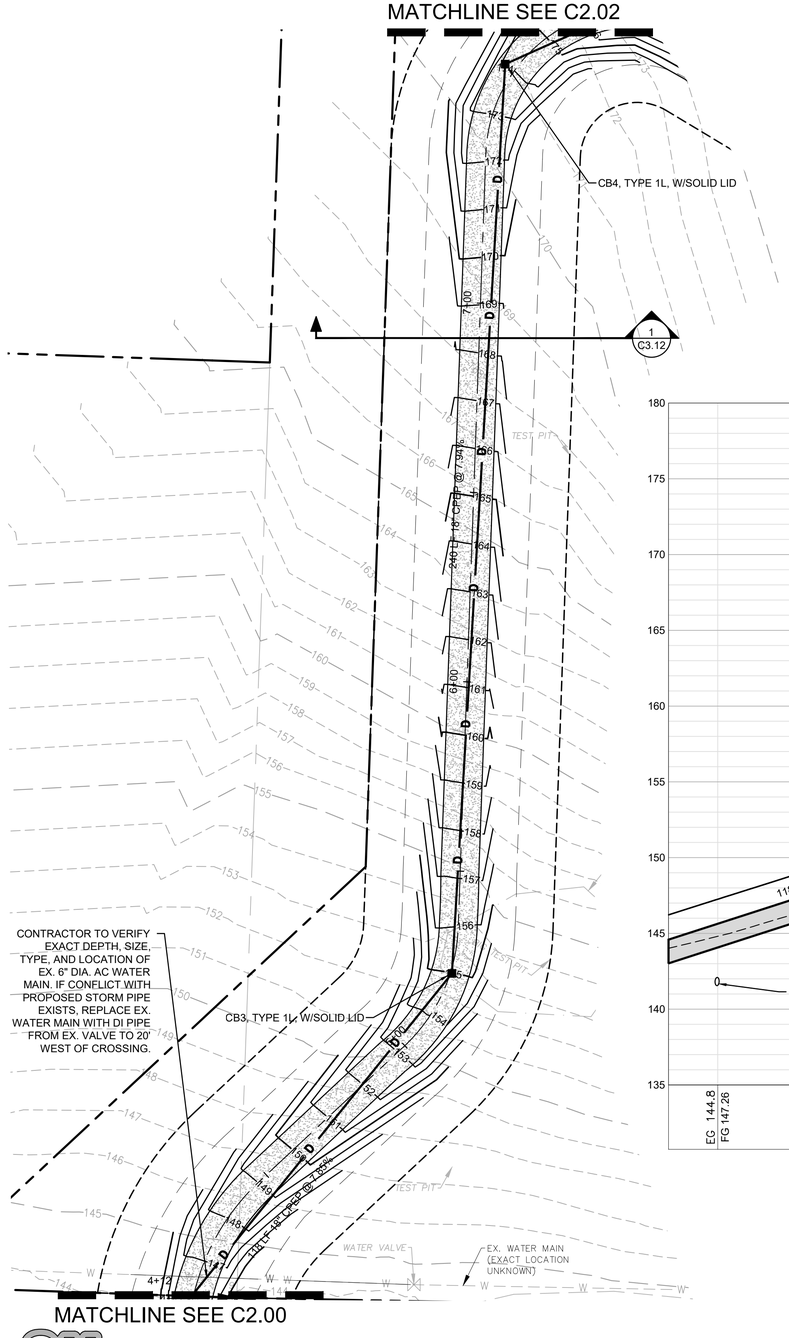

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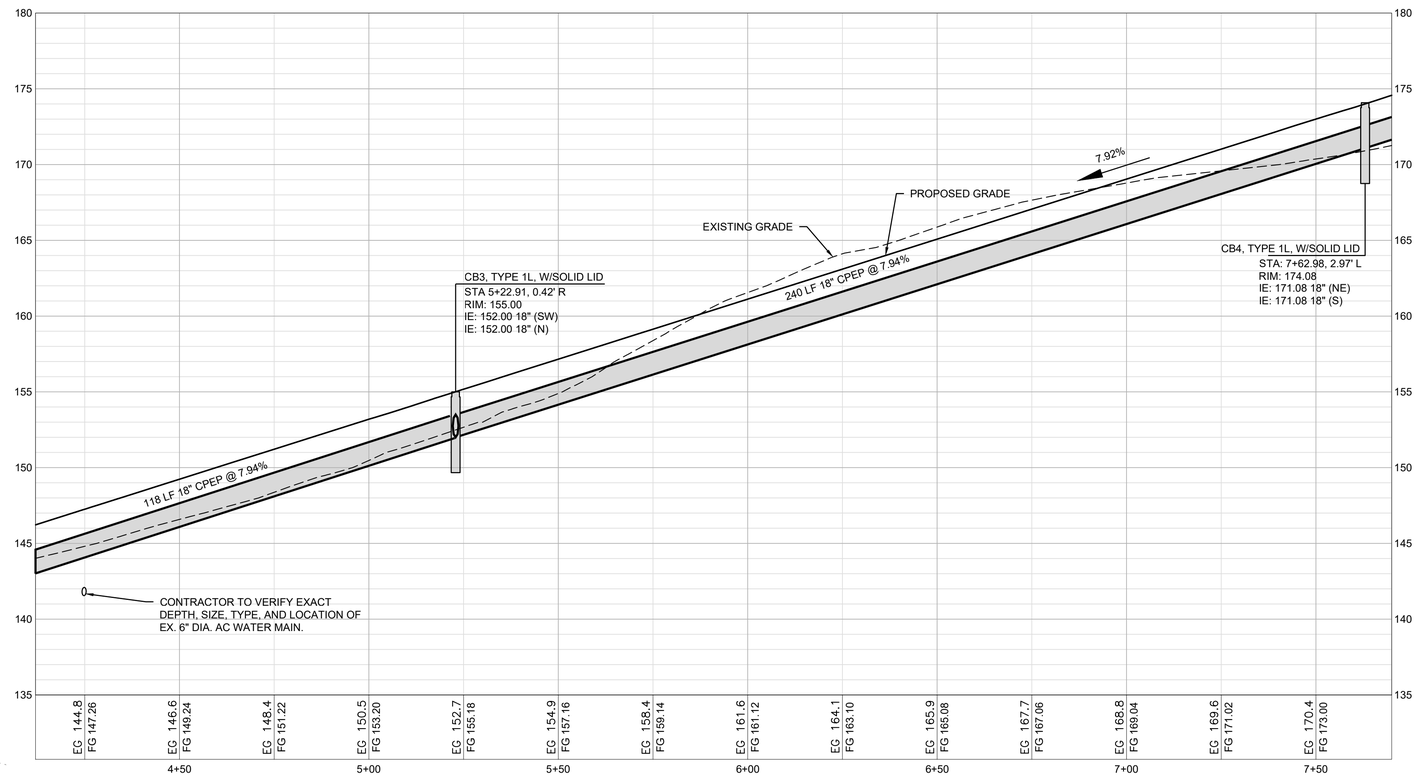
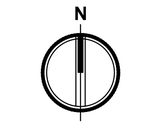
- CHAINLINK FENCE (2 / C3.11)
- GRAVEL MAINTENANCE ROAD (1 / C3.12)
- SPILLWAY RIPRAP
- CB TYPE 1L (1 / C3.10)
- CB TYPE 2 (8 / C3.10)
- STORM PIPE



PATH STA:4+12- 7+70

HORIZONTAL 1" = 20' VERTICAL 1" = 5'



HORIZONTAL SCALE

0 10 20 40

1" = 20 FEET

Know what's **below.** **Call** before you dig.

DATE: March 19, 2020 FILENAME: Q:\2016\2160137\10_CIV\CAD\2160137-SH-SITE- 22x34.dwg

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Project Title:

PORT TOWNSEND REGIONAL STORMWATER FACILITY

Client:

CITY OF PORT TOWNSEND

250 MADISON STREET
PORT TOWNSEND, WA 98368

WORK ORDER # 8028

Project No.

2160137

Issue Set & Date:

BID SET

03/19/2020

DOREEN S. GAY — STATE OF WASHINGTON — 23467 — REGISTERED PROFESSIONAL ENGINEER — 03/19/20

4 3 2 1

Revisions:

Sheet Title:

GRADING, STORM, AND SURFACING PLAN

Designed by:	Drawn by:	Checked by:
DO	SK	DG

Sheet No.

C2.01

8 of 17 Sheets

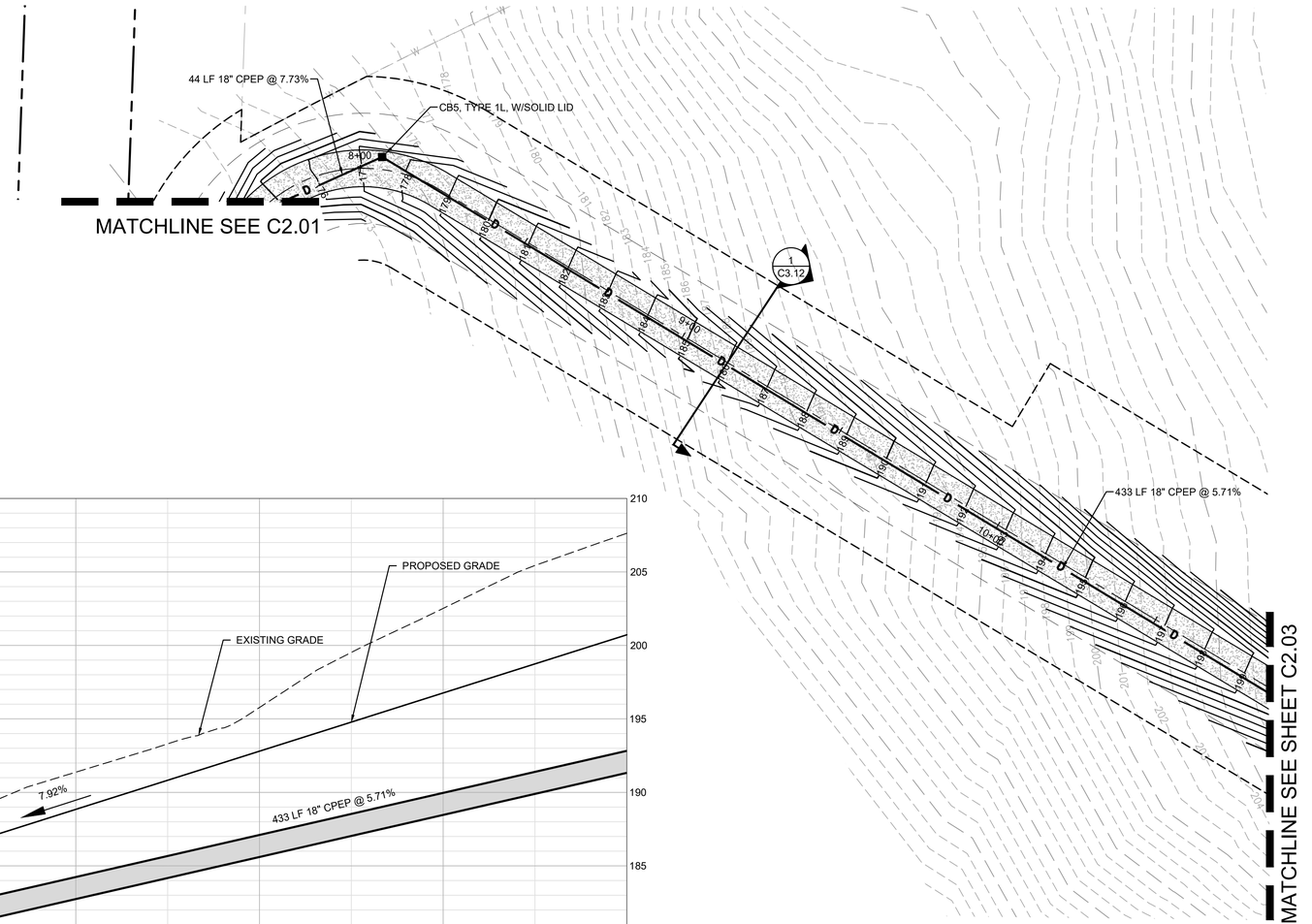
PORT TOWNSEND REGIONAL STORMWATER FACILITY

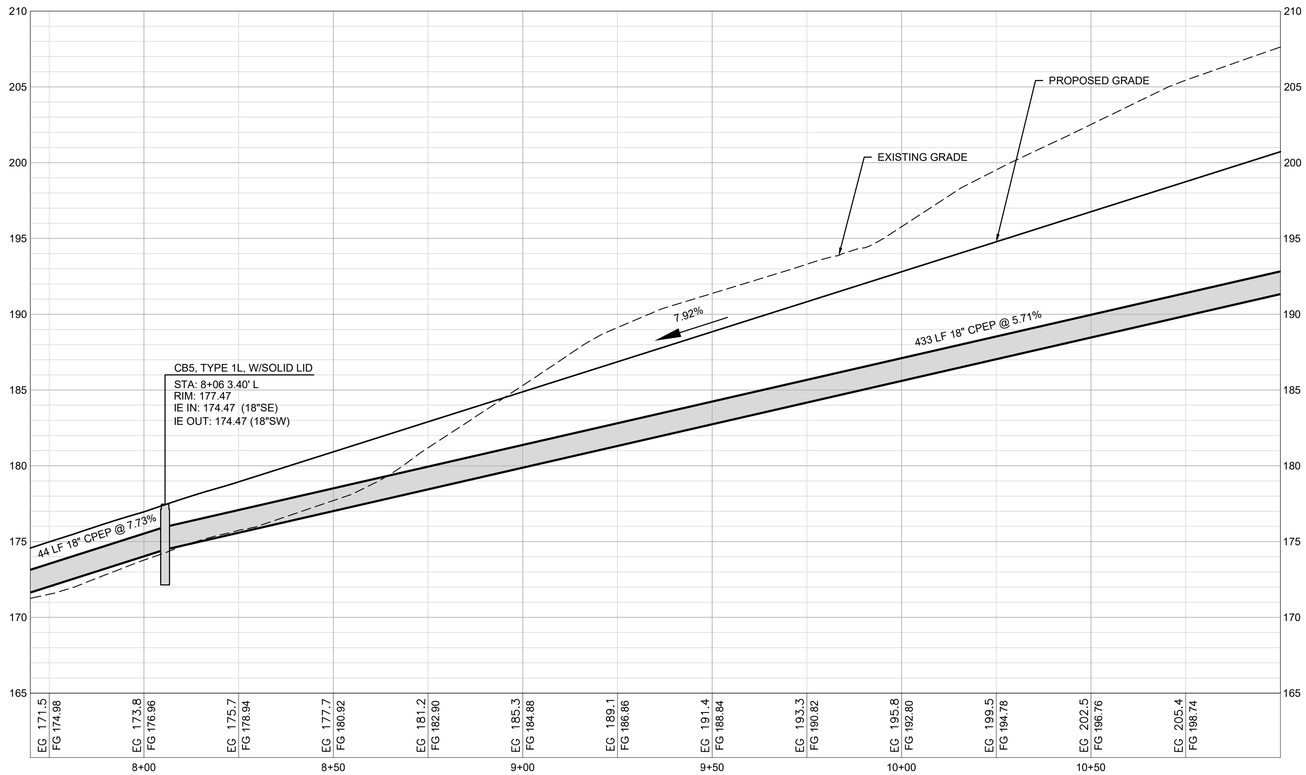
SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065

LEGEND

- RIGHT-OF-WAY / PROPERTY LINE
- CENTERLINE
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- 123 PROPOSED MINOR CONTOUR
- 123 PROPOSED MAJOR CONTOUR
- X X CHAINLINK FENCE
- GRAVEL MAINTENANCE ROAD (2 / C3.11, 1 / C3.12)
- SPILLWAY RIPRAP
- CB TYPE 1L (1 / C3.10, 8 / C3.10)
- CB TYPE 2
- D STORM PIPE





PATH STA:7+70 - 11+00

HORIZONTAL 1" = 20' VERTICAL 1" = 5'

N

HORIZONTAL SCALE

0 10 20 40

1" = 20 FEET

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PORT TOWNSEND, WA 98368

WORK ORDER # 8028

Project No.

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Issue Set & Date:

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DOREEN S. GAY — STATE OF WASHINGTON — 23467 — REGISTERED PROFESSIONAL ENGINEER — 03/19/20

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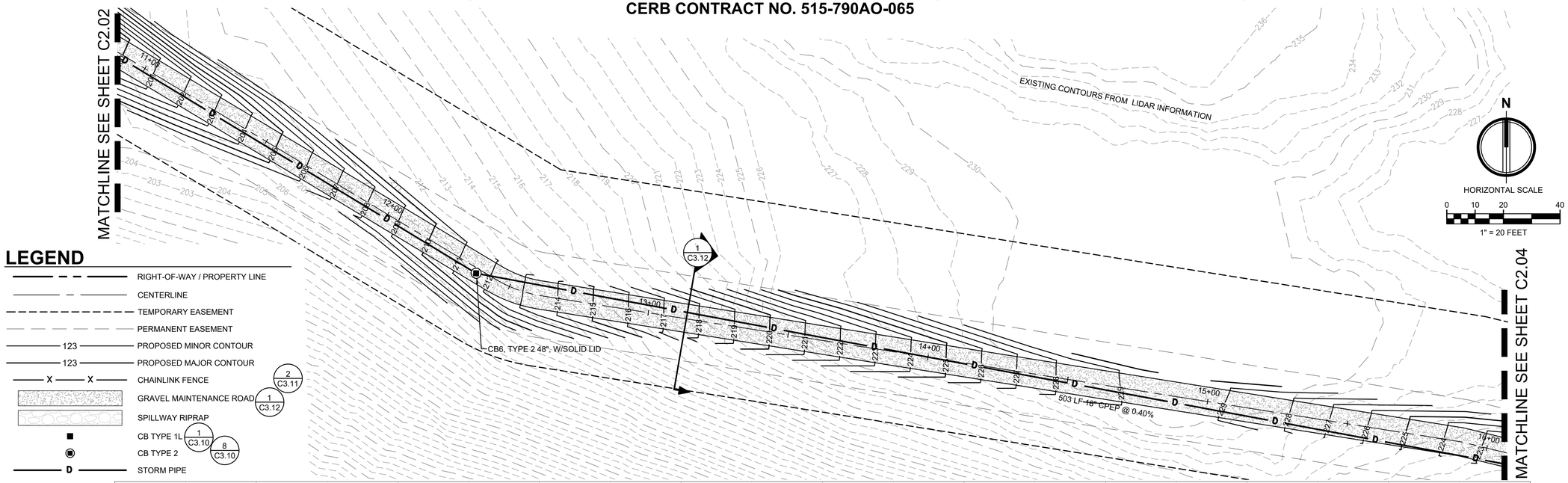
PORT TOWNSEND REGIONAL STORMWATER FACILITY

SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

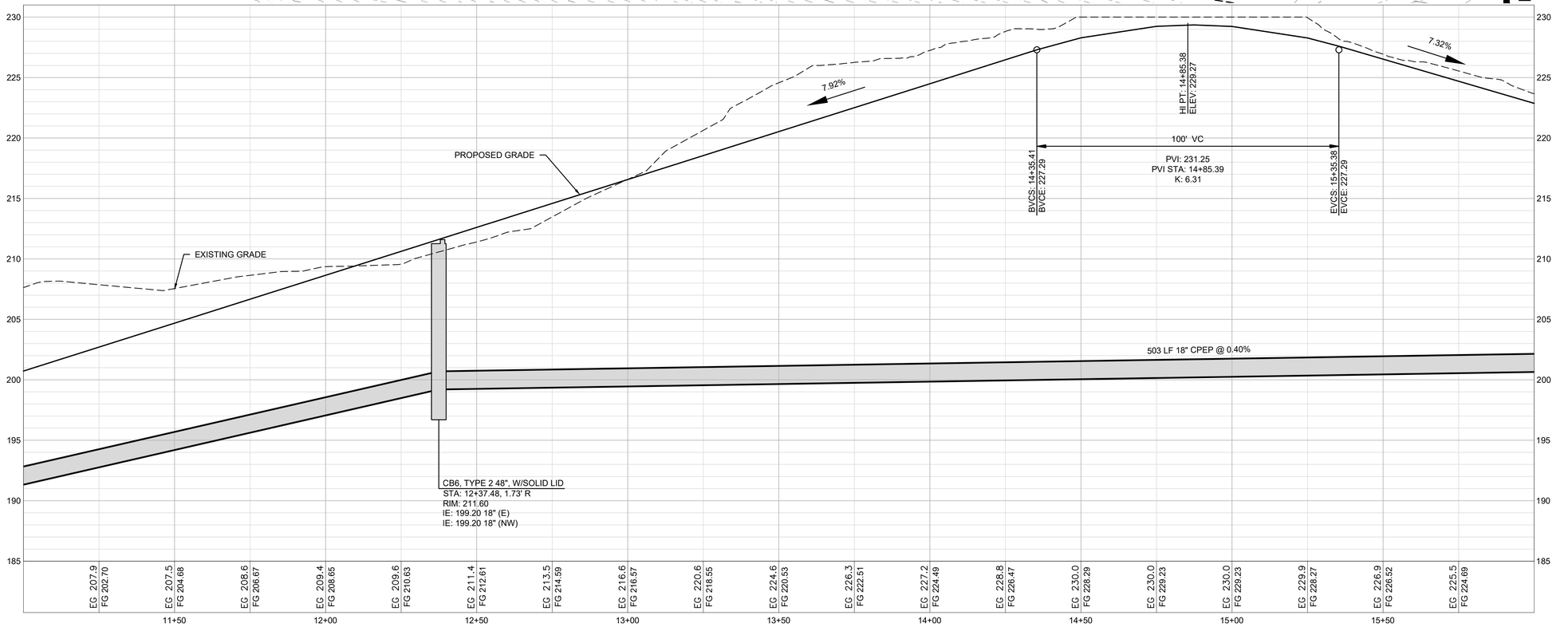
CERB CONTRACT NO. 515-790AO-065



LEGEND

- RIGHT-OF-WAY / PROPERTY LINE
- CENTERLINE
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- 123 PROPOSED MINOR CONTOUR
- 123 PROPOSED MAJOR CONTOUR
- X X CHAINLINK FENCE
- GRAVEL MAINTENANCE ROAD (2 C3.11 / 1 C3.12)
- SPILLWAY RIPRAP
- CB TYPE 1L (1 C3.10 / 8 C3.10)
- CB TYPE 2
- D STORM PIPE

HORIZONTAL SCALE
0 10 20 40
1" = 20 FEET



PATH STA:11+00 - 16+00

HORIZONTAL 1" = 20' VERTICAL 1" = 5'

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Client:
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250 MADISON STREET
PORT TOWNSEND, WA 98368

WORK ORDER # 8028

Project No.
2160137

Issue Set & Date:
BID SET
03/19/2020

DOREEN S. GAY — STATE OF WASHINGTON — 23457 — REGISTERED PROFESSIONAL ENGINEER — 03/19/20

Revisions:
- 4
- 3
- 2
- 1

Sheet Title:
GRADING, STORM, AND SURFACING PLAN

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Sheet No.
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10 of 17 Sheets

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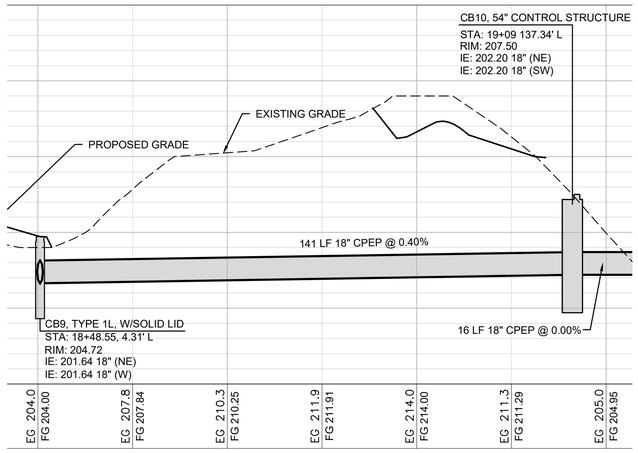
PORT TOWNSEND REGIONAL STORMWATER FACILITY

SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065

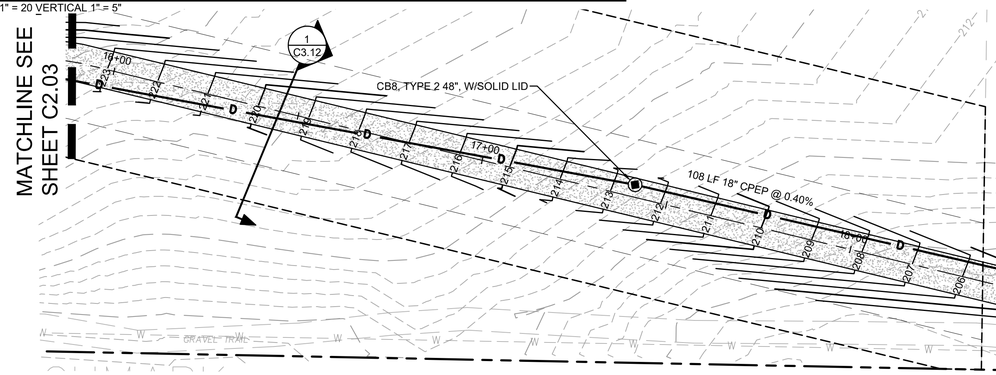


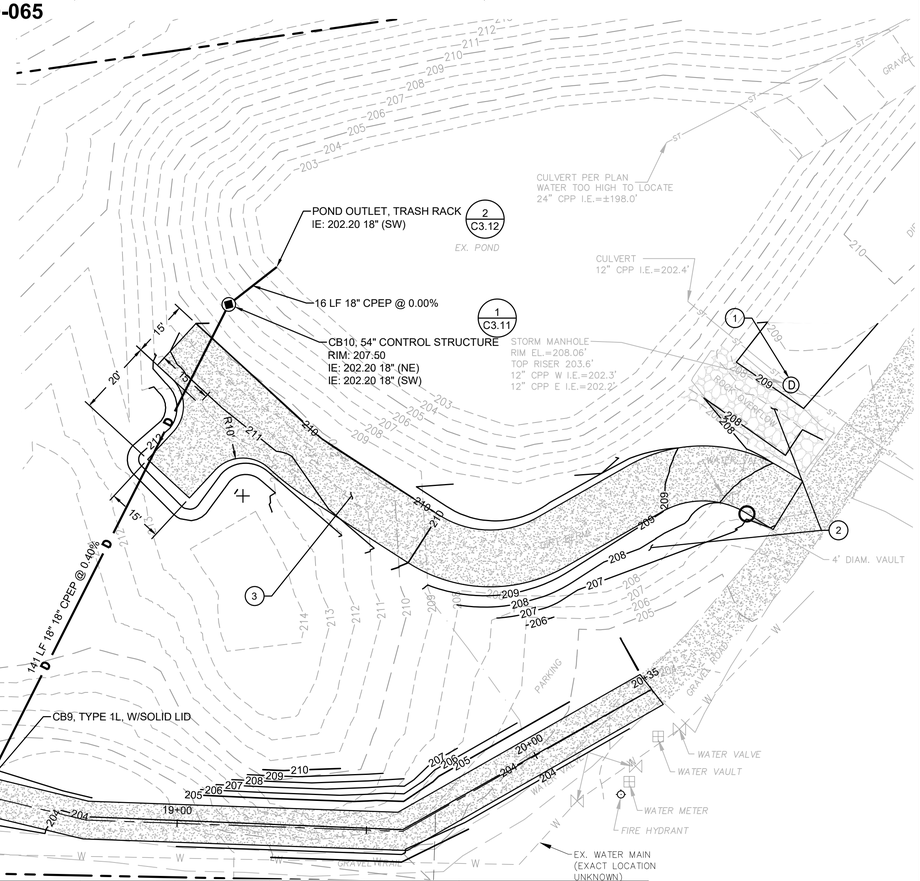
1 CB9 TO NEW CONTROL STRUCTURE IN EXISTING POND

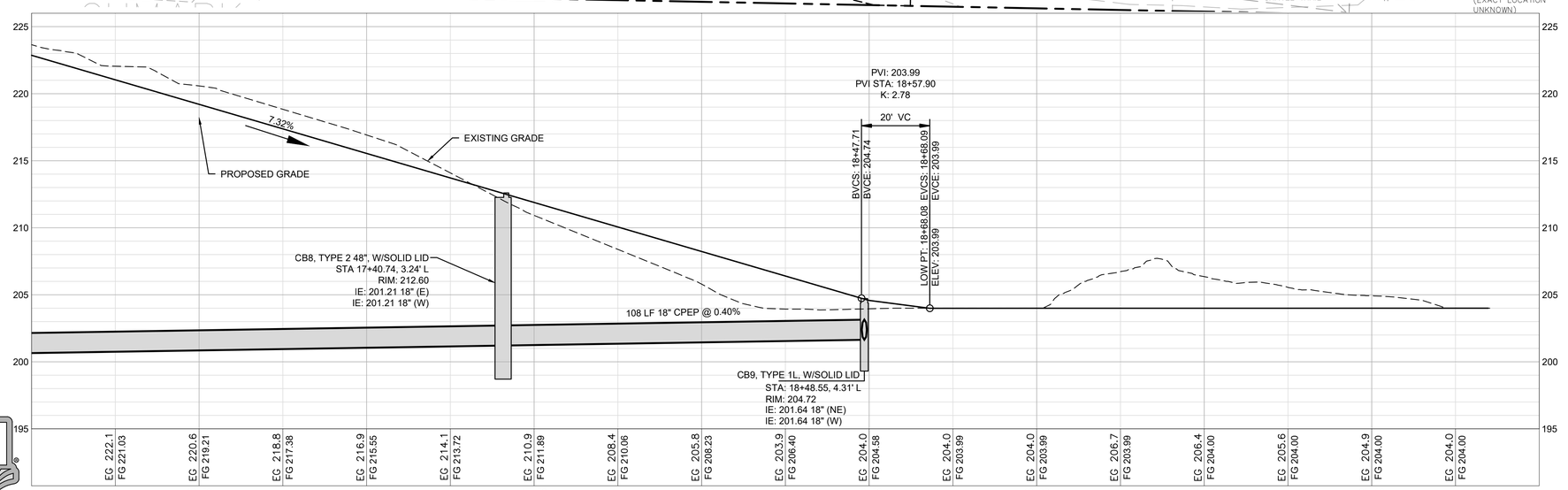
HORIZONTAL 1" = 20 VERTICAL 1" = 5"

LEGEND

- RIGHT-OF-WAY / PROPERTY LINE
- CENTERLINE
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- 123 PROPOSED MINOR CONTOUR
- 123 PROPOSED MAJOR CONTOUR
- CHAINLINK FENCE (2 / C3.11)
- GRAVEL MAINTENANCE ROAD (1 / C3.12)
- SPILLWAY RIPRAP
- CB TYPE 1L (1 / C3.10)
- CB TYPE 2 (8 / C3.10)







PATH STA:16+00 - 20+47

HORIZONTAL 1" = 20' VERTICAL 1" = 5'

KEY NOTES

1. REVISE EXISTING CONTROL STRUCTURE. REPLACE EXISTING RISER. NEW RISER SHALL HAVE WATERTIGHT PLATE AT BOTTOM AND HAVE NO ORIFICES OR NOTCHES. SET RISER TOP ELEVATION TO 207.95. ADJUST RIM ELEVATION OF STRUCTURE TO ACCOMODATE RISER: ±210.60.
2. REGRADE EXISTING POND AS SHOWN. NEW OVERFLOW SPILLWAY ELEVATION = 208.50
3. 15' WIDE ACCESS TO CONTROL STRUCTURE, MIN. 4" DEPTH CSTC

N

HORIZONTAL SCALE

0 10 20 40

1" = 20 FEET

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Project Title:
PORT TOWNSEND REGIONAL STORMWATER FACILITY

Client:
CITY OF PORT TOWNSEND

250 MADISON STREET
PORT TOWNSEND, WA 98368

WORK ORDER # 8028

Project No.
2160137

Issue Set & Date:
BID SET
03/19/2020

DOREEN S. GAY — STATE OF WASHINGTON — 23467 — REGISTERED PROFESSIONAL ENGINEER — 03/19/20

Revisions:
4
3
2
1

Sheet Title:
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DO	SK	DG

Sheet No.
C2.04
11 of 17 Sheets

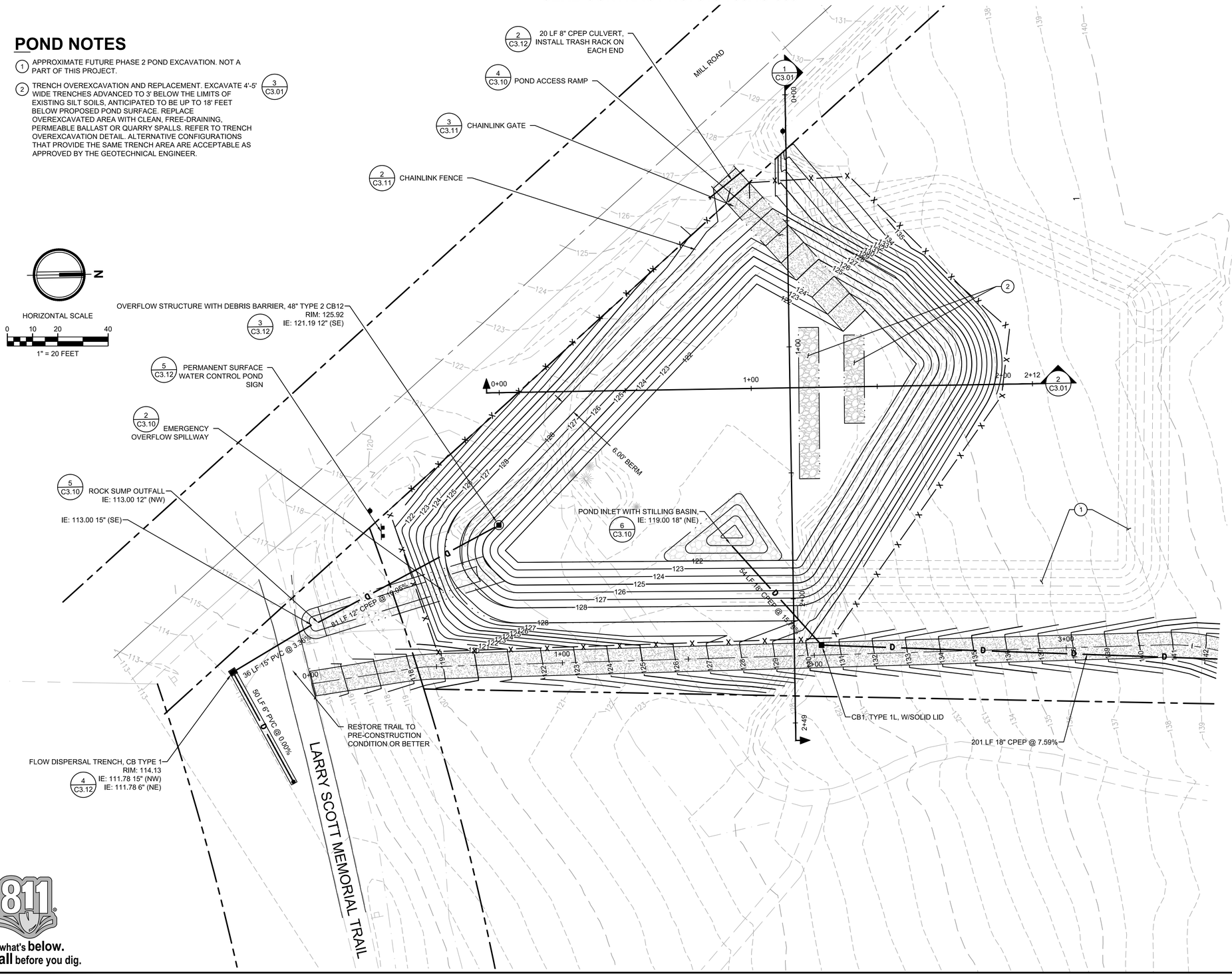
PORT TOWNSEND REGIONAL STORMWATER FACILITY

SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065

POND NOTES

1. APPROXIMATE FUTURE PHASE 2 POND EXCAVATION. NOT A PART OF THIS PROJECT.
2. TRENCH OVEREXCAVATION AND REPLACEMENT. EXCAVATE 4'-5' WIDE TRENCHES ADVANCED TO 3' BELOW THE LIMITS OF EXISTING SILT SOILS, ANTICIPATED TO BE UP TO 18' FEET BELOW PROPOSED POND SURFACE. REPLACE OVEREXCAVATED AREA WITH CLEAN, FREE-DRAINING, PERMEABLE BALLAST OR QUARRY SPALLS. REFER TO TRENCH OVEREXCAVATION DETAIL. ALTERNATIVE CONFIGURATIONS THAT PROVIDE THE SAME TRENCH AREA ARE ACCEPTABLE AS APPROVED BY THE GEOTECHNICAL ENGINEER. (3 C3.01)



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DOREEN S. GAY — STATE OF WASHINGTON — 23467 — REGISTERED PROFESSIONAL ENGINEER — 03/19/20

4
3
2
1

Revisions:

Sheet Title:

STORM INFILTRATION POND PLAN

Designed by:	Drawn by:	Checked by:
DO	SK	DG

Sheet No.

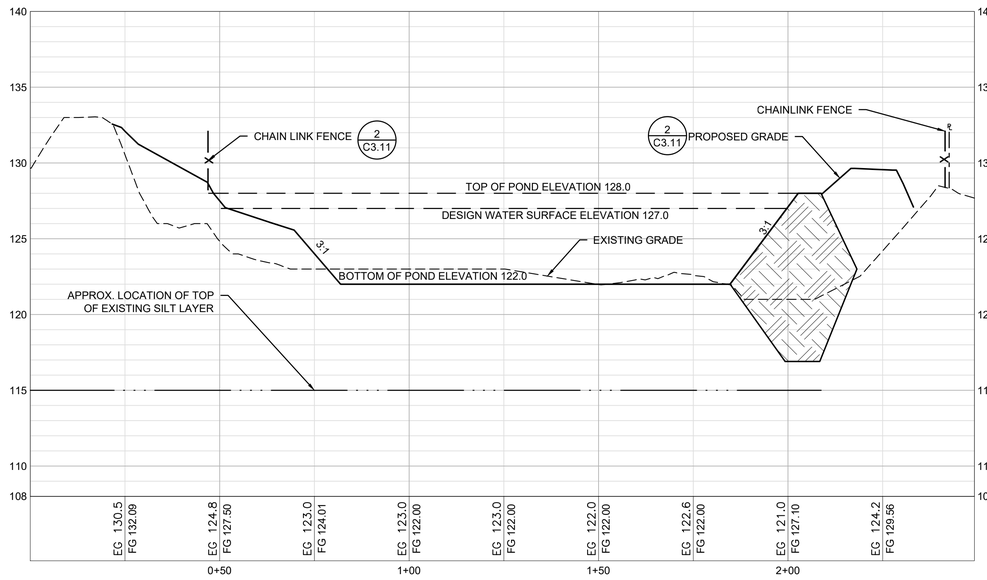
C3.00

12 of 17 Sheets

PORT TOWNSEND REGIONAL STORMWATER FACILITY

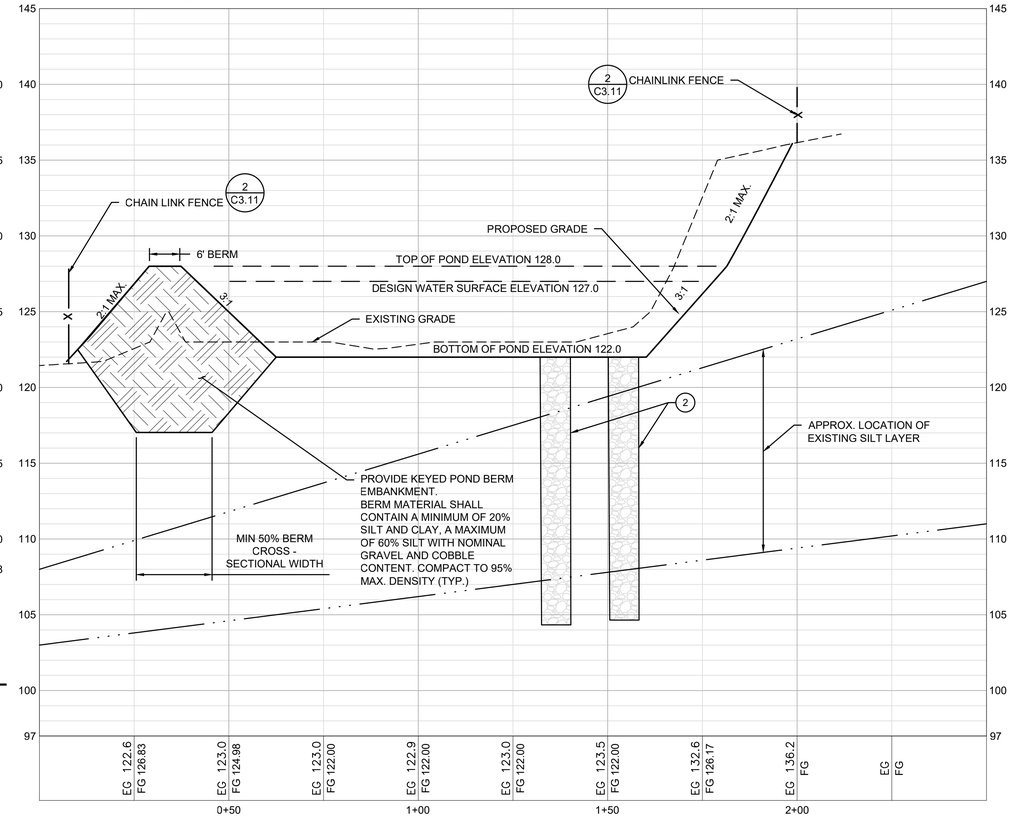
SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065



1 SECTION A-A

1" = 20' HORIZONTAL 1" = 5' VERTICAL

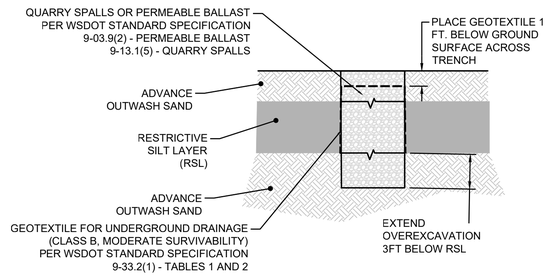


2 SECTION B-B

1" = 20' HORIZONTAL 1" = 5' VERTICAL

POND NOTES

1. APPROXIMATE FUTURE PHASE 2 POND EXCAVATION
2. TRENCH OVEREXCAVATION AND REPLACEMENT. EXCAVATE 4'-5' WIDE TRENCHES ADVANCED TO THE LIMITS OF EXISTING SILT SOILS, ANTICIPATED TO BE UP TO 18' FEET BELOW PROPOSED POND SURFACE. REPLACE OVEREXCAVATED AREA WITH CLEAN, FREE-DRAINING, PERMEABLE BALLAST OR QUARRY SPALLS. REFER TO TRENCH OVEREXCAVATION DETAIL. (3 C3.01)



3 TRENCH OVEREXCAVATION

NOT TO SCALE

N

HORIZONTAL SCALE

0 10 20 40

1" = 20 FEET

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03/19/2020

DOREEN S. GAY — STATE OF WASHINGTON — 23467 REGISTERED PROFESSIONAL ENGINEER — 03/19/20

Revisions:

Sheet Title:

STORM INFILTRATION POND PROFILES

Designed by:	Drawn by:	Checked by:
DO	SK	DG

Sheet No.

C3.01

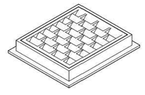
13 of 17 Sheets

PORT TOWNSEND REGIONAL STORMWATER FACILITY

SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065

DRAWN BY: LISA CYFORD



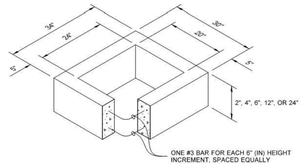
FRAME AND VANED GRATE

PIPE ALLOWANCES	
PIPE MATERIAL	MAXIMUM INSIDE DIAMETER (INCHES)
REINFORCED OR PLAIN CONCRETE	18"
ALL METAL PIPE	21"
CPESP ★ (STD. SPEC. SECT. 9-05.20)	18"
SOLID WALL PVC (STD. SPEC. SECT. 9-05.12(1))	21"
PROFILE WALL PVC (STD. SPEC. SECT. 9-05.12(2))	21"

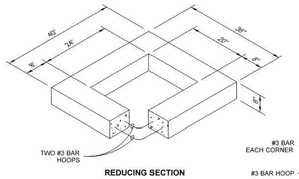
★ CORRUGATED POLYETHYLENE STORM SEWER PIPE

NOTES

1. As acceptable alternatives to the rebar shown in the **PRECAST BASE SECTION**, fibers (placed according to the Standard Specifications), or wire mesh having a minimum area of 0.12 square inches per foot, shall be used with the minimum required rebar shown in the ALTERNATIVE **PRECAST BASE SECTION**. Wire mesh shall not be placed in the knockouts.
2. The knockout shall not be greater than 26" (in), in any direction. Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3**.
3. The maximum depth from the finished grade to the lowest pipe invert shall be 5' (ft).
4. The frame and grate may be installed with the flange down or integrally cast into the adjustment section with flange up.
5. The Precast Base Section may have a rounded floor, and the walls may be sloped at a rate of 1 : 24 or steeper.
6. The opening shall be measured at the top of the Precast Base Section.
7. All pickup holes shall be grouted full after the basin has been placed.



RECTANGULAR ADJUSTMENT SECTION



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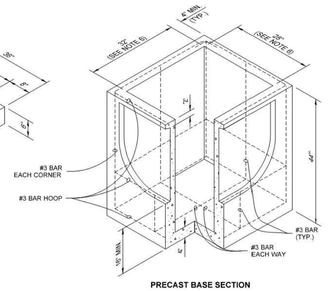
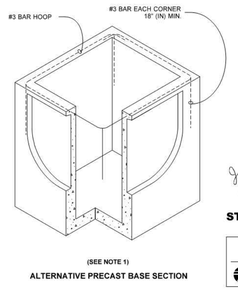


PRECAST BASE SECTION



(SEE NOTE 1)

ALTERNATIVE PRECAST BASE SECTION

Julie Heilman, STATE OF WASHINGTON, 21810, REGISTERED PROFESSIONAL ENGINEER

Heilman, Julie
Jan 25 2017 2:56 PM
cosign

CATCH BASIN TYPE 1L

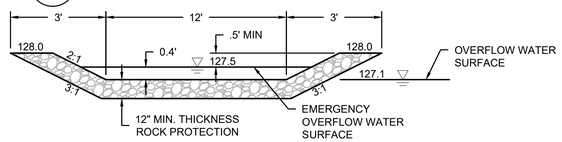
STANDARD PLAN B-5.40-02

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Engineer, ASP
Jan 26 2017 6:49 AM
STATE DESIGN ENGINEER
Washington State Department of Transportation

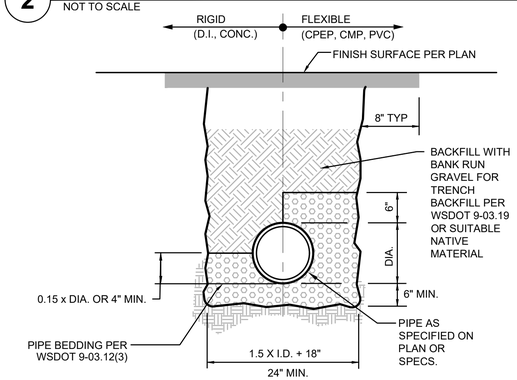
1 CB TYPE 1L

NOT TO SCALE



2 EMERGENCY OVERFLOW SPILLWAY

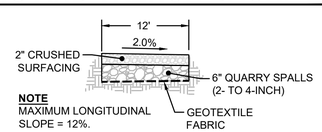
NOT TO SCALE



3 PIPE BEDDING AND TRENCH BACKFILL

NOT TO SCALE

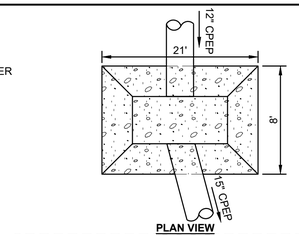
811 Know what's below. Call before you dig.



NOTE
MAXIMUM LONGITUDINAL SLOPE = 12%.

4 POND ACCESS RAMP

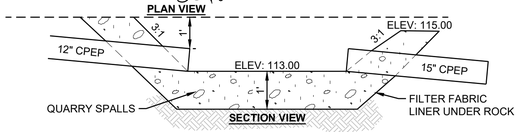
NOT TO SCALE



PLAN VIEW

NOTES:

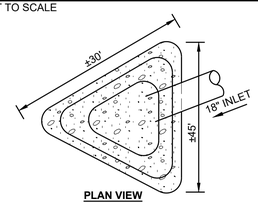
1. ROCK LINING SHALL BE QUARRY SPALLS WITH GRADATION AS FOLLOWS:
   - 1.1. PASSING 8-INCH SQUARE SIEVE: 100%
   - 1.2. PASSING 3-INCH SQUARE SIEVE: 40 TO 60% MAXIMUM
   - 1.3. PASSING 0.75-INCH SQUARE SIEVE: 0 TO 10% MAXIMUM



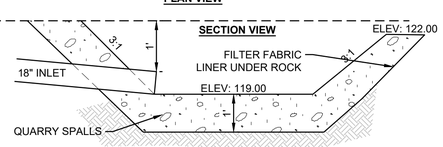
SECTION VIEW

5 ROCK SUMP OUTFALL

NOT TO SCALE



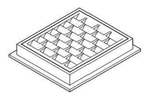
PLAN VIEW



6 POND INLET WITH STILLING BASIN

NOT TO SCALE

DRAWN BY: LISA CYFORD



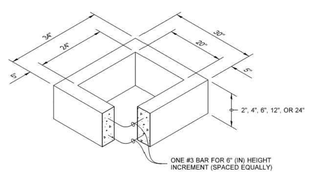
FRAME AND VANED GRATE

PIPE ALLOWANCES	
PIPE MATERIAL	MAXIMUM INSIDE DIAMETER (INCHES)
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CPESP ★ (STD. SPEC. SECT. 9-05.20)	12"
SOLID WALL PVC (STD. SPEC. SECT. 9-05.12(1))	15"
PROFILE WALL PVC (STD. SPEC. SECT. 9-05.12(2))	15"

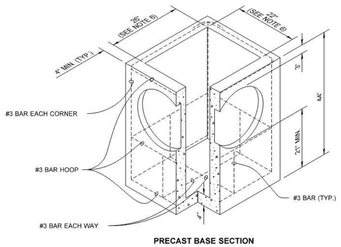
★ CORRUGATED POLYETHYLENE STORM SEWER PIPE

NOTES

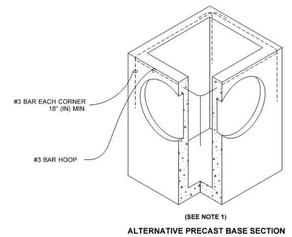
1. As acceptable alternatives to the rebar shown in the **PRECAST BASE SECTION**, fibers (placed according to the Standard Specifications), or wire mesh having a minimum area of 0.12 square inches per foot shall be used with the minimum required rebar shown in the ALTERNATIVE **PRECAST BASE SECTION**. Wire mesh shall not be placed in the knockouts.
2. The knockout diameter shall not be greater than 20" (in). Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3**.
3. The maximum depth from the finished grade to the lowest pipe invert shall be 5' (ft).
4. The frame and grate may be installed with the flange down, or integrally cast into the adjustment section with flange up.
5. The Precast Base Section may have a rounded floor, and the walls may be sloped at a rate of 1 : 24 or steeper.
6. The opening shall be measured at the top of the **Precast Base Section**.
7. All pickup holes shall be grouted full after the basin has been placed.



RECTANGULAR ADJUSTMENT SECTION



PRECAST BASE SECTION



(SEE NOTE 1)

ALTERNATIVE PRECAST BASE SECTION

Julie Heilman, STATE OF WASHINGTON, 21810, REGISTERED PROFESSIONAL ENGINEER

Heilman, Julie
Jan 25 2017 2:53 PM
cosign

CATCH BASIN TYPE 1

STANDARD PLAN B-5.20-02

SHEET 1 OF 1 SHEET

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Engineer, ASP
Jan 26 2017 6:48 AM
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Washington State Department of Transportation

7 CB TYPE 1

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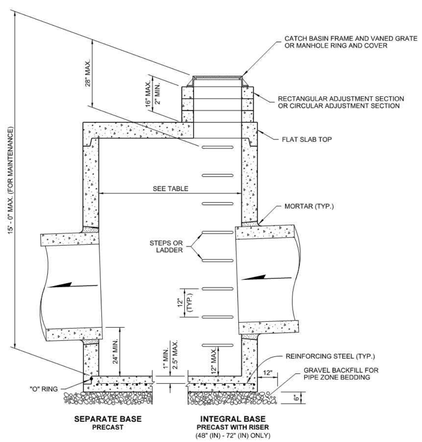

NOTES

1. No steps are required when height is 4' or less.
2. The bottom of the precast catch basin may be sloped to facilitate cleaning.
3. The rectangular frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
4. Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3**.

CATCH BASIN DIMENSIONS				
CATCH BASIN DIAMETER	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	8"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"
120"	10"	12"	96"	12"
144"	12"	12"	108"	12"

PIPE ALLOWANCES					
CATCH BASIN DIAMETER	PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER				
	CONCRETE	ALL METAL	CPSSP ① PP ④	SOLID WALL PVC ②	PROFILE WALL PVC ③
48"	24"	30"	24"	30"	30"
54"	30"	36"	30"	36"	36"
60"	36"	42"	36"	42"	42"
72"	42"	54"	42"	48"	48"
84"	54"	60"	54"	48"	48"
96"	60"	72"	60"	48"	48"
120"	66"	84"	60"	48"	48"
144"	78"	96"	60"	48"	48"

① Corrugated Polyethylene Storm Sewer Pipe (See **Standard Specification Section 9-05.20**)
② (See **Standard Specification Section 9-05.12(1)**)
③ (See **Standard Specification Section 9-05.12(2)**)
④ Polypropylene Pipe (See **Standard Specification Section 9-05.24**)

Julie Heilman, STATE OF WASHINGTON, 21810, REGISTERED PROFESSIONAL ENGINEER

Heilman, Julie
Feb 20 2018 12:49 PM
cosign

CATCH BASIN TYPE 2

STANDARD PLAN B-10.20-02

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Engineer, ASP
Nov 2 2017 8:51 AM
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8 CB TYPE 2

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Client:

CITY OF PORT TOWNSEND

250 MADISON STREET
PORT TOWNSEND, WA 98368

WORK ORDER # 8028

Project No.

2160137

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03/19/20

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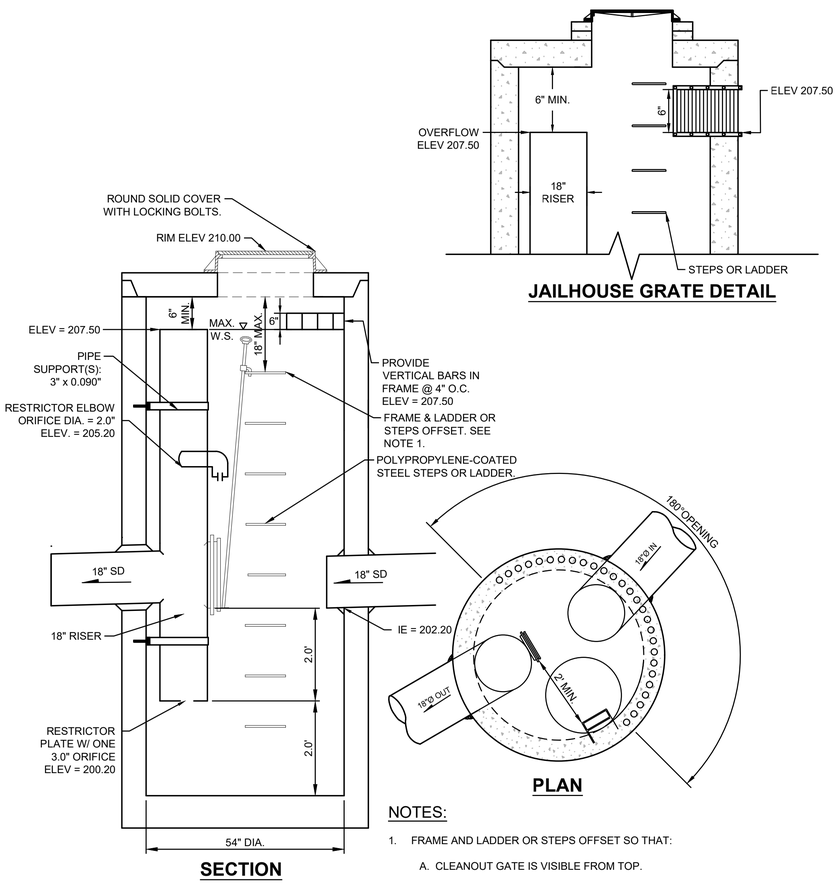
SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065



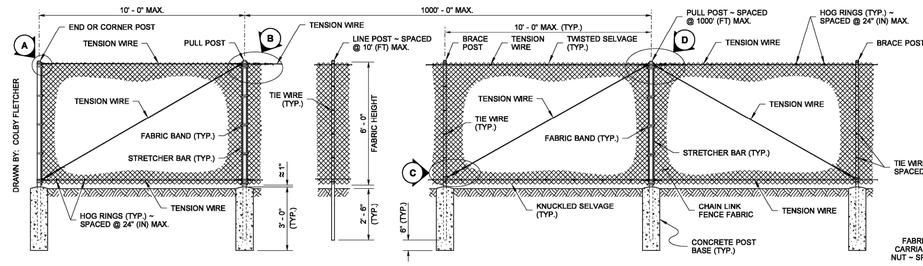
JAILHOUSE GRATE DETAIL

NOTES:

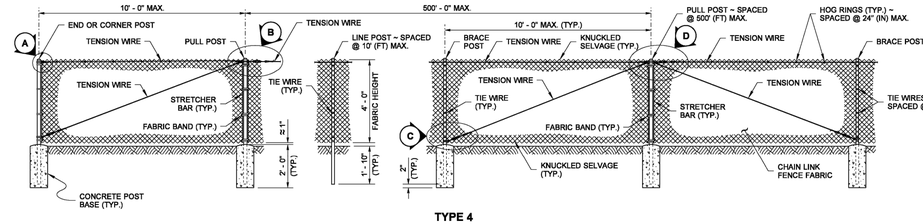
1. FRAME AND LADDER OR STEPS OFFSET SO THAT:
   A. CLEANOUT GATE IS VISIBLE FROM TOP.
   B. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE.

1 CONTROL STRUCTURE WITH JAILHOUSE GRATE

NOT TO SCALE



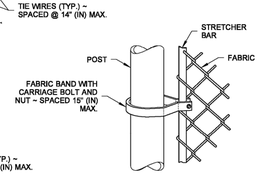
TYPE 3



TYPE 4

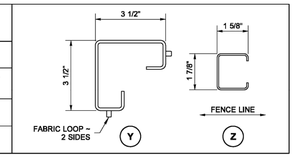
NOTES

1. All concrete post bases shall be 10" (in) minimum diameter.
2. Along the top and bottom, using Hog Rings, fasten the Chain Link Fence Fabric to the Tension Wire within the limits of the first full fabric weave.
3. Details are illustrative and shall not limit hardware design or post selection of any particular fence type.
4. Fencing shall be used for security and boundary delineation only.



METHOD OF FASTENING STRETCHER BAR TO POST

POST AND RAIL SPECIFICATIONS			
POST	PIPE	ROLL FORMED	
	NOM. SIZE (SCH. 40) I.D.	SECTION	WEIGHT (lb/ft)
END, CORNER, OR PULL POST	2 1/2" DIAM.	(Y)	5.10
LINE OR BRACE POST	2" DIAM.	(Z)	1.85



2 CHAIN LINK FENCE

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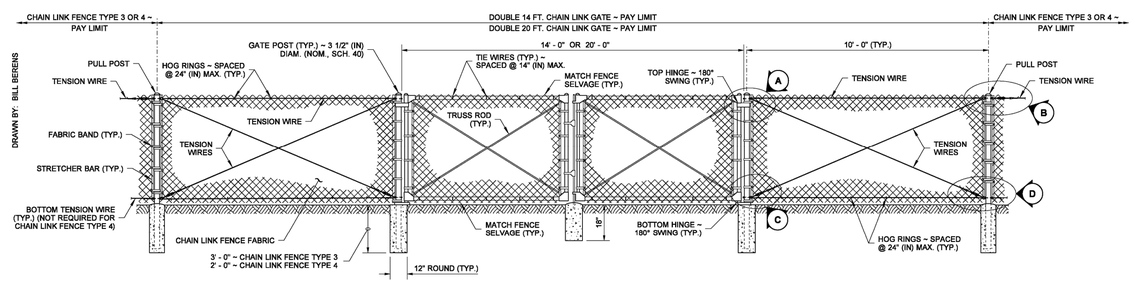
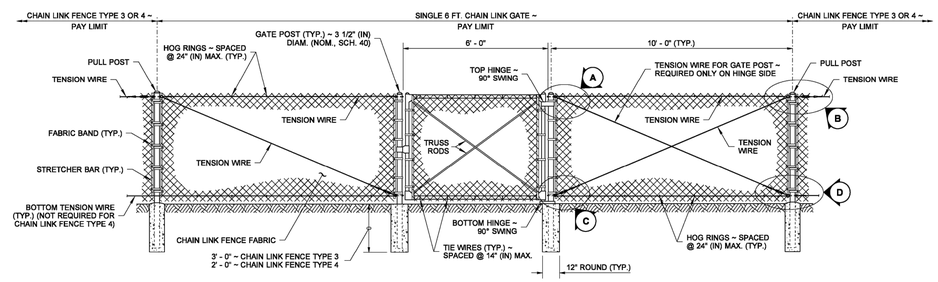


DOUBLE GATE



SINGLE GATE

3 CHAIN LINK GATE

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Barry, Ed
Jul 14 2015 11:14 AM

CHAIN LINK FENCE TYPES 3 AND 4

STANDARD PLAN L-20.10-03

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Carpenter, Jeff
Jul 14 2015 11:24 AM
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NOTES

1. Materials shall meet the requirements of **Standard Specification 9-16**.

Barry, Ed
May 6 2014 3:57 PM

CHAIN LINK GATE

STANDARD PLAN L-30.10-02

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Client:
CITY OF PORT TOWNSEND

250 MADISON STREET
PORT TOWNSEND, WA 98368

WORK ORDER # 8028

Project No.
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PORT TOWNSEND REGIONAL STORMWATER FACILITY

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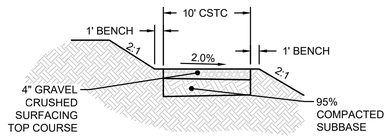
CERB CONTRACT NO. 515-790AO-065



1 MAINTENANCE ROAD SECTION
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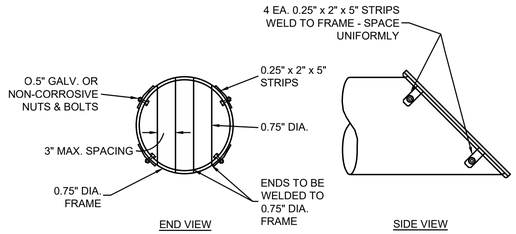
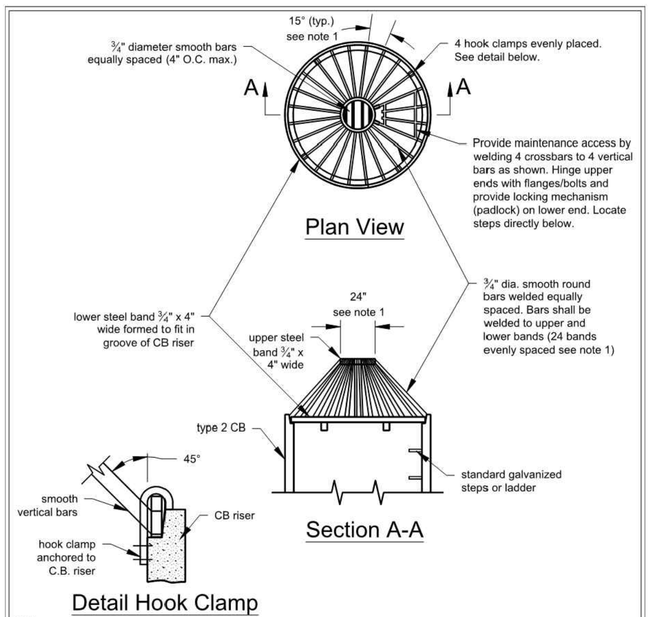


NOTES:
1. ALL STEEL PARTS MUST BE GALVANIZED AND ASPHALT COATED (TREATMENT 1 OR BETTER). TRASH RACKS SHALL BE INSTALLED AT ALL OPEN ENDS OF STORM DRAINAGE PIPE 12" DIA. AND GREATER.

2 TRASH RACK
NOT TO SCALE



Notes:
1. Dimensions are for illustration on 54" diameter CB. For different diameter CB's adjust to maintain 45 degree angle on "vertical" bars and 7" O.C. maximum spacing of bars around lower steel band.
2. Metal parts must be corrosion resistant; steel bars must be galvanized.
3. This debris barrier is also recommended for use on the inlet to roadway cross-culverts with high potential for debris collection (except on type 2 streams).

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Figure III-3.2.3
Overflow Structure
Revised December 2015

3 OVERFLOW STRUCTURE
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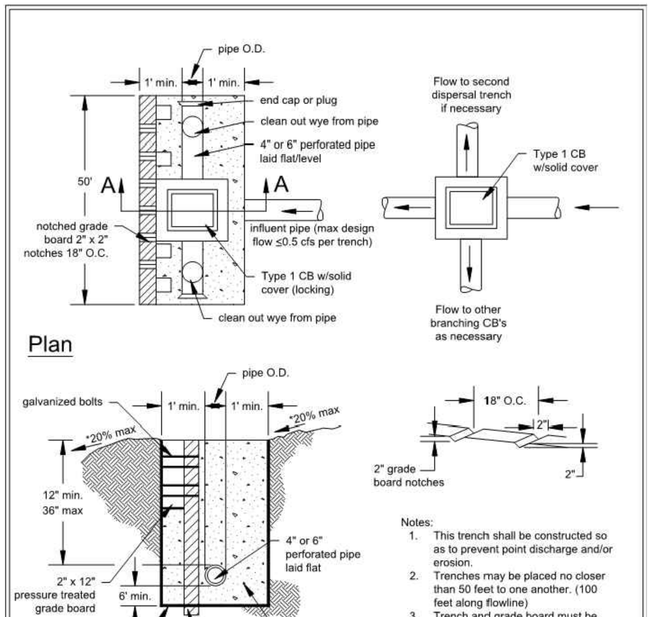

Notes:
1. This trench shall be constructed so as to prevent point discharge and/or erosion.
2. Trenches may be placed no closer than 50 feet to one another. (100 feet along flowline)
3. Trench and grade board must be level. Align to follow contours of site.
4. Support post spacing as required by soil conditions to ensure grade board remains level.

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Figure V-4.5.8
Flow Dispersal Trench
Revised January 2016

4 FLOW DISPERSAL TRENCH
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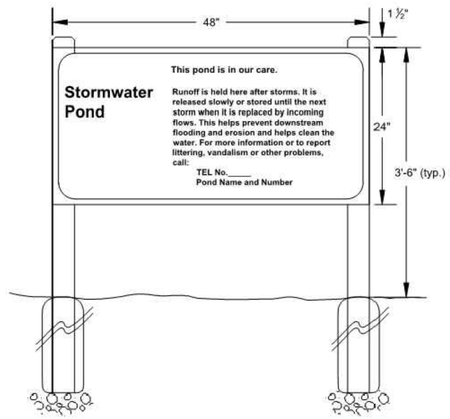

Sample Specifications:

Size:	48 inches by 24 inches
Material:	0.125-gauge aluminum
Face:	Non-reflective vinyl or 3 coats outdoor enamel (sprayed).
Lettering:	Silk screen enamel where possible, or vinyl letters.
Colors:	Beige background, teal letters.
Type face:	Helvetica condensed. Title: 3 inch; Sub-Title: 1 ½ inch; Text: 1 inch; Outer Border:; ⅛ inch; Border Distance from Edge: ¼ inch; all text 1 ¾ inch from border.
Posts:	Pressure treated, beveled tops, 1 ½ inch higher than sign.
Installation:	Secure to chain link fence if available. Otherwise install on two 4" x 4" posts, pressure treated, mounted atop gravel bed, installed in 30-inch concrete filled post holes (8-inch minimum diameter). Top of sign no higher than 42 inches from ground surface.
Placement:	Face sign in direction of primary visual or physical access. Do not block any access road. Do not place within 6 feet of structural facilities (e.g. manholes, spillways, pipe inlets).
Special Notes:	This facility is lined to protect groundwater (if a liner that restricts infiltration of stormwater exists).

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Figure III-3.2.4
Example of Permanent Surface Water Control Pond Sign
Revised December 2015

5 PERMANENT SURFACE WATER POND SIGN
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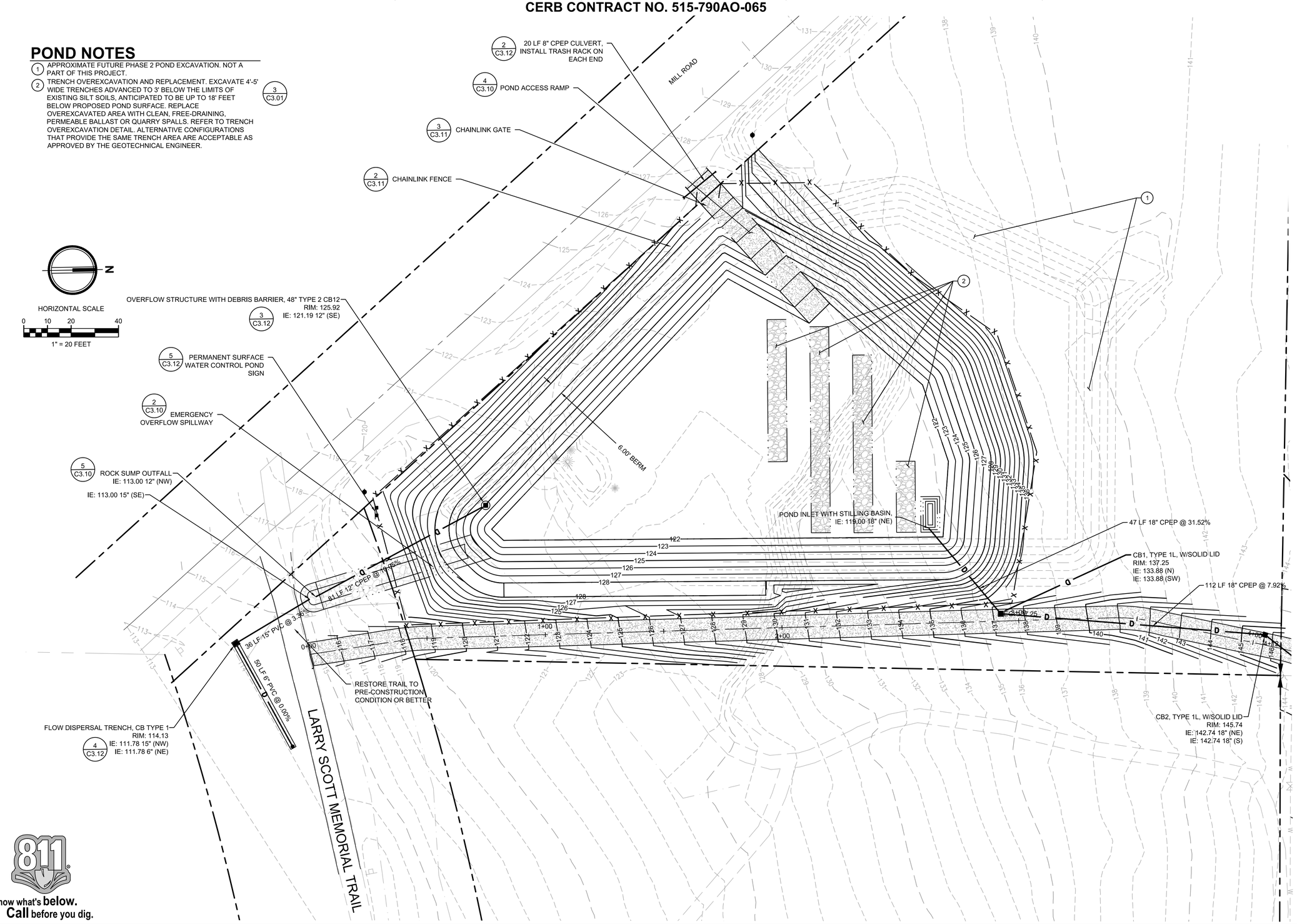
PORT TOWNSEND REGIONAL STORMWATER FACILITY

SECTIONS 9 & 16, TOWNSHIP 30N, RANGE 1W, W.M., JEFFERSON COUNTY, WA

CERB CONTRACT NO. 515-790AO-065

POND NOTES

1. APPROXIMATE FUTURE PHASE 2 POND EXCAVATION. NOT A PART OF THIS PROJECT.
2. TRENCH OVEREXCAVATION AND REPLACEMENT. EXCAVATE 4'-5' WIDE TRENCHES ADVANCED TO 3' BELOW THE LIMITS OF EXISTING SILT SOILS, ANTICIPATED TO BE UP TO 18' FEET BELOW PROPOSED POND SURFACE. REPLACE OVEREXCAVATED AREA WITH CLEAN, FREE-DRAINING, PERMEABLE BALLAST OR QUARRY SPALLS. REFER TO TRENCH OVEREXCAVATION DETAIL. ALTERNATIVE CONFIGURATIONS THAT PROVIDE THE SAME TRENCH AREA ARE ACCEPTABLE AS APPROVED BY THE GEOTECHNICAL ENGINEER. (3 C3.01)



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