

**PORT OF TACOMA
TACOMA, WASHINGTON
WEST SITCUM MAIN SUBSTATION REPLACEMENT**

**PROJECT NO. 201178.01
CONTRACT NO. PA000000140**

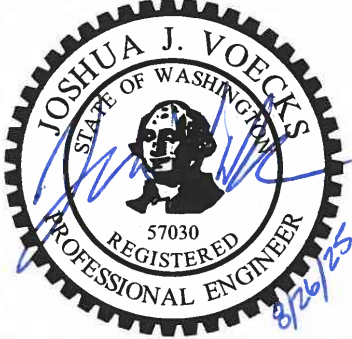
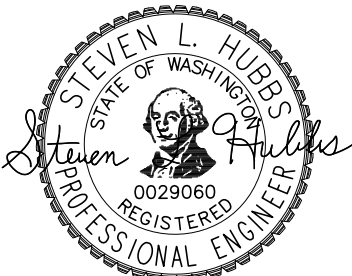
**Thais Howard, PE
Director, Engineering**

**Kyle Smith, PE
Project Manager**

END OF SECTION

The undersigned Engineer of Record hereby certifies that the Technical Specifications for the following portions of this project were written by me, or under my direct supervision, and that I am duly registered under the laws of the State of Washington, and hereby affix my Professional Seal and signature.

Those Sections prepared under my direct supervision and being certified by my seal and signature below are as follows:

<u>SEAL & SIGNATURE</u>	<u>SECTION(S)</u>
	02 41 00 - Demolition 03 10 00 - Concrete Forming and Accessories 03 20 00 - Concrete Reinforcement 03 30 00 - Cast in Place Concrete 05 50 00 - Metal Fabrications 31 23 33 - Trenching and Backfilling 32 11 23 - Crushed Surfacing Base Course 32 12 16 - HMA Paving 32 31 13 - Chain Link Fences and Gates
	26 01 26 - Acceptance Testing of Electrical Systems 26 05 00 - Common Work Results for Electrical 26 05 19 - Low Voltage Electrical Power Conductors and Cables 26 05 33 - Raceways and Boxes for Electrical Systems 26 05 53 - Identification for Electrical Systems 26 22 13 - Transformers – Dry Type 26 24 13 - Electrical Switchboards 26 24 16 - Panelboards 26 27 26 - Wiring Devices 26 35 33 - Automatic Power Factor Correction Equipment 480 volts 33 71 19 – Electrical Underground Ducts and Manholes 33 79 00 – Site Grounding

END OF SECTION

PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

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- 00 01 07 - Seals Page
- 00 01 10 - Table of Contents
- 00 01 15 - List of Drawing Sheets
- 00 11 13 - Advertisement for Bids
- 00 21 00 - Instructions to Bidders
- 00 26 00 - Substitution Procedures
- 00 31 26 - Existing Hazardous Material Information
- 00 41 00 - Bid Form
- 00 43 13 - Bid Security Form
- 00 45 13 - Responsibility Detail Form
- 00 52 00 - Agreement Form
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- 00 73 63 - Security Requirements

SPECIFICATIONS

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- 01 14 00 - Work Restrictions
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01 35 43.13 - Hazardous Materials Handling Procedure
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03 20 00 - Concrete Reinforcing
03 30 00 - Cast-in-Place Concrete
DIVISION 05 -- METALS
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DIVISION 26 -- ELECTRICAL
26 01 26 - Acceptance Testing of Electrical Systems
26 05 00 - Common Work Results for Electrical
26 05 19 - Low-Voltage Electrical Power Conductors and Cables
26 05 33 - Raceways and Boxes for Electrical Systems
26 05 53 - Identification for Electrical Systems
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26 35 33 - Automatic Power Factor Correction Equipment 480 volts

DIVISION 31 -- EARTHWORK

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32 12 16 - Asphalt Paving

32 31 13 - Chain Link Fences and Gates

DIVISION 33 -- UTILITIES

33 71 19 - Electrical Underground Ducts, Ductbanks, and Manholes

33 79 00 - Site Grounding

APPENDICES

Appendix A - Port of Tacoma Construction SWPPP Short Form

Appendix B - Shoreline Substantial Development Permit Exemption

Appendix C - Inadvertent Discovery Plan

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Contract Drawings: The following drawings are a part of the Contract Documents:

Sheet No.	Drawing Title
G1.0	Cover Sheet, Area Map, Vicinity Map, Drawing List
G2.0	General Notes, Symbols, Abbreviations
G3.0	Site Access Plan - Substation #1
G3.1	Site Access Plan - Substation #3
V1.0	Topographic Survey
V1.1	Topographic Survey
C2.0	Demo & TESC Plan - Substation #1
C2.1	Demo & TESC Plan - Substation #3
C3.0	Site Plan - Substation #1
C3.1	Site Plan - Substation #3
C4.0	TESC Details & Notes
C4.1	Civil Details & Sections - Sheet 1
C4.2	Civil Details - Sheet 2
C4.3	Civil Details - Sheet 3
C4.4	Civil Details - Sheet 4
C5.0	Photographs
E1.0	Electrical Symbols Legend
E2.0	Overall Electrical Site Plan
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E3.0	Substation #1 Electrical Layout
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E4.0	Power Riser Diagram - Substation #1
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E4.2	Panel Schedules
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E5.0	Electrical Details
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E6.0	Conduit and Conductor Schedule

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

WEST SITCUM MAIN SUBSTATION REPLACEMENT

PROJECT NO. 201178.01 | CONTRACT NO. PA000000140

Scope of Work:	<p>The Work required for this Project includes: Construction of two new substations, demolition of two existing substations, testing and commissioning of new electrical equipment.</p>
Bid Estimate:	<p>Estimated cost range is \$2,000,000 to \$2,500,000, plus Washington State Sales Tax (WSST).</p> <p>In accordance with RCW 39.04.320, fifteen (15) percent apprenticeship participation is required for certain projects estimated to cost one million (\$1,000,000) dollars or more. Bidders may contact the Department of Labor and Industries, Specialty Compliance Services Division, Apprenticeship Section, P.O. Box 44530, Olympia, WA 98504-4530, by phone (360) 902-5320, or e-mail at Apprentice@lni.wa.gov, to obtain information on available apprenticeship programs.</p>
Sealed Bid Date/ Time/Location:	<p>Bids will be received at the Front Reception Desk, Port Administration Office, One Sitcum Plaza, Tacoma, Washington 98421 until 2:00 P.M. on Tuesday, December 2, 2025, at which time they will be publicly opened and read aloud and the apparent low bid will be determined.</p>
Pre-Bid Conference and Site Tour:	<p>A pre-Bid conference and site visit have been set for November 17, 2025 at 11:30 AM.</p> <p>The site visit will convene at the Port's Administrative building, located at One Sitcum Plaza. The following Personal Protective equipment is required for the site visit: sturdy shoes and reflective vest.</p> <p>Attendees will be required to sign a Release and Acceptance of Responsibility and Acknowledgement of Risks Form prior to entering the site and shall provide their own Personal Protection Equipment (PPE) as required above.</p>
Bid Security:	<p>Each Bid must be accompanied by a Bid security in an amount equal to five (5) percent of the Base Bid in a form allowed by the Instructions to Bidders.</p>
Contact Information:	<p>Any questions to the Port may be submitted to the Procurement Department through the Procurement and Question Submission Portal (Portal link is accessible via this specific procurements website. See left side of page.). A direct link is also available here: Procurement and Question Portal Link. No oral responses will be binding by the Port.</p>

Instructions for utilizing the portal can be found here: [Procurement and Question Submission Portal Instructions](#).

Questions will not be accepted after seven (7) days prior to the Bid Date.

Bidding
Documents:

Plans, Specifications, Addenda, and Plan Holders List for this Project are available on-line through The Port of Tacoma's Website portoftacoma.com. Click on "Contracts," "Procurement," and then the Procurement Number PA000000140. Bidders must subscribe to the Holder's List on the right hand side of the screen in order to receive automatic email notification of future addenda and to be placed on the Holder's List.

Holder's Lists will be updated regularly and posted to the specific procurements page. Additional Instructions available in Section 00 21 00 - Instructions to Bidders.

Public Works
Training
Requirements:

Effective July 1, 2019, all businesses are required to have training before bidding on public works projects and prevailing wage under RCW 39.04.359 and RCW 39.12, or is on the list of exempt businesses maintained by the Department of Labor and Industries. The bidder must designate a person or persons to be trained on these requirements. The training will be provided by the Department of Labor and Industries or by a training provider whose curriculum is approved by the Department of Labor and Industries.

Please refer to Labor and Industries' web site (https://www.lni.wa.gov/TradesLicensing/PrevWage/Contractors/Training.asp?utm_medium=email&utm_source=govdelivery) for more information and training dates, requirements, and exemptions. Failure to attend this training could result in a determination of "not responsible" and the bidder not being awarded a public works contract.

END OF SECTION

PART 1 - SUMMARY

1.01 DEFINITIONS

All definitions set forth in the Agreement, the General Conditions of the Contract for Construction, and in other Contract Documents are applicable to the Bidding Documents.

- A. "Addenda" are written or graphic instruments issued prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections. The contents of an Addendum are issued in no particular order and therefore should be carefully and completely reviewed.
- B. An "Apprentice" is a worker for whom an apprenticeship agreement has been registered and approved by the Washington State Apprenticeship and Training Council (RCW 49.04 and WAC 296-05).
- C. "Award" means the formal decision by the Port of Tacoma ("Port") notifying a Responsible Bidder with the lowest responsive Bid of the Port's acceptance of their Bid and intent to enter into a Contract with the Bidder.
- D. The "Award Requirements" include the statutory requirements as a condition precedent to Award.
- E. The "Base Bid" is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.
- F. A "Bid" is a complete and properly signed proposal to do the Work, submitted in accordance with the Bidding Documents, for the sums therein stipulated and supported by any data called for by the Bidding Documents.
- G. The "Bid Date" is the day and hour specified in the Bidding Documents, as may be changed through an Addendum, by which Bidders are required to submit Bids to the Port.
- H. The "Bid Form" is the form(s) included with the Bidding Documents, with Specification Section 00 41 00, through which a Bidder submits a Bid.
- I. A "Bidder" is a person or entity who submits a Bid.
- J. The "Bidding Documents" include the Advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form, any other sample bidding and contract forms, including those provided by reference, the Bid security, and the proposed Contract Documents, including any Addenda issued prior to the Bid Date.
- K. The "Contract Documents" proposed for the Work consist of the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.
- L. The "Schedule of Unit Prices" is a separate schedule on the Bid Form for Unit Pricing as an all-inclusive price per unit of measurement for materials, equipment, or services as described in the Bidding Documents or in the proposed Contract Documents for the optional use of the Port. Quantities are not predictions of amounts anticipated. The Port may, but is not obligated to, accept a Schedule of Unit Price if it accepts the Base Bid. The Schedule of Unit Prices are not factored into the evaluation of determining the low bid amount and are not included as part of the bid award amount.

- M. A "Sub-Bidder" is a person or entity of any tier who submits a bid or proposal to or through the Bidder for materials, equipment or labor for a portion of the Work.

1.02 BIDDER'S REPRESENTATIONS

By making its Bid, each Bidder represents that:

- A. **BIDDING DOCUMENTS.** The Bidder has read and understands the Bidding Documents, and its Bid is made in accordance with them.
- B. **PRE-BID MEETING.** The Bidder has attended pre-Bid meeting(s) required by the Bidding Documents. Attendance at a mandatory meeting or training session means that, in the sole opinion of the Port, a Project representative of a Bidder has attended all or substantially all of such meeting or session.
- C. **BASIS.** Its Bid is based upon the materials, systems, services, and equipment required by the Bidding Documents, and is made without exception.
- D. **EXAMINATION.** The Bidder has carefully examined and understands the Bidding Documents, the Contract Documents including, but not limited to, any liquidated damages, insurance provisions, and the Project site, including any existing buildings, it has familiarized itself with the local conditions under which the Work is to be performed, has correlated its observations with the requirements of the proposed Contract Documents, and it has satisfied itself as to the nature, location, character, quality, and quantity of the Work, the labor, materials, equipment, goods, supplies, work, services, and other items to be furnished, and all other requirements of the Contract Documents. The Bidder has also satisfied itself as to the conditions and other matters that may be encountered at the Project site or that may affect performance of the Work or the cost or difficulty thereof, including, but not limited to, those conditions and matters affecting transportation, access, disposal, handling and storage of materials, equipment and other items; availability and quality of labor, water, electric power, and utilities; availability and condition of roads; climatic conditions and seasons; physical conditions at the Project site and the surrounding locality; topography and ground surface conditions; and equipment and facilities needed preliminary to, and at all times during, the performance of the Work. The failure of the Bidder to fully acquaint itself with any applicable condition or matter shall not in any way relieve the Bidder from the responsibility for performing the Work in accordance with, and for the Contract Sum and within the Contract Time provided for in, the Contract Documents.
- E. **PROJECT MANUAL.** The Bidder has checked its copies of the Project Manual (if any) with the table of contents bound therein to ensure the Project Manual is complete.
- F. **SEPARATE WORK.** The Bidder has examined and coordinated all Drawings, Contract Documents, and Specifications with any other contracts to be awarded separately from, but in connection with, the Work being Bid upon, so that the Bidder is fully informed as to conditions affecting the Work under the Contract being Bid upon.
- G. **LICENSE REQUIREMENTS.** The Bidders and Sub-Bidders are registered and hold all licenses required by the laws of Washington, including a certificate of registration in compliance with RCW 18.27, for the performance of the Work specified in the Contract Documents.
- H. **CERTIFICATION.** The Bidder verifies under penalty of perjury that the Bidder has not have been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, or 49.52 RCW within the three (3) year period immediately preceding the Bid Date.

- I. NO EXCEPTIONS. Bids must be based upon the materials, systems, and equipment described and required by the Bidding Documents, without exception.

1.03 BIDDING DOCUMENTS

A. COPIES

1. Bidders may obtain complete sets of the Bidding Documents from The Port of Tacoma's Website www.portoftacoma.com. Click on "Contracts" then "Procurement."
2. Complete Sets. Bidders shall use complete sets of Bidding Documents in preparing Bids and are solely responsible for obtaining updated information. The Port does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete and/or superseded sets of Bidding Documents.
3. Conditions. The Port makes copies of the Bidding Documents available only for the purpose of obtaining Bids on the Work and does not confer a license or grant permission for any other use.
4. Legible Documents. To the extent any Drawings, Specifications, or other Bidding Documents are not legible, it is the Bidder's responsibility to obtain legible documents.

B. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

1. Format. The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into Work performed by the various building trades, any Work by separate contractors, or any Work required for separate facilities in, or phases of the Project.
2. Duty to Notify. Bidders shall promptly notify the Port in writing of any ambiguity, inconsistency, or error that they may discover upon examination of the Bidding Documents or of the site and local conditions.
3. Products and Installation. All Bidders shall thoroughly familiarize themselves with specified products and installation procedures and submit to the Port any objections (in writing) no later than seven (7) days prior to the Bid Date. The submittal of the Bid constitutes acceptance of products and procedures specified as sufficient, adequate, and satisfactory for completion of the Contract.
4. Written Request. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Procurement Department through the Procurement and Question Submission Portal at least seven (7) days prior to the Bid Date (Portal link is accessible via this specific procurements website. See left side of page.). A direct link is also available here: [Procurement and Question Portal Link](#). No oral responses will be binding by the Port.

Instructions for utilizing the portal can be found here: [Procurement and Question Submission Portal Instructions](#).

5. Request to Modify Responsibility Criteria. No later than seven (7) days prior to the Bid Date, a potential Bidder may request in writing that the Port modify the Responsibility Criteria. The Port will evaluate the information submitted by the potential Bidder and respond before the Bid Date. If the evaluation results in a change of the Criteria, the Port will issue an Addendum identifying the new Criteria.

6. Addenda. The Bidder shall not rely on oral information provided at any pre-Bid meetings or during site visits. Verbal statements made by representatives of the Port are for informational purposes only. Any interpretation, correction, or change of the Bidding Documents will be made solely by written Addendum. Interpretations, corrections, or changes of the Bidding Documents made in any manner other than by written Addendum, including but not limited to, oral statements will not be binding, and Bidders shall not rely upon such statements, interpretations, corrections, or changes. The Port is not responsible for explanations or interpretations of the Bidding Documents other than in a written Addendum.
7. Site Visits. Any site visits are provided as a courtesy to potential Bidders to assist them in becoming familiar with the Project site conditions. However, only the Bidding Documents, including any issued Addenda, may be relied upon by Bidders.
8. Singular References. Reference in the singular to an article, device, or piece of equipment shall include as many of such articles, devices, or pieces as are indicated in the Contract Documents or as are required to complete the installation.
9. Utilities and Runs. The Bidder should assume that the exact locations of any underground or hidden utilities, underground fuel tanks, and plumbing and electrical runs may be somewhat different from any location indicated in the surveys or Contract Documents.

C. SUBSTITUTIONS

1. For substitutions during bidding, refer to Section 00 26 00 – Substitution Procedures.

D. ADDENDA

1. Distribution. All Addenda will be written and will be made available on the Port's website or any other source specified by the Port for the Project.
2. Copies. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
3. Verification and Acknowledgment of Receipt. Prior to submitting a Bid, each Bidder shall ascertain that it has received all Addenda issued. Each Bidder shall acknowledge its receipt and consideration of all Addenda in its Bid.

1.04 BIDDING PROCEDURE

A. FORM AND STYLE OF BIDS

1. Form. Bids (including required attachments) shall be submitted on forms identical to the Bid Form included with the Bidding Documents. No oral, email, or telephonic responses or modifications will be considered.
2. Entries on the Bid Form. All blanks on the Bid Form shall be filled in by typewriter, printer, or manually in ink.
3. Figures. All sums shall be expressed in figures, not words. Portions of the Bid Form may require the addition or multiplication of component bids to a total or the identification of component amounts within a total. In case of discrepancy between unit prices listed and their sum(s), the unit prices listed shall govern (rather than the sum).
4. Initial Changes. Any interlineation, alteration, or erasure shall be initialed by an authorized representative of the Bidder.

5. Bid Breakdown. The Bid Form may contain, for the Port's accounting purposes only, a breakdown of some or all of the components included in the Base Bid.
 - a. For lump-sum Bids, the total Contract Sum shall be submitted.
 - b. For unit-price Bids, a price shall be submitted for each item of the Work, an extension thereof, and, if requested, the total Contract Sum.
6. Schedule of Unit Prices. All Unit Prices under this schedule shall be bid. The Port reserves the right, but is not obligated, to reject any Bid on which all requested Schedule of Unit Prices are not Bid.
7. No Conditions. The Bidder shall make no conditions or stipulations on the Bid Form, nor qualify its Bid in any manner.
8. Identity of Bidder. The Bidder shall include in the specified location on the Bid Form, the legal name of the Bidder and, if requested, a description of the Bidder as a sole proprietor, a partnership, a joint venture, a corporation, or another described form of legal entity. The Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. The Port verifies signature authority on the Labor and Industries website <https://secure.lni.wa.gov/verify/> under the contractor registration business owner information. If the business owner information is not current, the Bidder shall show proof of authority to sign at the request of the Port. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder
9. Bid Amounts Do Not Include Sales Tax. The Work to be performed constitutes a "retail sale" as this term is defined in RCW 82.04.050. Thus, the Base Bid amount shall include in the sum stated all taxes imposed by law, EXCEPT WASHINGTON STATE AND LOCAL SALES TAX due on the Base Bid. The engaged Contractor will pay retail sales tax on all consumables used during the performance of the Work and on all items that are not incorporated into the final Work; this tax shall be included in the Base Bid price and in any other prices set forth on the Bid Form. The Port will pay state and local retail sales tax due on each progress payment and final payment to the engaged Contractor for transmittal by the Contractor to the Washington State Department of Revenue or to the applicable local government.

B. POTENTIAL LISTING OF SUB-BIDDERS (SUBCONTRACTORS)

1. Procedure. On projects equal to or greater than \$1,000,000, the Bid Form includes a requirement that certain Sub-Bidders be listed, in which case the Bidder must complete the required list. In these circumstances, and regardless of the anticipated cost of the Project, the Bidder must name the Sub-Bidder or Sub-Bidders with whom the Bidder, if awarded the Contract, will subcontract directly (i.e., not lower-tier Sub-Bidders) for performance of the Work of:
 - a. HVAC (heating, ventilation, and air conditioning) Work;
 - b. Plumbing Work as described in RCW 18.106;
 - c. Electrical Work as described in RCW 19.28; and
 - d. Any other categories of Work listed on the Sub-Bidder listing form and/or Bid Form.
2. Self-Performance. If the Bidder intends to self-perform any of these categories of Work, it must name itself for each such category of Work.

3. Multiple Entries. The Bidder shall not list more than one (1) entity for a particular category of Work identified, unless a Sub-Bidder will vary based on an Alternate Bid, in which case the Bidder shall identify the Sub-Bidder to be used for the Alternate and the affected portion of the Work.
4. Failure to Submit. In accordance with RCW 39.30.060, failure of a Bidder to submit, as part of the Bid, the names of such proposed HVAC, plumbing, and electrical Sub-Bidders, or to name itself to perform such Work, or the naming of two (2) or more Sub-Bidders to perform the same Work, shall render the Bidder's Bid non-responsive and; therefore, void.
5. Requirement to Subcontract. The Bidder, if Awarded the Contract, will subcontract with the listed Sub-Bidders for performance of the portion of the Work designated on the Bid Form, subject to the provisions of the Contract for Construction and RCW 39.30.060. The Bidder shall not substitute a listed Sub-Bidder in furtherance of bid shopping or bid peddling.
6. Sub-Bidder Qualification. Listed Sub-Bidders may be required to provide evidence of their qualifications, including a statement of experience and references, prior to Award, or at any time during the Contract Time. Such information shall be provided within twenty-four (24) hours of request. This evidence shall demonstrate that the Sub-Bidder meets or exceeds all requirements for experience, qualifications, manufacturer's certifications, or any other requirements specified in any of the technical sections of the Contract Documents for which the Sub-Bidder proposes to perform Work.
7. Replacement. If a listed Sub-Bidder fails to provide adequate evidence of qualifications, is unable to comply with any bonding requirements of the Bidding Documents or with other requirements of the Contract or Bidding Documents, is not properly licensed, or fails to meet the Responsibility Criteria of the Bidding Documents, the Port may require the Bidder to replace the Sub-Bidder with another subcontractor reasonably acceptable to the Port at no change in the Contract Sum or Contract Time.
8. Sub-Bidder Standards. Sub-Bidders shall meet contractual and technical qualification standards, and provide specialized certification, licensing, and/or payment and performance bonding, if required.
9. MWBE, Veteran-owned, and small business participation encouraged. The Port's policy is to encourage the Contractor to solicit and document participation, and to provide and promote the maximum lawful, practicable opportunity for increased participation, by MWBE firms certified by the Office of Minority and Women's Business Enterprises (OMWBE), Veteran-owned businesses (defined in RCW 43.60.010, and Small, Mini and Micro business enterprises (defined in RCW 39.26.010).

C. BID SECURITY

1. Purpose and Procedure. Each Bid shall be accompanied by Bid security payable to the Port in the form required by the Bidding Documents and equal to five (5) percent of the Base Bid only (i.e., not including any Alternates or Unit Prices). The Bid security constitutes a pledge by the Bidder to the Port that the Bidder will enter into the Contract with the Port in the form provided, in a timely manner, and on the terms stated in its Bid, and will furnish in a timely manner, the payment and performance bonds, certificates of insurance, and all other documents required in the Contract Documents. Should the Bidder fail or refuse to enter into the Contract or fail to furnish such documents, the amount of the Bid security shall be forfeited to the Port as liquidated damages, not as a penalty. By submitting a Bid, each Bidder represents and agrees that the Bid security, if forfeited, is a reasonable prediction on the Bid Date of future damages to the Port. Failure of the Bidder to provide Bid Security as required shall render the bid non-responsive.
2. Form. The Bid security shall be in the form of a certified or bank cashier's check payable to the Port or a Bid bond executed by a bonding company reasonably acceptable to the Port, licensed in the State of Washington, registered with the Washington State Insurance Commissioner, possess an A.M. Best rating of "A-," Fiscal Size Category (FSC) six (6) or better, and be authorized by the U.S. Department of the Treasury. The Bid security shall be signed by the person or persons legally authorized to bind the Bidder. Bid bonds shall be submitted using the form included with the Bidding Documents.
3. Retaining Bid Security. The Port will have the right to retain the Bid security of Bidders to whom an Award is being considered until the earliest of either: (a) mutual execution of the Contract, and the Port's receipt of payment and performance bonds, (b) the specified time has elapsed so that Bids may be withdrawn, or (c) when all Bids have been rejected.
4. Return of Bid Security. Within sixty (60) days after the Bid Date, the Port will release or return Bid securities to Bidders whose Bids are not to be further considered in awarding the Contract. Bid securities of the three apparent low Bidders will be held until the Contract has been finally executed, after which all un-forfeited Bid securities will be returned. Bid security may be returned in the form provided or by separate payment.

D. SUBMISSION OF BIDS

1. Procedure. The Bid, the Bid security, and other documents required to be submitted with the Bid, shall be enclosed in a sealed envelope identified with the Project name and number and the Bidder's name and address. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face of the mailing envelope.
 - a. If a Bid is mailed, it shall be addressed to the Port of Tacoma, Contracts Department, 1 Sitcum Plaza, Tacoma, WA 98421.
 - b. If a Bid is delivered, it shall be delivered to the Front Reception Desk, Port of Tacoma, 1 Sitcum Plaza, Tacoma, WA 98421.
 - c. The time stamp clock at the Front Reception Desk at 1 Sitcum Plaza is the Port's official clock.
2. Deposit. Bids shall be deposited at the designated location prior to the Bid Date indicated in the Advertisement or Invitation to Bid, or any extension thereof made by Addendum. Bids received after the Bid Date and time specified shall be returned without consideration at the discretion of the Port, or rejected at the time of receipt.

3. Delivery. The Bidder assumes full responsibility for timely delivery at the location designated for receipt of Bids.
4. Form. Oral, facsimile, telephonic, electronic, or email Bids are invalid and will not be considered.

E. MODIFICATION OR WITHDRAWAL OF BID

1. After the Bid Date. A Bid may not be modified, withdrawn, or canceled by the Bidder during a ninety (90) day period following the Bid Date, and each Bidder so agrees by virtue of submitting its Bid.
2. Before the Bid Date. Prior to the Bid Date, any Bid submitted may be modified or withdrawn only by notice to the party receiving Bids at the place designated for receipt of Bids. The notice shall be in writing, with the signature of the Bidder, and shall be worded so as not to reveal the amount of the original Bid. Email notice will not be accepted. It shall be the Bidder's sole responsibility to verify that the notice has been received by the Port in time to be withdrawn before the Bid opening.
3. Resubmittal. Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids, provided that they are then fully in conformance with these Instructions to Bidders.
4. Bid Security with Resubmission. Bid security shall be in an amount sufficient for the Bid as modified or resubmitted.

F. COMMUNICATIONS

Communications from a Bidder related to these Instructions to Bidders must be in writing to the Procurement Department through the Procurement and Question Submission Portal (Portal link is accessible via this specific procurements website. See left side of page.). A direct link is also available here: [Procurement and Question Portal Link](#). Communications, including but not limited to, notices and requests by Sub-Bidders shall be made through the Bidder and not directly by a Sub-Bidder to the Port. No oral responses will be binding by the Port.

Instructions for utilizing the portal can be found here: [Procurement and Question Submission Portal Instructions](#).

1.05 CONSIDERATION OF BIDS

- A. OPENING OF BIDS. Unless stated otherwise in the Advertisement or Invitation to Bid or an Addendum, the properly identified Bids received on time will be opened publicly and will be read aloud. An abstract of the Base Bids and any Alternate Bids will promptly (and generally within twenty-four (24) hours) be made available to Bidders and other interested parties.
- B. REJECTION OF BIDS. The Port shall have the right, but not the obligation, to reject any or all Bids for any reason, or for no reason, to reject a Bid not accompanied by the required Bid security, or to reject a Bid which is in any way incomplete or irregular.
- C. BIDDING MISTAKES. The Port will not be obligated to consider notice of claimed Bid mistakes received more than twenty-four (24) hours after the Bid Date. In accordance with Washington law, a low Bidder that claims error and fails to enter into the Contract is prohibited from Bidding on the Project if a subsequent call for Bids is made for the Project.
- D. ACCEPTANCE OF BID (AWARD)

1. Intent to Accept. The Port intends, but is not bound, to Award a Contract to the Responsible Bidder with the lowest responsive Bid, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Port has the right to waive any informality or irregularity in any Bid(s) received and to accept the Bid which, in its judgment, is in its own best interests.
2. Requirements for Award. Before the Award, the lowest responsive Bidder must be deemed Responsible by the Port and must satisfy all Award Requirements.

E. BID PROTEST PROCEDURES

1. Procedure. A Bidder protesting, for any reason, the Bidding Documents, a Bidding procedure, the Port's objection to a Bidder or a person or entity proposed by the Bidder, including but not limited to, a finding of non-Responsibility, the Award of the Contract or any other aspect arising from, or relating in any way to, the Bidding, shall cause a written protest to be filed with the Port within two (2) business days of the event giving rise to the protest. (Intermediate Saturdays, Sundays, and legal holidays are not counted as business days.) The written protest shall include the name of the protesting Bidder, the bid solicitation number and title under which the protest is submitted, a detailed description of the specific factual and legal grounds for the protest, copies of all supporting documents, evidence that the apparent low bidder has been given notice of the protest, and the specific relief requested. The written protest shall be sent by email to procurement@portoftacoma.com.
2. Consideration. Upon receipt of the written protest, the Port will consider the protest. The Port may, within three (3) business days of the Port's receipt of the protest, provide any other affected Bidder(s) the opportunity to respond in writing to the protest. If the protest is not resolved by mutual agreement of the protesting Bidder and the Port, the Contracts Director of the Port, or his or her designee, will review the issues and promptly furnish a final and binding written decision to the protesting Bidder, and any other affected Bidder(s), within six (6) business days of the Port's receipt of the protest. (If more than one (1) protest is filed, the Port's decision will be provided within six (6) business days of the Port's receipt of the last protest.) If no reply is received from the Port during the six (6) business-day period, the protest will be deemed rejected.
3. Waiver. Failure to comply with these protest procedures will render a protest waived.
4. Condition Precedent. Timely and proper compliance with, and exhaustion of, these protest procedures shall be a condition precedent to any otherwise permissible judicial consideration of a protest.

1.06 POST BID INFORMATION

A. THE LOWEST RESPONSIVE BIDDER SHALL:

1. Responsibility Detail Form. Within 24 hours of the Low Responsive Bidder Selection Notification, the apparent low Bidder shall submit to the Port the Responsibility Detail Form and other required documents (Section 00 45 13) executed by an authorized company officer. As requested from the Port, the low responsive Bidder shall provide written confirmation that the person signing the Bid on behalf of the Bidder was duly authorized at the time of bid, a detailed breakdown of the Bid in a form acceptable to the Port, and other information required by the Port.
2. The apparent low Bidder shall submit to the Port upon request:

- a. Additional information regarding the use of the Bidder's own forces and the use of subcontractors and suppliers;
 - b. The names of the persons or entities (including a designation of the Work to be performed with the Bidder's own forces, and the names of those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work (i.e., either a listed Sub-Bidder or a Sub-Bidder performing Work valued at least ten (10) percent of the Base Bid), consistent with the listing required with the Bid; and
 - c. The proprietary names and the suppliers of the principal items or systems of materials and equipment proposed for the Work.
 3. Failure to provide any of the above information in a timely manner will constitute an event of breach permitting forfeiture of the Bid security.
 4. Bidder Responsibility. The Bidder will be required to establish, to the satisfaction of the Port, the reliability and responsibility of itself and the persons or entities proposed to furnish and perform the Work described in the Bidding Documents. If requested, the Bidder shall meet with the Port to discuss the Bid, including any pricing, the Bid components, and any assumptions made by the Bidder.
 5. Sub-Bidder Responsibility. The Responsibility of the Bidder may be judged in part by the Responsibility of Sub-Bidders. Bidders must verify the Responsibility Criteria for each first-tier Sub-Bidder. A Sub-Bidder of any tier that hires other Sub-Bidders must verify Responsibility Criteria for each of its lower-tier Sub-Bidders. The verification shall include a representation that each Sub-Bidder, at the time of subcontract execution, is Responsible and possesses required licenses.
 6. Objection. Prior to an Award of the Contract, the Port will notify the Bidder in writing if the Port, after due investigation, has reasonable objection to the Bidder or a person or entity proposed by the Bidder. Upon receiving such objection, the Bidder may, at Bidder's option: (a) withdraw their Bid, (b) submit an acceptable substitute person or entity with no change in the Contract Time and no adjustment in the Base Bid or any Alternate Bid, even if there is a cost to the Bidder occasioned by such substitution, or (c) file a protest in accordance with the Bidding Documents.
 7. Change. Persons and entities proposed by the Bidder to whom the Port has made no reasonable objection must be used on the Work for which they were proposed and shall not be changed, except with the written consent of the Port.
 8. Right to Terminate. The Bidder's representations concerning its qualifications will be construed as a covenant under the Contract. If a Bidder makes a material misrepresentation on a Qualification Statement, the Port has the right to terminate the Contract for cause and may then pursue any remedies that exist under the Contract or that are otherwise available.
- B. INFORMATION FROM OTHER BIDDERS: All other Bidders designated by the Port as under consideration for Award of a Contract shall also provide a properly executed Qualification Statement, if so requested by the Port.

1.07 PERFORMANCE BOND, LABOR AND MATERIAL PAYMENT BOND, AND INSURANCE

- A. **BOND REQUIREMENTS.** Within ten (10) days after the Port's Notice of Award of the Contract, the successful Bidder shall obtain and furnish statutory bonds pursuant to RCW 39.08 covering the faithful performance of the Contract and the payment of all obligations arising thereunder in the form and amount prescribed in the Contract Documents. Bonds shall be written for one hundred (100) percent of the contract award amount, plus Washington State Sales Tax and Change Orders. The cost of such bonds shall be included in the Base Bid.
1. On contracts of one hundred fifty thousand dollars (\$150,000) or less, at the option of the Contractor or the General Contractor/Construction Manager as defined in RCW 39.10.210, the Port may, in lieu of the bond, retain ten (10) percent of the contract amount for a period of thirty days after date of final acceptance, or until receipt of all necessary releases from the department of revenue, the employment security department, and the department of labor and industries and settlement of any liens filed under RCW 60.28, whichever is later. The recovery of unpaid wages and benefits must be the first priority for any actions filed against retainage held by a state agency or authorized local government.
 2. On contracts of one hundred fifty thousand dollars (\$150,000) or less, the Port may accept a full payment and performance bond from an individual surety or sureties.
- B. **TIME OF DELIVERY AND FORM OF BONDS.** The successful Bidder shall deliver an original copy of the required bonds to the Port, 1 Sitcum Plaza, Tacoma, WA 98421, within the time specified in the Contract Documents.
- C. **INSURANCE.** The successful Bidder shall deliver a certificate of insurance from the Bidder's insurance company that meets or exceeds all requirements of the Contract Documents.
- D. **GOVERNMENTAL REQUIREMENTS.** Notwithstanding anything in the Bidding or Contract Documents to the contrary, the Bidder shall provide all bonding, insurance, and permit documentation as required by governmental authorities having jurisdiction for any portions of the Project.

1.08 FORM OF AGREEMENT

- A. **FORM TO BE USED.** The Contract for the Work will be written on the form(s) contained in the Bidding Documents, including any General, Supplemental, or Special Conditions, and the other Contract Documents included with the project manual.
- B. **CONFLICTS.** In case of conflict between the provisions of these Instructions and any other Bidding Document, these Instructions shall govern. In case of conflict between the provisions of the Bidding Documents and the Contract Documents, the Contract Documents shall govern.
- C. **CONTRACT DELIVERY.** Within ten (10) days after Notice of Award, the Bidder shall submit a signed Contract to the Port in the form tendered to the Bidder and without modification.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for substitutions.

1.02 DEFINITIONS/CLARIFICATIONS

- A. Substitutions. Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- B. The Contract Documents include performance specifications for products and equipment which meet Project requirements. In those cases where a representative item or manufacturer is named in the specification, it is provided for the sole purpose of identifying a product meeting the required functional performance, and where the words "or equal" are used, a substitution request as further described, is not required.
- C. Where non-competitive or sole source products or manufacturers are explicitly specified with the words "or approved equal," or "Engineer approved equal," or "as approved by the Engineer" are used, they shall be taken to mean "or approved equal." In these cases a substitution request as further described in this Section, is required.

1.03 SUBMITTALS

- A. Substitution Request Form. Use copy of form located at the end of this Section.
- B. Pre-Bid Substitution Requests. Submit one (1) PDF of the Substitution Request Form along with all supporting documentation for consideration of each request. Identify product, fabrication, or installation method to be replaced. Include Drawing numbers and titles. Substitution requests prior to the Bid Date may originate directly from a prime Bidder, or from a prospective Sub-Bidder.
 - 1. Documentation. Show compliance with requirements for substitutions with the following, as applicable:
 - a. Statement indicating why specified product, fabrication, or installation cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work that will be necessary to accommodate proposed substitution.
 - c. Product Data, including drawings and descriptions of products, fabrication, and installation procedures.
 - d. Samples, where applicable or requested.
 - e. Certificates and qualification data, where applicable or requested.
 - f. Research reports evidencing compliance with building code in effect for the Project.
 - 2. Engineer's Action. Engineer will review substitution requests if received through the Procurement and Question Submission Portal at least seven (7) days prior to the Bid Date (Portal link is accessible via this specific procurements website. See left side of page.) A direct link is also available here: [Procurement and Question Portal Link](#). No oral responses will be binding by the Port.
 - a. Forms of Acceptance. Substitution requests will be formally accepted via written addendum prior to the Bid Date. Bidders shall not rely upon approvals made in any other manner.

- b. Use product originally specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.
- c. The Port's decision of approval or disapproval of a proposed substitution shall be final.

Instructions for utilizing the portal can be found here: [Procurement and Question Submission Portal Instructions](#).

- C. Post-Award Substitution Requests must be submitted by the Contractor and not a Subcontractor nor Supplier.
 - 1. Documentation. Show compliance with requirements for substitutions with the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification Section. Significant qualities may include, but are not limited to, attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses. Also provide names and addresses of the applicable architect, engineer, and owner.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for the Project.
 - j. Comparison of the approved Baseline Project Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Engineer's Action. If necessary, Engineer will request additional information or documentation for evaluation within seven (7) calendar days of receipt of a request for substitution. Engineer will notify Contractor through Port of acceptance or rejection of proposed substitution within fifteen (15) calendar days of receipt of request, or seven (7) calendar days of receipt of additional information or documentation, whichever is later.
 - a. Forms of Acceptance. Change Order or Minor Change in Work.
 - b. Use product originally specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.
3. Substitutions for Cause. Submit requests for substitution immediately upon discovery of need for change, but not later than fourteen (14) days prior to date required for preparation and review of related submittals.
 - a. Conditions. Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
 - 1) Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - 2) Requested substitution will not adversely affect the Baseline Project Schedule.
 - 3) Requested substitution has received necessary approvals of authorities having jurisdiction.
 - 4) Requested substitution is compatible with other portions of the Work.
 - 5) Requested substitution has been coordinated with other portions of the Work.
 - 6) Requested substitution provides specified warranty.
 - 7) If requested substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
4. Substitutions for Convenience. Engineer will consider Contractor's requests for substitution if received within fourteen (14) days after the Notice of Award.
 - a. Conditions. Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
 - 1) Requested substitution offers Port a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Port must assume. Port's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Port, and similar considerations.
 - 2) Requested substitution does not require extensive revisions to the Contract Documents.
 - 3) Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - 4) Requested substitution will not adversely affect the Baseline Project Schedule.
 - 5) Requested substitution has received necessary approvals of authorities having jurisdiction.

- 6) Requested substitution is compatible with other portions of the Work.
- 7) Requested substitution has been coordinated with other portions of the Work.
- 8) Requested substitution provides specified warranty.
- 9) If requested substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

D. Substitutions will not be considered when:

1. Indicated or implied on shop drawings or product data submittals without formal request submitted in accordance with this Section.
2. Acceptance will require substantial revision of Contract Documents or other items of the Work.
3. Submittal for substitution request does not include point-by-point comparison of proposed substitution with specified product.

1.04 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

PROJECT TITLE: West Sitcum Main Substation Replacement **PROJECT NO.:** 201178.01

SUBMITTED BY: _____ CONTRACT NO.: PA000000140

PRIME/SUB/SUPPLIER: _____ DATE: _____

Specification Title: _____ Section No.: _____

Description: _____ Paragraph: _____

_____ Page No.: _____

Proposed Substitution: _____

Trade Name: _____ Model No.: _____

Manufacturer: _____

Address: _____ Phone No.: _____

Installer: _____

Address: _____ Phone No.: _____

Differences between proposed substitution and specified product: _____

☐ Point-by-Point comparative data attached - REQUIRED

Reason for not providing specified item: _____

Similar Installation:

Project: _____ A/E: _____

Address: _____

Owner: _____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

Supporting Data Attached:

☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ Other: _____

Applicable to Substitution Requests During Construction:

Proposed to Port for accepting substitution: \$ _____

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ # days.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.

- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay Baseline Project Schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted By: _____
Signed By: _____ Firm: _____
Address: _____
Telephone: _____ Email: _____
Attachments: _____

A/E's REVIEW AND RECOMMENDATION

- ☐ Approved Substitution
- ☐ Approved Substitution as Noted
- ☐ Reject Substitution - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

ENGINEER'S REVIEW AND ACTION

- ☐ Substitution Approved - Make submittals in accordance with this Specification Section. If during construction, prepare Change Order.
- ☐ Substitution Approved as Noted - Make submittals in accordance with this Specification Section. If during construction, prepare Change Order.
- ☐ Substitution Rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section provides the notification required for disclosure of asbestos, lead-containing or other hazardous materials.

1.02 HAZARDOUS MATERIALS NOTICE

- A. The Port is reasonably certain that asbestos and lead will not be disturbed by the project. If the Contractor encounters material suspected of containing lead or asbestos which will interfere with the execution of the work, the Contractor shall stop work and notify the Engineer.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

BIDDER'S NAME: _____

PROJECT TITLE: WEST SITCUM MAIN SUBSTATION REPLACEMENT _

The undersigned Bidder declares that it has read the Contract Documents (including documents provided by reference), understands the conditions under which the Work will be performed, has examined the Project site, and has determined for itself all situations affecting the Work herein Bid upon. Bidder proposes and agrees, if this Bid is accepted, to provide at Bidder's own expense, all labor, machinery, tools, materials, etc., including all Work incidental to, or described or implied as incidental to such items, according to the Contract Documents, and that the Bidder will complete the Work within the time stated, and that Bidder will accept in full the lump sum or unit price(s) set forth below:

ITEM NO.	DESCRIPTION OF ITEM	QTY	UOM	UNIT PRICE	EXTENDED PRICE (QTY. x UNIT PRICE)
1	Mobilization and Demobilization	1	LS		
2	Project Administration	1	LS		
3	Substation #1 Demolition	1	LS		
4	Substation #1 Electrical	1	LS		
5	Substation #1 Civil	1	LS		
6	Substation #3 Demolition	1	LS		
7	Substation #3 Electrical	1	LS		
8	Substation #3 Civil	1	LS		
9	Unforeseen Conditions Contingency	1	LS	\$100,000	\$100,000

TOTAL BID AMOUNT	
10.3% WASHINGTON STATE SALES TAX (WSST) ON BASE BID SUBTOTAL	
BID TOTAL (WITH WSST)	

Note: Show prices in figures only.

Evaluation of Bids. In accordance with the provisions of the Contract Documents, Bids will be evaluated to determine the lowest Base Bid Subtotal offered by a responsible Bidder submitting a responsive Bid.

Schedule of Unit Prices. The unit prices are proposed to apply only in the event of additions to, or deletions from, the work required and ordered. All prices shall include complete installation without Washington State Sales Tax. The bidder shall propose a price for each item; failure to propose a price for each item may render the bid non-responsive. The Port reserves the right to accept or reject the unit prices proposed.

Trench Excavation Safety Provision. If the bid amount contains work which requires trenching exceeding a depth of four (4) feet, all costs for trench safety shall be included in the Base Bid and indicated below for adequate trench safety systems in compliance with RCW 39.04 and WAC 296-155-650. Bidder shall include a lump sum amount, excluding Washington State Sales Tax. If trench excavation safety provisions do not pertain to the Work, the Bidder should enter "N.A." or "Not Applicable" in the blank below.

Principal Subcontractors/Suppliers. List below the name of each subcontractor or supplier to whom the Bidder proposes to subcontract the portions of the work listed below, or name itself for the work, in accordance with RCW 39.30.060.

Work to be preformed	License Number	Name of Firm
HVAC (Heating, Ventilation, and Air Conditioning) Work		
Plumbing Work		
Electrical Work		
Structural Steel Installation		
Rebar Installation		

Non-Collusion Representation. The Bidder declares under penalty of perjury that the Bid submitted is genuine and not a sham or collusive bid, or made in the interest or on behalf of any person or firm not therein named; and further represents that the Bidder has not directly or indirectly induced or solicited any other bidder to submit a sham bid, or encouraged any other person or corporation to refrain from bidding; and that the Bidder has not in any manner sought by collusion to secure to the Bidder an advantage over any other bidder or bidders.

RCW 39.04.350 Certification. The Bidder represents and certifies, under penalty of perjury, that within the three- (3-) year period immediately preceding the Bid Date, the Bidder has not been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries, nor through a civil judgment entered by a court of limited or general jurisdiction, to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, nor 49.52 RCW.

Addenda. Bidder acknowledges receipt and acceptance of all Addenda through No. ____ (Identify Last Addenda By Number)

Bid Security. A certified check, cashier's check, or other obligation of a bank, or a bid bond in substantially the form set forth in Section 00 43 13, Bid Security Form for at least five (5) percent of the Base Bid Subtotal, shall be submitted with this Bid.

Apprenticeship Requirements. For Bids greater than one million (\$1,000,000) dollars, the apprentice labor hours required for this project are fifteen (15) percent of the total labor hours. The Bidder agrees to utilize this level of apprentice participation.

Name of Firm

Date

Signature

By Title

Mailing Address

City, State Zip Code

Telephone Number

Email Address

WA State Contractor's License No.

Employment Security Department No.

Identification of Bidder as a sole proprietor, a partnership, a joint venture, a corporation, or another described form of legal entity

END OF SECTION

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and
_____, as Surety, are held and firmly bound unto
the PORT OF TACOMA as Obligee, in the penal sum of _____
Dollars, for the payment of which the Principal and Surety bind themselves, their heirs, executors,
administrators, successors and assigned, jointly and severally, by these present.

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

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

BY _____
PRINCIPAL

BY _____
SURETY

AGENT AND ADDRESS

Note: Bidder may submit Surety's bid bond form, provided it is similar in substance, made out in the
name of the Port of Tacoma, and that the agent's name and address appear as specified. Bonds
containing riders limiting responsibility for toxic waste or limiting the term of responsibility will be rejected.

END OF SECTION

THIS IS NOT TO BE SUBMITTED WITH A BID.

THE LOW RESPONSIVE BIDDER SHALL BE REQUIRED TO COMPLETE THIS RESPONSIBILITY DETAIL FORM AS SPECIFIED IN SECTION 00 21 00 - INSTRUCTIONS TO BIDDERS. **THIS COMPLETED RESPONSIBILITY DETAIL FORM SHALL BE SUBMITTED ELECTRONICALLY (PDF) VIA EMAIL TO THE CONTACT(S) IDENTIFIED IN THE LOW RESPONSIVE BIDDER SELECTION NOTIFICATION.**

BIDDER'S COMPANY NAME: _____

For the below Mandatory Bidder Responsibility Criteria, please mark the appropriate choice.

1.01 MANDATORY BIDDER RESPONSIBILITY CRITERIA

- A. The Bidder shall meet the following mandatory responsibility criteria as described in RCW 39.04.350(1). The Bidder shall be rejected as not responsible if any answer to questions 1 through 5 is "No" or any answer to questions 6 through 8 is "Yes."

1. Does the Bidder have a Certificate of Registration in compliance with RCW 18.27?
☐ Yes ☐ No
2. Does the Bidder have a current Washington State Unified Business Identifier number?
☐ Yes ☐ No
3. Does the Bidder have Industrial Insurance Coverage for the Bidder's employees working in Washington State as required in RCW 51?
☐ Yes ☐ No
4. Does the Bidder have an Employment Security Department number as required in RCW 50?

****Attach** letter dated within six (6) months of Bid Date.*

**Request a letter electronically by clicking on the following link
<https://fortress.wa.gov/esd/twt/pwcinternet/> or by emailing a request to
publicworks@esd.wa.gov.*
☐ Yes ☐ No
5. Does the Bidder have a Washington State Excise Tax Registration number as required in RCW 82?
☐ Yes ☐ No
6. Has the Bidder been disqualified from bidding on any public works project under RCW 39.06.010 or 39.12.065(3)?
☐ Yes ☐ No
7. Has the Bidder violated RCW 39.04.370 more than one (1) time as determined by the Washington State Department of Labor and Industries?
☐ Yes ☐ No

8. Has the Bidder ever been found to be out of compliance with Apprenticeship Utilization requirements of RCW 39.04.320?
- ☐ Yes ☐ No
9. Has the Bidder ever been found to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, or 49.52 RCW within the three- (3-) year period immediately preceding the date of this bid solicitation?
- ☐ Yes ☐ No
10. Has the Bidder completed the training required by RCW 39.04.350, or is the Bidder on the list of exempt businesses maintained by the Department of Labor and Industries?
- ☐ Yes ☐ No

If any answer to questions 1 through 5 is "No" or any answer to questions 6 through 8 is "Yes" - **STOP HERE** and contact the Contract Administrator. The Bidder is not responsible for this Work. Otherwise proceed to 1.02. **Provide attached to this completed form documentation to confirm responsibility criteria.**

For remaining criteria below, check or fill-out the appropriate item. Based upon the answer provided by the Bidder, the Port may request additional information or seek further explanation. As needed, provide backup documentation for any explanations listed below.

1.02 CONTRACT AND REGULATORY HISTORY

- A. The Port will evaluate whether the Bidder's contract and regulatory history demonstrates an acceptable record of past project performance and consistent responsibility. The Bidder shall answer the following questions. The Bidder may be rejected as not responsible if any answer to questions 1 through 5 below is "Yes."

1. Has the Bidder had a contract terminated for cause or default in the last five (5) years?

☐ Yes, **If YES, explain below.** ☐ No

2. Has the Bidder required a Surety to take over all, or a portion of, a project to cure or respond to an asserted default or material breach of contract on the part of the Bidder on any public works project in the last five (5) years?

☐ Yes, **If YES, explain below.** ☐ No

3. Have the Bidder and major Sub-Bidders been in bankruptcy, reorganization, and/or receivership on any public works project in the last five (5) years?

☐ Yes, **If YES, explain below.** ☐ No

4. Have the Bidder and major Sub-Bidders been disqualified by any state or local agency from being awarded and/or participating on any public works project in the last five (5) years?

☐ Yes, **If YES, explain below.** ☐ No

5. Are the Bidder and major Sub-Bidders currently a party to a formal dispute resolution process with the Port (i.e., a pending mediation, arbitration, or litigation)?

☐ Yes, **If YES, explain below.** ☐ No

1.03 ACCIDENT/INJURY EXPERIENCE

- A. The Port will evaluate the Bidder's accident/injury Experience Modification Factor ("EMF") from the Washington State Department of Labor and Industries to assess whether the Bidder has an acceptable safety record preventing personal injuries on projects.
- B. List the Bidder's accident/injury EMF for the last five (5) years. An experience factor is calculated annually by the Washington State Department of Labor and Industries.

Year	Effective Year	Experience Factor
1		
2		
3		
4		
5		

If the Bidder has received an EMF of greater than 1.0 for any year, explain the cause(s) of the designation and what remedial steps were taken to correct the EMF. The Bidder may be rejected as not responsible if the Bidder's EMF is greater than 1.0 and sufficient remedial steps have not been implemented.

1.04 WORK PERFORMED BY BIDDER

- A. The Bidder shall state the amount of the Work, as an equivalent to the Base Bid, excluding taxes, insurance, and bonding, the Bidder will execute with its own forces.

_____ %

1.05 ADDITIONAL CONTRACTOR INFORMATION

- A. As part of completing this Responsibility Detail Form, **submit the following information with the completed Responsibility Detail Form:**
1. Bidder's recent job resume, including a list of similar projects performed and contact information for the similar project owner(s), a brief description of work, start and end dates, and contract amount.
 2. Resumes of Bidder's proposed project manager and job superintendent.

- B. The Bidder's failure to provide the required project information may result in a determination of the Bidder being declared non-responsible by the Port.
- C. The Bidder shall submit this completed, **SIGNED** Responsibility Detail Form electronically (PDF), with all requested backup documentation, via email to the contact(s) noted on the Low Responsive Bidder Selection Notification.
- D. The Bidder and its subcontractors to verify that its subcontractors at each tier meet the responsibility criteria as required by RCW 39.06.020 and 39.04.350.
 - 1. Bidder shall verify major subcontractors meet the responsibility criteria required. Fill out one Port of Tacoma Public Works Project Bidder Evaluation Checklist for Subcontractors for each major subcontractor and submit to the Port with this form. Backup documentation is not required to be submitted.

PROJECT: West Sitcum Main Substation Replacement

PROJECT NO.: 201178.01

CONTRACT NO.: PA000000140

Responsibility Certification Form

The Low responsive Bidder shall complete the Responsibility Detail Form, attach all documentation, and submit to the Port within twenty-four (24) hours following receipt of the Low Responsive Bidder Selection Notification. All forms shall be submitted electronically (PDF) via email to the contact(s) listed on the Selection Notice. Note, the same project may be used to demonstrate experience across multiple categories if applicable.

By completing and signing this Responsibility Detail Form, the Bidder is certifying that the information contained within the Form, the backup documentation, and any additional information requested by the Port is true and complete. The Bidder's failure to disclose the required information or the submittal of false or misleading information may result in the rejection of the Bidder's Bid, revocation of award, or contract termination.

The information provided herein is true and complete.

Signature of Authorized Representative

Date

Print Name and Title

**PORT OF TACOMA PUBLIC WORKS PROJECT BIDDER EVALUATION CHECKLIST FOR
SUBCONTRACTORS**

PROJECT TITLE: West Sitcum Main Substation Replacement

BIDDER: _____

CONTRACT AND PROJECT NUMBER: PA000000140/ 201178.01 _____

This checklist shall be completed by the Bidder and its subcontractors to verify that its subcontractors at each tier meet the responsibility criteria as required by RCW 39.06.020 and RCW 39.04.350.

This checklist should be submitted to the Port of Tacoma Contracts Administrator within twenty-four (24) hours of request.

Document verification information or backup data is not to be submitted to the Port, this information should remain on file with the Contractor and be presented to the Port if requested at a later date.

Item No.	Item	Initials/ Comments
1.	At the time of Bid submittal, have a certificate of registration in compliance with RCW 18.27: Check the L&I site https://secure.lni.wa.gov/verify/ Verify that a subcontractor has an electrical contractor license, if required by RCW 19.28, or an elevator contractor license, if required by RCW 70.87.	
2.	While reviewing registration information above, also check contractor's Employer Liability Certificate to verify workers' comp (industrial insurance) premium status – current account. Complete a "Submit Contractor Tracking Request" to be notified if the contractor fails to pay workers' comp premiums or renew their contractor registration or if their electrical contractor license is suspended or revoked within one year.	
3.	State excise tax registration number (Department of Revenue). (contractor's Washington State Unified Business Identifier and tax registration number) http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/ .	
4.	Not disqualified from bidding on any public works contract under RCW 39.06.010 or RCW 39.12.065(3) . Check the Department of Labor and Industries https://secure.lni.wa.gov/verify/ .	
5.	Verify subcontractors are registered with the Washington State Employment Security Department (ESD) and have an account number. Request a letter to be sent from the subcontractor	

Item No.	Item	Initials/ Comments
	<p>electronically by clicking on the following link https://esd.wa.gov/ or by emailing a request to publicworks@esd.wa.gov. Include ESD#, UBI#, and business name in the email. Certificate of Coverage letter issued/dated within the last six (6) months.</p> <p>Document if subcontractor confirms in writing, under penalty of perjury, that it has no employees and this requirement does not apply.</p>	

END OF SECTION

THIS AGREEMENT is made and entered into by and between the PORT OF TACOMA, a State of Washington municipal corporation, hereinafter designated as the "Port," and:

The "Contractor" is: _____ (Legal Name)

_____ (Address)

_____ (Address 2)

_____ (Phone No.)

The "Project" is: West Sitcum Main Substation Replacement (Title)

201178.01 | PA000000140 (Project/Contract No.)

Project Location Address 1 (Project Address)

Project Location Address 2 (Project Address 2)

The "Engineer" is: Thais Howard, PE (Engineer)

Director of Engineering (Title)

thoward@portoftacoma.com (Email)

(253) 888-4718 (Phone No.)

The "Contractor's Representative" is: _____ (Representative)

_____ (Title)

_____ (Email)

_____ (Phone No.)

BACKGROUND AND REPRESENTATIONS:

The Port publicly solicited bids on the Contract Documents. The Contractor submitted a Bid to the Port on the _____ day of _____, 20__ to perform the Work.

The Contractor represents that it has the personnel, experience, qualifications, capabilities, and means to accomplish the Work in strict accordance with the Contract Documents, within the Contract Time and for the Contract Price, and that it and its Subcontractors satisfy the responsibility criteria set forth in the Contract Documents, including any supplemental responsibility criteria.

The Contractor further represents that it has carefully examined, and is fully familiar with, all provisions of the Contract Documents, including any Addenda, that it has fully satisfied itself as to the nature, location, difficulty, character, quality, and quantity of the Work required by the Contract Documents and the conditions and other matters that may be encountered at or near the Project site(s), or that may affect performance of the Work or the cost or difficulty thereof, including all applicable safety and site responsibilities, and that it understands and can satisfy all scheduling and coordination requirements and interim milestones.

AGREEMENT:

The Port and the Contractor agree as follows:

1.0 CONTRACTOR TO FULLY PERFORM THE WORK

The Contractor shall fully execute and complete the entire Work for the Project described in the Contract Documents, except to the extent specifically indicated in the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.

2.0 DATE OF COMMENCEMENT

The date of commencement of the Work, which is the date from which the Contract Time is measured, shall be fixed as the date of execution of the Contract.

3.0 CONTRACT TIME AND LIQUIDATED DAMAGES

The Contractor shall achieve all interim milestones as set forth in the Contract Documents and Substantial Completion of the entire Work not later than 545 calendar days from execution of the Contract, subject to adjustments of this Contract Time as provided in the Contract Documents. The Contractor shall achieve Final Completion of the entire Work within 90 calendar days of the date on which Substantial Completion is achieved.

Provisions for liquidated damages as a reasonable estimate of future loss, as of the date of this Agreement, are included in the Contract Documents. The parties agree that the stated liquidated damages are reasonable and not penalties individually nor cumulatively.

The liquidated damages for failure to achieve Substantial Completion by the required date shall be \$1,000 per calendar day. After the required Final Completion date, the liquidated damages for failure to achieve Final Completion shall be \$200 per calendar day.

Liquidated damages assessed by the Port will be deducted from monies due to the Contractor, or from monies that will become due to the Contractor. The liquidated damages, as specified and calculated herein, shall be levied, cumulatively if applicable, for each and every calendar day that Substantial Completion and/or Final Completion of the Work is delayed beyond the required completion dates, or the completion dates modified by the Port for extensions of the Contract Time.

4.0 CONTRACT PRICE

In accordance with the Contractor's Bid dated _____, the Port shall pay the Contractor in current funds for the Contractor's performance of the Contract, the Contract Price of _____ Dollars (\$_____), subject to additions and deductions as provided in the Contract Documents. State and local sales tax is not included in the Contract Price, but will be due and paid by the Port with each progress payment.

6.0 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in the Contract Documents.

This Agreement is entered into as of the day and year first written above:

CONTRACTOR

PORT OF TACOMA

By: _____

By: _____

Title: _____

Title: _____

Date: _____

Execution _____

Date: _____

END OF SECTION

PERFORMANCE BOND # _____

CONTRACTOR (NAME AND ADDRESS)

SURETY (NAME AND PRINCIPLE PLACE OF BUSINESS)

OWNER (NAME AND ADDRESS)

PORT OF TACOMA
P.O. BOX 1837
TACOMA, WA 98401-1837

AGENT OR BROKER (FOR INFORMATION ONLY)

KNOW ALL MEN BY THESE PRESENTS:

That _____ as Principal, hereinafter called Contractor, and _____ as Surety, hereinafter called Surety, are held and firmly bound unto the Port of Tacoma as Obligee, hereinafter called the Port, in the amount of _____ Dollars (\$ _____) for the payment whereof Contractor and Surety bind themselves, their executors, administrators, legal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS:

Contractor shall execute an agreement with the Port for West Sitcum Main Substation Replacement, Project No. 201178.01/Contract No. PA000000140, a copy of which Contract is by reference made a part hereof (the term "Contract" as used herein to include the aforesaid agreement together with all the Contract Documents, addenda, modifications, all alterations, additions thereto, deletions therefrom, and any other document or provision incorporated into the Contract) and is hereinafter referred to as the Contract.

This bond is executed and issued pursuant to the provisions of RCW 39.08.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

FURTHER:

- A. Surety hereby waives notice of any alterations, change orders, modifications, or extensions of time made by the Port.
- B. Surety recognizes that the Contract includes provisions for additions, deletions, and modifications to the Work and/or Contract Time and the amounts payable to the Contractor. Subject to the limitations contained in (A) above, Surety agrees that no such addition, deletion, or modification, or any combination thereof, shall avoid or impair Surety's obligation hereunder.
- C. Whenever Contractor has been declared by the Port to be in default, and the Port has given Surety notice of the Port's determination of such default, Surety shall promptly (in no event more than fifteen (15) days following receipt of such notice) advise the Port of its intended action to:
 1. Remedy the default within fifteen (15) days following its advice to the Port as set forth above, or

2. Assume within fifteen (15) days, following its advice to the Port as set forth above, completion of the Contract in accordance with the Contract Documents and become entitled to payment of the balance of the Contract Sum, or
 3. Pay the Port upon completion of the Contract, in cash, the cost of completion together with all other reasonable costs and expenses incurred by the Port as a result of the Contractor's default, including but not limited to, those reasonable costs and expenses incurred by the Port in its efforts to mitigate its losses, which may include, but are not limited to, attorney's fees and efforts to complete the Work prior to the Surety exercising the options available to it as set forth herein.
- D. If the Port shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgment, shall pay all costs and attorney's fees incurred by the Port in enforcement of its rights hereunder. Venue for any action arising out of, or in connection with, this bond shall be in Pierce County, Washington.
- E. No right or action shall accrue on this bond to, or for the use of, any person or corporation other than the Port of Tacoma.

Signed and Sealed the _____ day of _____, 20____.

IMPORTANT: Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, have an underwriting limitation of not less than the Contract Sum, and be authorized to transact business in the State of Washington.

SURETY

CONTRACTOR

Signature

Signature

Printed Name and Title

Printed Name and Title

Power of Attorney attached.

END OF SECTION

LABOR AND MATERIAL PAYMENT BOND # _____**CONTRACTOR (NAME AND ADDRESS)**

SURETY (NAME AND PRINCIPLE PLACE OF BUSINESS)

OWNER (NAME AND ADDRESS)

PORT OF TACOMA

P.O. BOX 1837

TACOMA, WA 98401-1837

AGENT OR BROKER (FOR INFORMATION ONLY)

KNOW ALL MEN BY THESE PRESENTS:

That _____ as Principal, hereinafter called Contractor, and _____ as Surety, hereinafter called Surety, are held and firmly bound unto the Port of Tacoma as Obligee, hereinafter called the Port, and all others entitled to recovery hereunder, in the amount of _____ Dollars (\$ _____) for the payment whereof Contractor and Surety bind themselves, their executors, administrators, legal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS:

Contractor shall execute an agreement with the Port for West Sitcum Main Substation Replacement, Project No. 201178.01/Contract No. PA000000140, a copy of which Contract is by reference made a part hereof (the term "Contract" as used herein to include the aforesaid agreement together with all the Contract Documents, addenda, modifications, alterations, additions thereto, deletions therefrom, and any other document or provision incorporated into the Contract) and is hereinafter referred to as the Contract.

This bond is executed pursuant to the provisions of RCW 39.08.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall promptly make payment to all claimants, as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and shall indemnify and save the Port harmless from all cost and damage by reason of Contractor's default, then this obligation shall be null and void; otherwise, it shall remain in full force and effect, subject to the following conditions.

- A. Surety hereby waives notice of any alterations, change orders, modifications, or extensions of time made by the Port.
- B. Surety recognizes that the Contract includes provisions for additions, deletions, and modifications to the Work and/or Contract Time and the amounts payable to the Contractor. Subject to the limitations contained in (A) above, Surety agrees that no such addition, deletion, or modification, or any combination thereof, shall avoid or impair Surety's obligation hereunder.

- C. Surety hereby agrees that every person protected under the provisions of RCW 39.08.010 who has not been paid as provided under the Contract, and pursuant to RCW 39.08.010, less any amounts withheld pursuant to statute, and less retainage withheld pursuant to RCW 60.28, after the expiration of a period of thirty (30) days after the date on which the completion of the Contract in accordance with RCW 39.08, may sue on this bond, prosecute the suit to final judgment as may be due claimant, and have execution thereon including recovery of reasonable costs and attorney's fees as provided by RCW 39.08. The Port shall not be liable for the payment of any costs or expenses of any such suit.
- D. No suit or action shall be commenced hereunder by any claimant unless claimant shall have given the written notices to the Port, and where required, the Contractor, in accordance with RCW 39.08.030.
- E. The amount of this bond shall be reduced by, and to the extent of, any payment or payments made in good faith hereunder, inclusive of the payment by Surety of claims which may be properly filed in accordance with RCW 39.08 whether or not suit is commenced under and against this bond.
- F. If any Claimant shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgment and attorney fees as provided by RCW 39.08.030, shall also pay such costs and attorney fees as may be incurred by the Port as a result of such suit. Venue for any action arising out of, or in connection with, this bond shall be in Pierce County, Washington.

Signed and Sealed the _____ day of _____, 20____.

IMPORTANT: Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, have an underwriting limitation of not less than the Contract Sum, and be authorized to transact business in the State of Washington.

SURETY**CONTRACTOR**

Signature

Signature

Printed Name and Title

Printed Name and Title

Power of Attorney attached.

END OF SECTION

BOND NO.: _____

PROJECT TITLE: West Sitcum Main Substation
Replacement

PROJECT NO.: 201178.01 _____

CONTRACT NO.: PA000000140 _____

KNOW ALL MEN BY THESE PRESENTS: That we, _____
_____ a corporation existing under and by virtue of the laws of the State of
Washington and authorized to do business in the State of Washington, as Principal, and
_____, a corporation organized and existing under the
laws of the State of _____ and authorized to transact the business of
surety in the State of Washington, as Surety, are jointly and severally held and bound unto the PORT OF
TACOMA, hereinafter called Port, as Obligee, and are similarly held and bound unto the beneficiaries of
the trust fund created by RCW 60.28 as their heirs, executors, administrators, successors, and assigns in
the penal sum of _____ (\$_____) plus five (5) percent of any increases in the Contract Price that have occurred or may occur, due to
change orders, increases in the quantities, or the addition of any new item of work.

WHEREAS, on the _____ day of _____, the said Principal herein executed Contract
No. PA000000140 with the Port for West Sitcum Main Substation Replacement, Project No. 201178.01.

WHEREAS, said Contract and RCW 60.28 require the Port to withhold from the Principal the sum of five
(5) percent from monies earned by the Principal on estimates during the progress of the work, hereinafter
referred to as earned retained funds.

WHEREAS, the Principal has requested that the Port accept a bond in lieu of earned retained funds as
allowed under RCW 60.28.

NOW THEREFORE, this obligation is such that the Surety, its successors, and assigns are held and
bound unto the Port and unto all beneficiaries of the trust fund created by RCW 60.28.011(1) in the
aforesaid sum. This bond, including any proceeds therefrom, is subject to all claims and liens and in the
same manner and priority as set forth for retained percentages in RCW 60.28. The condition of this
obligation is also that if the Principal shall satisfy all payment obligations to persons who may lawfully
claim under the trust fund created pursuant to RCW 60.28, to the Port, and indemnify and hold the Port
harmless from any and all loss, costs, and damages that the Port may sustain by release of said
retainage to Principal, then this obligation shall be null and void, provided the Surety is notified by the
Port that the requirements of RCW 60.28.021 have been satisfied and the obligation is duly released by
the Port.

IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable under this obligation as
Principal. The Surety will not be discharged or released from liability for any act, omission, or defenses of
any kind or nature that would not also discharge the Principal.

IT IS HEREBY FURTHER DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of the Principal, the Surety, the Port, the beneficiaries of the trust fund created by RCW 60.28 and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, said Principal and said Surety have caused these presents to be duly signed and sealed this _____ day of _____, 20____.

By: _____
Principal

Address: _____

City/ST/Zip: _____

Phone: _____

Surety Name: _____

By: _____
Attorney-In-Fact

Address: _____

City/ST/Zip: _____

Phone: _____

IMPORTANT: Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, and be authorized to transact business in the State of Washington.

END OF SECTION

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ARTICLE 1 - THE CONTRACT DOCUMENTS

1.01 GENERAL

- A. Contract Documents form the Contract. The Contract Documents are enumerated in the Agreement between the Port and Contractor ("Agreement"). Together, the Contract Documents form the Contract. The Contract represents the entire integrated agreement between the parties and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only in writing and only as set forth in the Contract Documents.
- B. Headings only for convenience. The titles or headings of the sections, divisions, parts, articles, paragraphs, and subparagraphs of the Contract Documents are intended only for convenience.

1.02 DEFINITIONS

- A. "Contract Documents" proposed for the Work consist of the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.
- B. "Contractor" means the person or entity contracting to perform the Work under these Contract Documents. The term Contractor includes the Contractor's authorized representative for purposes of identifying obligations and responsibilities under the Contract Documents, including the ability to receive notice and direction from the Port.
- C. "Day" means a calendar day unless otherwise specifically designated.
- D. "Drawings" are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, including plans, elevations, sections, details, and diagrams.
- E. "Engineer" is the Port employee generally tasked with administering the Project on the Port's behalf and the person with overall responsibility for managing, for the Port, the Project scope, budget, and schedule. To the extent empowered, the Engineer may delegate to others at the Port (such as a Project Manager or Inspector) the responsibility for performing delegated responsibilities of the Engineer's under this Contract.
- F. "Port" means the Port of Tacoma. The Port will designate in writing a representative (usually the Engineer) who shall have the authority to act on the Port's behalf related to the Project. The "Port" does not include staff, maintenance, or safety workers, or other Port employees or consultants that may contact the Contractor or be present at the Project site.
- G. "Project" is identified in the Agreement and is the total construction to be performed by or through the Port, of which the Work performed under the Contract Documents may be only a part.
- H. "Specifications" are those portions of the Contract Documents that specify the written requirements for materials, equipment, systems, standards, and workmanship for the Work and for the performance of related services.
- I. "Subcontractor" means a person or entity that contracts directly with the Contractor to perform any Work under the Contract Documents. "Subcontractor of any tier" includes Subcontractors as well as any other person or entity, including suppliers, that contracts with a Subcontractor or a lower-tier Subcontractor (also referred to as "Sub-subcontractors") to perform any of the Work.

- J. "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all labor, tools, equipment, materials, services, and incidentals necessary to complete all obligations under the Contract Documents. The Work may constitute only a part of the Project, and may interface and need to be coordinated with the work of others.

1.03 INTENT OF THE CONTRACT DOCUMENTS

- A. Intent of Contract Documents. The intent of the Contract Documents is to describe the complete Work and to include all items and information necessary for the proper execution and completion of the Work by the Contractor.
- B. Contract Documents are complementary. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor is required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.
- C. No third party contract rights. The Contract Documents shall not create a contractual relationship of any kind (1) between the Port and a Subcontractor of any tier (although the Port does not waive any third-party beneficiary rights it may otherwise have as to Subcontractors of any tier), (2) between the Contractor and the Engineer or other Port employees or consultants, or (3) between any persons or entities other than the Port and Contractor.

1.04 CORRELATION OF THE CONTRACT DOCUMENTS

- A. Precedence. In the event of a conflict or discrepancy between or among the Contract Documents, the conflict or discrepancy will be resolved by the following order of precedence: with an addendum or Change Order having precedence over an earlier document, and computed dimensions having precedence over scaled dimensions, and large scale drawings take precedence over small scale drawings:
 - 1. The signed Agreement
 - a. Supplemental Conditions
 - b. Division 00 General Conditions
 - c. Division 01 General Requirements of Specifications
 - d. All other Specifications, including all remaining divisions, material and system schedules and attachments, and Drawings
 - e. All other sections in Division 00 not specifically identified herein by Section
- B. Inconsistency between or among Contract Documents. If there is any inconsistency between the Drawings, schedules, or Specifications, or any attachments, the Contractor will make an inquiry to the Engineer to determine how to proceed, and, unless otherwise directed, the Contractor will provide the better quality or greater quantity of any work or materials, as reasonably interpreted by the Port, at no change in the Contract Sum or Contract Time. Thus, if Work is shown on Drawings, but not contained in Specifications or schedules, or contained in Specifications or schedules, but not shown on the Drawings, the Work as shown or contained will be provided at no change in the Contract Sum or Contract Time, according to Specifications or Drawings to be issued by the Port.

- C. Inconsistency with law. In the event of a conflict between the Contract Documents and applicable laws, codes, ordinances, regulations, or orders of governmental authorities having jurisdiction over the Work, or in the event of any conflict between such laws, the most stringent requirements govern.
- D. Organization of Contract Documents. The organization of the Specifications and Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of the Work to be performed. The Port assumes no responsibility for the division and proper coordination of Work between particular Subcontractors.
- E. Bid quantities are estimates only. Any "bid quantities" set forth in the Contract Documents are estimates only. The Port does not warrant that the actual amount of Work will correspond to any estimates. The basis of payment will be the actual quantities performed in accordance with the Contract Documents.

1.05 OWNERSHIP OF THE CONTRACT DOCUMENTS

- A. Port owns all Contract Documents. All Drawings, Specifications, and other Contract Documents furnished to the Contractor are Port property, and the Port retains all intellectual property rights, including copyrights. The Contract Documents are to be used only with respect to the Project.

ARTICLE 2 - PORT OF TACOMA

2.01 AUTHORITY OF THE ENGINEER

- A. Engineer will be Port's representative. The Engineer or the Engineer's designee will be the Port's representative during the Project and will administer the Project on the Port's behalf.
- B. Engineer may enforce all obligations. The Engineer has the authority to enforce all requirements imposed on the Contractor by the Contract Documents.
- C. Only Engineer is agent of Port. Other than the Engineer, no other Port employee or consultant is an agent of the Port, and none are authorized to agree on behalf of the Port to changes in the Contract Sum or Contract Time, nor to waive provisions of the Contract Documents, nor to direct the Contractor to take actions that change the Contract Sum or Contract Time, nor to accept notice of protests or claims on behalf of the Port.

2.02 ADMINISTRATION OF THE CONTRACT

- A. Port will administer Contract. The Port will provide administration of the Contract through the Engineer or the Engineer's designee. All communications with the Port or its consultants related to the Contract will be through the designated representative.
- B. Port not responsible for means and methods. The Port is not responsible for, and will have no control or charge of, the means, methods, techniques, sequences, or procedures of construction, or for safety precautions or programs incidental thereto, because these are the sole responsibility of the Contractor. If the Port makes any suggestion of means, methods, techniques, sequences, or procedures, the Contractor will exercise its independent judgment in deciding whether to adopt the suggestion, except as otherwise provided in the Contract Documents.
- C. Port not responsible for acts or omissions of Contractor or Subcontractors. The Port is not responsible for, and will have no control or charge of, the acts or omissions of the Contractor, Subcontractors of any tier, suppliers, or any of their agents or employees, or any other persons performing a portion of the Work.

- D. Port not responsible for the Work. The Port is not responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The presence of the Engineer or others at the Project site at any time does not relieve the Contractor from its responsibility for non-conforming Work.
- E. Port will have access to the Work. The Port and its representatives will at all times have access to the Work in progress, and the Contractor will provide proper facilities for such access and for inspection.

2.03 INFORMATION PROVIDED BY THE PORT

- A. Port to furnish information with reasonable promptness. The Port shall furnish information and services required of the Port by the Contract Documents with reasonable promptness.
- B. Subsurface investigation. The Port may have undertaken a limited investigation of the soil and other subsurface conditions at the Project site for design purposes only. The results of these investigations will be available for the convenience of the Contractor, but they are not Contract Documents. There is no warranty or guarantee, express or implied, that the conditions indicated are representative of those existing at the site or that unforeseen developments may not occur. The Contractor is solely responsible for interpreting the information.

2.04 CONTRACTOR REVIEW OF PROJECT INFORMATION

- A. Contractor to familiarize itself with site and conditions of Work. Prior to executing the Contract, the Contractor shall visit the site, become generally familiar with local conditions under which the Work is to be performed, and correlate personal observations with the requirements of the Contract Documents and all information provided with the Bid Documents. By signing the Contract, the Contractor confirms that the Contract Sum is reasonable compensation for the Work; that the Contract Time is adequate; that it has carefully examined the Contract Documents and the Project site; and that it has satisfied itself as to the nature, location, and character of the Work, the labor, materials, equipment, and other items required and all other requirements of the Contract Documents. The Contractor's failure fully to acquaint itself with any such condition does not relieve the Contractor from the responsibility for performing the Work in accordance with the Contract Documents, within the Contract Time, and for the Contract Sum.
- B. Contractor to review Contract Documents. Because the Contract Documents are complementary, the Contractor will, before starting each portion of the Work, carefully study and compare the various Drawings, Specifications, and other Contract Documents, as well as all information furnished by the Port.
- C. Contractor to confirm field conditions. Before starting each portion of the Work, the Contractor shall take field measurements of and verify any existing conditions, including all Work in place, and all general reference points; shall observe any conditions at the site affecting the Contractor; and shall carefully compare field measurements, conditions and other information known to the Contractor with the Contract Documents.

2.05 PORT'S RIGHT TO REJECT, STOP, AND/OR CARRY-OUT THE WORK

- A. Port may reject Work. The Port has the authority, but not the obligation, to reject work, materials, and equipment that is defective or that otherwise does not conform to the Contract Documents, and to decide questions concerning the Contract Documents. However, the failure to so reject, or the presence of the Port at the site, shall not be construed as assurance that the Work is acceptable or being completed in compliance with the Contract Documents.

- B. Port may stop Work. If the Contractor fails to correct Work that does not comply with the requirements of the Contract Documents, or repeatedly or materially fails to properly carry out the Work, the Port may issue an order to stop all or a portion of the Work until the cause for the order has been eliminated. The Port's right to stop the Work shall not impose a duty on the Port to exercise this right for the benefit of the Contractor or any third party.
- C. Port may carry-out Work. If the Contractor fails to perform the Work properly, fails to perform any provision of this Contract, or fails to maintain the Baseline Project Schedule, or if the Port reasonably concludes that the Work will not be completed in the specified manner or within the Contract Time, then the Port may, after three (3) days' written notice to the Contractor and without prejudice to any other remedy the Port may have, perform itself or have performed any or all of the Work and may deduct the cost thereof from any payment then or later due the Contractor.

2.06 SEPARATE CONTRACTORS

- A. Port may engage separate contractors or perform work with its own forces. The Port may contract with other contractors ("Separate Contractor") in connection with the Project or perform work with its own forces. The Contractor shall coordinate and cooperate with any Port forces or Separate Contractors, as applicable. The Contractor shall provide reasonable opportunity for the introduction and storage of materials and the execution of work by others.
- B. Contractor to inspect work of others. If any part of the Contractor's Work depends on the work of the Port or any Separate Contractor, the Contractor shall inspect and promptly report to the Port, in writing, any defects that impact the Contractor. Failure of the Contractor to so inspect and report defects in writing shall constitute an acceptance by Contractor of the work of the Port or Separate Contractor.
- C. Contractor to resolve claims of others. Should the Contractor, or any of its Subcontractors of any tier, cause damage of any kind, including but not limited to delay, to any Separate Contractor, the Contractor shall promptly, and using its best efforts, settle or otherwise resolve the dispute with the Separate Contractor. The Contractor shall also promptly remedy damage caused to completed or partially completed construction.

2.07 OFFICERS AND EMPLOYEES OF THE PORT

- A. No personal liability. Officers, employees, and representatives of the Port, including the Commissioners, acting within the scope of their employment, shall not be personally liable to Contractor for any acts or omissions arising out of the Project.

ARTICLE 3 - CONTRACTOR'S RESPONSIBILITIES

3.01 DUTY TO PERFORM THE ENTIRE WORK

- A. Contractor must perform entire Work in accordance with Contract Documents. The Contractor shall perform the entire Work required by the Contract in accordance with the Contract Documents. Unless otherwise specifically provided, the Contractor shall provide and pay for all labor, tools, equipment, materials, electricity, power, water, other utilities, transportation, and other facilities necessary for the execution and completion of the Work.
- B. Contractor shall be independent contractor. The Contractor shall be, and operate as, an independent contractor in the performance of the Work. The Contractor is not authorized to enter into any agreements or undertakings for, or on behalf of, the Port and is not an agent or employee of the Port.

3.02 OBSERVED ERRORS, INCONSISTENCIES, OMISSIONS, OR VARIANCES IN THE CONTRACT DOCUMENTS

- A. Contractor to notify Port of any discrepancy. The Contractor's obligations to review and carefully study the Contract Documents and field conditions are for the purpose of facilitating coordination and construction. If the Contractor at any time observes that the Contract Documents, including Drawings and Specifications, vary from the conditions of the Project site, are in error, or omit any necessary detail, the Contractor shall promptly notify the Engineer in writing through a Request for Information. Any Work done after such observation, until authorized by the Engineer, shall be at Contractor's risk. The Contractor shall also promptly report to the Engineer any observed error, inconsistency, omission, or variance with applicable laws through a Request for Information. If the Contractor fails either to carefully study and compare the Contract Documents, or to promptly report any observed error, inconsistency, omission, or variance, the Contractor shall assume full responsibility and shall bear all costs, liabilities, and damages attributable to the error, inconsistency, omission, or variance.
- B. Requests for Information. The Contractor shall submit Requests for Information concerning the Contract Documents by following the procedure and using such form as the Port may require. The Contractor shall minimize Requests for Information by thoroughly studying the Contract Documents and reviewing all Subcontractor requests. The Contractor shall allow adequate time in its planning and scheduling for a response from the Port to a Request for Information.
- C. Port may provide information to supplement Drawings and Specifications. Minor items of work or detail that are omitted from the Drawings and Specifications, but inferable from the information presented and normally provided by accepted good practice, shall be provided and/or performed by the Contractor as part of the Contract Sum and within the Contract Time. Similarly, the Engineer may furnish to the Contractor additional Drawings and clarifications, consistent with the Contract Documents, as necessary to detail and illustrate the Work. The Contractor shall conform its Work to such additional Drawings and clarifications at no increase in the Contract Sum or Contract Time.

3.03 SUPERVISION AND RESPONSIBILITY FOR SUBCONTRACTORS

- A. Contractor responsible for Work and workers. The Contractor shall have complete control of the means, methods, techniques, sequences, or procedures related to the Work, and for all safety precautions or programs. The Contractor shall have complete control over, and responsibility for, all personnel performing the Work. The Contractor is also responsible for the acts and omissions of the Contractor's principals, employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors of any tier.
- B. Contractor to supervise the Work. The Contractor shall continuously supervise and direct the Work using competent and skilled personnel and the Contractor's best skill and attention.
- C. Contractor to enforce discipline and good order. The Contractor shall enforce strict discipline and good order among all workers on the Project, and shall not employ any unfit person or anyone not skilled in the work to which they are assigned. Incompetent, careless, or negligent workers shall immediately be removed from the Work. The Port may, but is not obligated to, require the Contractor to remove from the Work, at no change in the Contract Sum or Contract Time, anyone whom the Port considers objectionable.

3.04 MATERIALS AND EQUIPMENT

- A. Material and equipment to be new. All materials and equipment to be incorporated into the Work shall be new, unless specifically provided otherwise in the Contract Documents. The Contractor shall, if required in writing by the Port, furnish satisfactory evidence regarding the kind and quality of any materials, identify the source, and warrant compliance with the Contract Documents. The Contractor shall ensure that all materials and equipment are protected, kept dry, and stored under cover in a manner to protect such materials and equipment.
- B. Material and equipment shall conform to manufacturer instructions. All materials and equipment shall conform, and shall be applied, installed, used, maintained, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, or processor, unless otherwise specifically provided by the Engineer.

3.05 CONTRACTOR WARRANTIES

- A. Work will be of good quality and performed in workmanlike manner. In addition to any specific warranties set forth in the Contract Documents, the Contractor warrants that the Work, including all materials and equipment furnished under the Contract, will be of good quality and new, will be performed in a skillful and workmanlike manner, and will conform to the requirements of the Contract Documents. Any Work not conforming to this warranty, including unapproved or unauthorized substitutions, shall be considered defective.
- B. Work will be free from defects. The Contractor warrants that the Work will be free from defects for a period of one (1) year from the date of Substantial Completion of the Project.
- C. Contractor to collect and deliver warranties to Port. The Contractor shall collect and deliver to the Port any written warranties required by the Contract Documents. These warranties shall be obtained and enforced by the Contractor for the benefit of the Port without the necessity of separate assignment. These warranties shall extend to the Port all rights, claims, benefits, and interests that the Contractor may have under express or implied warranties or guarantees against a Subcontractor of any tier, supplier, or manufacturer for defective or non-conforming Work. Warranty provisions that purport to limit or alter the Port's rights under the Contract Documents, or the laws of the State of Washington, are null and void.
- D. General requirements. The Contractor is not relieved of its general warranty obligations by the specification of a particular product or procedure in the Contract Documents. Warranties in the Contract Documents shall survive completion, acceptance, and final payment.

3.06 REQUIRED WAGES

- A. Contractor will pay required wages. The Contractor shall pay (and shall ensure that all Subcontractors of any tier pay) all prevailing wages and other wages (such as Davis-Bacon Act wages) applicable to the Project. See Specification Section 00 73 46.
- B. The Contractor shall defend (at Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Port harmless from all liabilities, obligations, claims, demands, damages, disbursements, lawsuits, losses, fines, penalties, costs, and expenses, whether direct or indirect, and including, but not limited to, attorneys' fees and consultants' fees and other costs and expenses of litigation, from any violation or alleged violation by the Contractor or any Subcontractor of any tier of RCW 39.12 ("Prevailing Wages on Public Works") or Chapter 51 RCW ("Industrial Insurance").

3.07 STATE AND LOCAL TAXES

- A. Contractor will pay taxes on consumables. The Contractor will pay the retail sales tax on all consumables used during performance of the Work and on all items that are not incorporated into the final Work; this tax shall be included in the Contract Sum.

- B. Port will pay taxes on the Contract Sum. The Port will pay state and local retail sales tax on the Contract Sum with each progress payment, and on final payment, for transmittal by the Contractor to the Washington State Department of Revenue or to the applicable local taxing authority. Rule 170: WAC 458-20-170.
- C. Direct all tax questions to the Department of Revenue. The Contractor should direct all questions concerning taxes on any portion of the Work to the State of Washington Department of Revenue or to the local taxing authority.
- D. State Sales Tax - Rule 171: WAC 458-20-171. For work performed related 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, the Contractor shall include Washington State Retail Sales Taxes in the various schedule prices, or other contract amounts, including those that the Contractor pays on the purchase of materials, equipment, or supplies used or consumed in doing the Work.
 - 1. The bid form will indicate which bid items are subject to Rule 171. Any such identification by the Port is not binding upon the Department of Revenue.

3.08 PERMITS, LICENSES, FEES, AND ROYALTIES

- A. Contractor to provide and pay for permits unless otherwise specified. Unless otherwise specified, the Contractor shall procure and pay for all permits, licenses, and governmental inspection fees necessary or incidental to the performance of the Work. All costs related to these permits, licenses, and inspections shall be included in the Contract Sum. Any action taken by the Port to assist the Contractor in obtaining permits or licenses shall not relieve the Contractor of its sole responsibility to obtain and pay for permits, licenses, and inspections as part of the Contract Sum.
- B. Contractor's obligations when permit must be in Port's name. When applicable law or agency requires a permit to be issued to a public agency, the Port will support the Contractor's request for the permit and accept the permit in the Port's name, if:
 - 1. The Contractor takes all necessary steps required for the permit to be issued;
 - 2. The permit applies to Work performed in connection with the Project; and
 - 3. The Contractor agrees in writing to abide by all requirements of the permit and to defend and hold harmless the Port from any liability in connection with the permit.
- C. Contractor to pay royalties. The Contractor shall pay all royalties and license fees required for the Work unless otherwise specified in the Contract Documents.

3.09 SAFETY

- A. Contractor solely responsible for safety. The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work and the performance of the Contract.
- B. Port not responsible for safety. The Port may identify safety concerns to the Contractor; however, no action or inaction of the Port or any third party relating to safety will: (1) relieve the Contractor of its sole and complete responsibility for safety and sole liability for any consequences, (2) impose any obligation on the Port or a third party to inspect or review the Contractor's safety program or precautions, (3) impose any continuing obligation on the Port or a third party to ensure the Contractor performs the Work safely, or (4) affect the Contractor's responsibility for the protection of property, workers, and the general public.

- C. Contractor to maintain a safe Work site. The Project site may be occupied during performance of the Work. The safety of these site occupants is of paramount importance to the Port. The Contractor shall maintain the Work site and perform the Work in a safe manner and in accordance with the Washington Industrial Safety and Health Act (WISHA) and all other applicable safety laws, rules, and regulations. This requirement shall apply continuously and not be limited to working hours.
- D. Contractor to protect Work site and adjacent property until Final Completion. The Contractor shall continuously protect the Work and adjacent property from damage. At all times until Final Completion, the Contractor shall be responsible for, and protect from damage, weather, deterioration, theft, and vandalism, the Work and all materials, equipment, tools, and other items incorporated or to be incorporated in the Work, and shall repair any damage, injury, or loss.

3.10 CORRECTION OF WORK

- A. Contractor to correct defective Work. The Contractor shall, at no cost to the Port, promptly correct Work that is defective or that otherwise fails to conform to the requirements of the Contract Documents. Such Work shall be corrected, whether before or after Substantial Completion, and even if it was previously inspected or observed by the Port.
- B. One-year correction period. The Contractor shall correct all defects in the Work appearing within one (1) year of Substantial Completion or within any longer period prescribed by law or by the Contract Documents. The Contractor shall initiate remedial action within fourteen (14) days of receipt of notice from the Port and shall complete remedial work within a reasonable time. Work corrected by the Contractor shall be subject to the provisions of this Section 3.10 for an additional one-year period following the Port's acceptance of the corrected Work.
- C. Contractor responsible for defects and failures to correct. The Contractor shall be responsible for any expenses incurred by the Port resulting from defects in the Work. If the Contractor refuses or neglects to correct the defects, or does not timely accomplish corrections, the Port may correct the Work and charge the Contractor the cost of the corrections. If damage or loss of service may result from a delay in correction, the corrections may be made by the Port and reimbursed by the Contractor.
- D. Port may accept defective work. The Port may, at its sole option, elect to retain defective or nonconforming Work. In such a case, the Port shall reduce the Contract Sum by a reasonable amount to account for the defect or non-conformance.
- E. No period of limitation established. Nothing contained in this Section 3.10 establishes a period of limitation with respect to any obligations under the Contract Documents or law. The establishment of the one (1) year correction period relates only to the specific obligation of the Contractor to correct defective or non-conforming Work.

3.11 UNCOVERING OF WORK

- A. Contractor to uncover work covered prior to inspection. If any portion of the Work is covered prior to inspection and approval, the Contractor shall, at its expense, uncover or remove the Work for inspection by the Port or others, and replace the Work to the standard required by the Contract Documents.

- B. Contractor to uncover work at Port's request. After initial inspection and observation, the Port may order a reexamination of Work, and the Work must be uncovered by the Contractor. If the uncovered Work complies with the Contract Documents, the Port shall pay the cost of reexamination and replacement. If the Work is found not to comply with the Contract Documents, the Contractor shall pay the cost of replacement, unless the Contractor demonstrates that it did not cause the defect in the Work.

3.12 RELOCATION OF UTILITIES

- A. Contractor should assume underground utilities are in approximate locations. The Contractor should assume that the locations of any underground or hidden utilities, underground tanks, and plumbing or electrical runs indicated in surveys or the Contract Documents are shown in approximate locations. The accuracy of this information is not guaranteed by the Port and shall be verified by the Contractor. The Contractor shall comply with RCW 19.122.030 and utilize a utility locator service to locate utilities on Port property. The Contractor shall bear the risk of loss if any of its Work directly or indirectly damages or interrupts any utility service or causes or contributes to damages of any nature.
- B. Utility relocation or removal. Where relocation or removal of utilities is necessary or required, it shall be performed at the Contractor's sole expense, unless the Contract Documents specify otherwise. If a utility owner is identified as being responsible for relocating or removing utilities, the work will be accomplished at the utility owner's convenience, either during, or in advance of, construction. Unless otherwise specified, it shall be the Contractor's sole responsibility to coordinate, schedule, and pay for work performed by a utility owner.
- C. Contractor to notify Port of unknown utilities. If the Contractor discovers the presence of any unknown utilities, it shall immediately notify the Engineer in writing.

3.13 LABOR

- A. Contractor responsible for labor peace. The Contractor is responsible for labor peace relating to the Work and shall cooperate in maintaining Project-wide labor harmony. The Contractor shall use its best efforts as an experienced contractor to adopt and implement policies and practices designed to avoid work stoppages, slowdowns, disputes, or strikes.
- B. Contractor to minimize impact of labor disputes. The Contractor will take all necessary steps to prevent labor disputes from disrupting or otherwise interfering with access to Port property. If a labor dispute disrupts the progress of the Work or interferes with access, the Contractor shall promptly and expeditiously take all necessary action to eliminate or minimize the disruption or interference.

3.14 INDEMNIFICATION

- A. Duty to defend, indemnify, and hold harmless. To the fullest extent permitted by law and subject to this Section 3.14, the Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Port and the Northwest Seaport Alliance, including their respective Commissions, officers, managers, and employees, the Engineer, any consultants, and the agents and employees, successors and assigns of any of them (the "Indemnified Parties") from and against claims, damages, lawsuits, losses (including loss of use), disbursements, liabilities, obligations, fines, penalties, costs, and expenses, whether direct and indirect or consequential, including but not limited to, consultants' fees, and attorneys' fees incurred on such claims and in proving the right to indemnification ("Claims"), arising out of, or resulting from, the acts or omissions of the Contractor, a Subcontractor of any tier, their agents, and anyone directly or indirectly employed by any of them or anyone for whose acts they may be liable (individually and collectively, the "Indemnitor").

- B. Duty to defend, indemnify, and hold harmless for sole negligence. The Contractor will fully defend, indemnify, and hold harmless the Indemnified Parties for the sole negligence or willful misconduct of the Indemnitor.
- C. Duty to defend, indemnify, and hold harmless for concurrent negligence. Where Claims arise from the concurrent negligence of (1) the Port; and (2) the Indemnitor, the Contractor's obligations to indemnify and defend the Indemnified Parties under this Section 3.14 shall be effective only to the extent of the Indemnitor's negligence.
- D. Duty to indemnify not limited by workers' compensation or similar employee benefit acts. In claims against any of the Indemnified Parties by an employee of the Contractor, a Subcontractor of any tier, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under this Section 3.14 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable under workers' compensation acts, disability benefit acts, or other employee benefit acts. After mutual negotiation of the parties, the Contractor waives immunity as to the Indemnified Parties under Title 51 RCW, "Industrial Insurance."
- E. Intellectual property indemnification. The Contractor will be liable for and shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Indemnified Parties harmless for Claims for infringement by the Contractor of copyrights or patent rights arising out of, or relating to, the Project.
- F. Labor peace indemnification. If the Contractor fails to satisfy its labor peace obligations under the Contract, the Contractor will be liable for and shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Indemnified Parties for Claims brought against the Port by third parties (including but not limited to lessees, tenants, contractors, customers, licensees, and invitees of the Port) for injunctive relief or monetary loss.
- G. Cyber risk indemnification. Contractor shall defend, indemnify, and hold harmless the Indemnified Parties from and against any liability, expense, fines, penalties, cost, demand, or other obligation, resulting from or out of any cyber-related risk that includes theft, loss or misuse of data, release of private information as result of a network breach, penetration, compromise, or loss of IT systems control.
- H. Joinder. The Contractor agrees to being added by the Port as a party to any arbitration or litigation with third parties in which the Port alleges indemnification or seeks contribution from the Indemnitor. The Contractor shall cause each of its Subcontractors of any tier to similarly stipulate in their subcontracts; in the event any does not, the Contractor shall be liable in place of such Subcontractor(s) of any tier.
- I. Other. To the extent that any portion of this Section 3.14 is stricken by a court or arbitrator for any reason, all remaining provisions shall retain their vitality and effect. The obligations of the Contractor under this Section 3.14 shall not be construed to negate, abridge, or otherwise reduce any other right or obligations of indemnity which would otherwise exist. To the extent the wording of this Section 3.14 would reduce or eliminate an available insurance coverage, it shall be considered modified to the extent necessary so that the insurance coverage is not affected. This Section 3.14 shall survive completion, acceptance, final payment, and termination of the Contract.

3.15 WAIVER OF CONSEQUENTIAL DAMAGES

- A. Mutual waiver of consequential damages. The Contractor and Port waive claims against each other for consequential damages arising out of, or relating to, this Contract. This mutual waiver includes, but is not limited to: (1) damages incurred by the Port for rental expenses, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons, and (2) damages incurred by the Contractor for principal and home office overhead and expenses including, but not limited to, the compensation of personnel stationed there, for losses of financing, business, and reputation, for losses on other projects, for loss of profit, and for interest or financing costs. This mutual waiver includes, but is not limited to, all consequential damages due to either party's termination.
- B. Limitation. Nothing contained in this Section 3.15; however, shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents, to preclude damages specified in the Agreement, or to affect the Contractor's obligation to indemnify the Port for direct, indirect, or consequential damages alleged by a third party.

ARTICLE 4 - SUBCONTRACTORS AND SUPPLIERS

4.01 RESPONSIBILITY FOR ACTIONS OF SUBCONTRACTORS AND SUPPLIERS.

- A. Contractor responsible for Subcontractors. The Contractor is fully responsible to the Port for the acts and omissions of its Subcontractors of any tier and all persons either directly or indirectly employed by the Contractor or its Subcontractors.

4.02 AWARD OF CONTRACTS TO SUBCONTRACTORS AND SUPPLIERS

- A. Contractor to provide proposed Subcontractor information. The Contractor, within ten (10) days after the Port's notice of award of the Contract, shall provide the Engineer with the names of the persons or entities proposed to perform each of the principal portions of the Work (i.e., either a Subcontractor listed in a bid or proposal or a Subcontractor performing Work valued at least ten percent (10%) of the Contract Sum) and the proprietary names, and the suppliers of, the principal items or systems of materials and equipment proposed for the Work. No progress payment will become due until after this information has been furnished.
- B. Port to respond promptly with objections. The Port may respond promptly to the Contractor in writing stating: (1) whether the Port has reasonable objection to any proposed person or entity, or (2) whether the Port requires additional time for review. If the Port makes a reasonable objection, the Contractor shall replace the Subcontractor with no increase to the Contract Sum or Contract Time. Such a replacement shall not relieve the Contractor of its responsibility for the performance of the Work and compliance with all of the requirements of the Contract within the Contract Sum and Contract Time.
- C. Reasonable objection defined. "Reasonable objection" as used in this Section 4.02 includes, but is not limited to: (1) a proposed Subcontractor of any tier different from the entity listed with the bid, (2) lack of "responsibility" of the proposed Subcontractor, as defined by Washington law and the Bidding Documents, or lack of qualification or responsibility of the proposed Subcontractor based on the Contract or Bidding Documents, or (3) failure of the Subcontractor to perform satisfactorily in the Port's opinion (such as causing a material delay or submitting a claim that the Port considers inappropriate) on one or more projects for the Port within five (5) years of the bid date.
- D. No substitution allowed without permission. The Contractor shall not substitute a Subcontractor, person, or organization without the Engineer's written consent.

4.03 SUBCONTRACTOR AND SUPPLIER RELATIONS

- A. Contractor to schedule, supervise, and coordinate Subcontractors. The Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors of any tier, including suppliers. The Contractor shall ensure that appropriate Subcontractors coordinate the Work of lower-tier Subcontractors.
- B. Subcontractors to be bound to Contract Documents. By appropriate agreement, the Contractor shall require each Subcontractor and supplier to be bound to the terms of the Contract Documents and to assume toward the Contractor, to the extent of their Work, all of the obligations that the Contractor assumes toward the Port under the Contract Documents. Each subcontract shall preserve and protect the rights of the Port and shall allow to the Subcontractor, unless specifically provided in the subcontract, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Port. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with lower-tier Subcontractors.
- C. Contractor to correct deficiencies in Subcontractor performance. When a portion of the Work subcontracted by the Contractor is not being prosecuted in accordance with the Contract Documents, or if such subcontracted Work is otherwise being performed in an unsatisfactory manner in the Port's opinion, the Contractor shall, on its own initiative or upon the written request of the Port, take immediate steps to correct the deficiency or remove the non-performing party from the Project. The Contractor shall replace inadequately performing Subcontractors upon request of the Port at no change in the Contract Sum or Contract Time.
- D. Contractor to provide subcontracts. Upon request, the Contractor will provide the Port copies of written agreements between the Contractor and any Subcontractor.

ARTICLE 5 - WORKFORCE AND NON-DISCRIMINATION REQUIREMENTS

5.01 COMPLIANCE WITH NON-DISCRIMINATION LAWS

- A. Contractor to comply with non-discrimination laws. The Contractor shall fully comply with all applicable laws, regulations, and ordinances pertaining to non-discrimination.
- B. Nondiscrimination Provision
 - 1. Nondiscrimination Requirement. During the term of this Contract, Contractor, including any subcontractor, shall not discriminate on the bases enumerated at RCW 49.60.530(3). In addition, Contractor, including any subcontractor, shall give written notice of this nondiscrimination requirement to any labor organizations with which Contractor, or subcontractor, has a collective bargaining or other agreement.
 - 2. Obligation to Cooperate. Contractor, including any subcontractor, shall cooperate and comply with any Washington state agency investigation regarding any allegation that Contractor, including any subcontractor, has engaged in discrimination prohibited by this Contract pursuant to RCW 49.60.530(3).

3. Default. Notwithstanding any provision to the contrary, POT may suspend Contractor, including any subcontractor, upon notice of a failure to participate and cooperate with any state agency investigation into alleged discrimination prohibited by this Contract, pursuant to RCW 49.60.530(3). Any such suspension will remain in place until POT receives notification that Contractor, including any subcontractor, is cooperating with the investigating state agency. In the event Contractor, or subcontractor, is determined to have engaged in discrimination identified at RCW 49.60.530(3), POT may terminate this Contract in whole or in part, and Contractor, subcontractor, or both, may be referred for debarment as provided in RCW 39.26.200. Contractor or subcontractor may be given a reasonable time in which to cure this noncompliance, including implementing conditions consistent with any court-ordered injunctive relief or settlement agreement.
4. Remedies for Breach. Notwithstanding any provision to the contrary, in the event of Contract termination or suspension for engaging in discrimination, Contractor, subcontractor, or both, shall be liable for contract damages as authorized by law including, but not limited to, any cost difference between the original contract and the replacement or cover contract and all administrative costs directly related to the replacement contract, which damages are distinct from any penalties imposed under Chapter 49.60, RCW. POT shall have the right to deduct from any monies due to Contractor or subcontractor, or that thereafter become due, an amount for damages Contractor or subcontractor will owe POT for default under this provision.

5.02 MWBE, VETERAN-OWNED, AND SMALL BUSINESS ENTERPRISE PARTICIPATION.

- A. In accordance with the legislative findings and policies set forth in RCW 39.19, the Port encourages participation in all of its contracts by MWBE firms certified by the Office of Minority and Women's Business Enterprises (OMWBE). Participation may be either on a direct basis in response to this invitation or as a subcontractor to a Bidder. However, unless required by federal statutes, regulations, grants, or contract terms referenced in the Contract Documents, no preference will be included in the evaluation of Bids, no minimum level of MWBE participation shall be required as a condition for receiving an award, and Bids will not be rejected or considered non-responsive on that basis. Any affirmative action requirements set forth in federal regulations or statutes included or referenced in the Contract Documents will apply.

The Port encourages participation in all of its contracts by Veteran-owned businesses (defined in RCW 43.60.010) and located at <http://www.dva.wa.gov/program/certified-veteran--and-servicemember-owned-businesses> and Small, Mini, and Micro businesses (defined in RCW 39.26.010)

5.03 APPRENTICESHIP PARTICIPATION

- A. In accordance with RCW 39.04.320, fifteen (15) percent Apprenticeship Participation is required for all projects estimated to cost one million (\$1,000,000) dollars or more.
- B. Apprentice participation, under this contract, may be counted towards the required percentage (%) only if the apprentices are from an apprenticeship program registered and approved by the Washington State Apprenticeship and Training Council (RCW 49.04 and WAC 296-05).
- C. Bidders may contact the Department of Labor and Industries, Specialty Compliance Services Division, Apprenticeship Section, P.O. Box 44530, Olympia, WA 98504-4530 by phone at (360) 902-5320, or e-mail at Apprentice@lni.wa.gov, to obtain information on available apprenticeship programs.

- D. For each project that has apprentice requirements, the contractor shall submit a "Statement of Apprentice and Journeyman Participation" on forms provided by the Port of Tacoma, with every request for project payment. The Contractor shall submit consolidated and cumulative data collected by the Contractor and collected from all subcontractors by the Contractor. The data to be collected and submitted includes the following:
1. Contractor name and address
 2. Contract number
 3. Project name
 4. Contract value
 5. Reporting period "Beginning Date" through "End Date"
 6. Name and registration number of each apprentice by contractor
 7. Total number of apprentices and labor hours worked by them, categorized by trade or craft.
 8. Total number of journeymen and labor hours worked by them, categorized by trade or craft
 9. Cumulative combined total of apprentice and journeymen labor hours
 10. Total percentage of apprentice hours worked
- E. No changes to the required percentage (%) of apprentice participation shall be allowed without written approval of the Port. In any request for the change, the Contractor shall clearly demonstrate a good faith effort to comply with the requirements for apprentice participation.

ARTICLE 6 - CONTRACT TIME AND COMPLETION

6.01 CONTRACT TIME

- A. Contract Time is measured from Contract execution. Unless otherwise provided in the Agreement, the Contract Time is the period of time, including authorized adjustments, specified in the Contract Documents from the date the Contract is executed to the date Substantial Completion of the Work is achieved.
- B. Commencement of the Work. The Contractor shall begin Work in accordance with the notice of award and the notice to proceed and shall complete all Work within the Contract Time. When the Contractor's signed Agreement, required insurance certificate with endorsements, bonds, and other submittals required by the notice of award have been accepted by the Port, the Port will execute the Contract and, following receipt of other required pre-work submittals, will issue a notice to proceed to allow the Contractor to mobilize and commence physical Work at the Project site, as further described in these contract documents. No Work at the Project site may commence until the Port issues a notice to proceed.
- C. Contractor shall achieve specified completion dates. The Contractor shall achieve Substantial Completion within the Contract Time and shall achieve Final Completion within the time period thereafter stated in the Contract Documents.
- D. Time is of the essence. Time limits stated in the Contract Documents, including any interim milestones, are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

6.02 PROGRESS AND COMPLETION

- A. Contractor to maintain schedule. The Contractor's sequence and method of operations, application of effort, and work force shall at all times be created and implemented to ensure the orderly, expeditious, and timely completion of the Work and performance of the Contract. The Contractor shall furnish sufficient forces and shall work such hours, including extra shifts, overtime operations, and weekend and holiday work as may be necessary to ensure completion of the Work within the Contract Time and the approved Baseline Project Schedule.
- B. Contractor to take necessary steps to meet schedule. If the Contractor fails substantially to perform in a timely manner in accordance with the Contract Documents and, through the fault of the Contractor or Subcontractor(s) of any tier, fails to meet the Baseline Project Schedule, the Contractor shall take such steps as may be necessary to immediately improve its progress by increasing the number of workers, shifts, overtime operations, or days of work, or by other means and methods, all without additional cost to the Port. If the Contractor believes that any action or inaction of the Port constitutes acceleration, the Contractor shall immediately notify the Port in writing and shall not accelerate the Work until the Port either directs the acceleration in writing or denies the constructive acceleration.
- C. Liquidated damages not exclusive. Any provisions in the Contract Documents for liquidated damages shall not preclude other damages due to breaches of Contract of the Contractor.

6.03 SUBSTANTIAL COMPLETION

- A. Substantial Completion defined. Substantial Completion is the stage in the progress of the Work, or portion or phase thereof, when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Port can fully occupy or utilize the Work, or the designated portion thereof, for its intended use, all requirements in the Contract Documents for Substantial Completion have been achieved, and all required documentation has been properly submitted to the Port in accordance with the Contract Documents. All Work, other than incidental corrective or punch list Work and final cleaning, must be completed. The fact that the Port may occupy the Work or a designated portion thereof does not indicate that Substantial Completion has occurred or that the Work is acceptable in whole or in part.
- B. Work not Substantially Complete unless Final Completion attainable. The Work is not Substantially Complete unless the Port reasonably judges that the Work can achieve Final Completion within the period of time specified in the Contract Documents.
- C. Notice of Substantial Completion. When the Work or designated portion has achieved Substantial Completion, the Port will provide a notice to establish the date of Substantial Completion. The notice shall establish responsibilities of the Port and Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall finish all remaining Work. If the notice of Substantial Completion does not so state, all responsibility for the foregoing items shall remain with the Contractor until Final Completion.

6.04 COMPLETION OF PUNCH LIST

- A. Contractor shall complete punch list items prior to Final Completion. The Contractor shall cause punch list items to be completed prior to Final Completion. If, after Substantial Completion, the Contractor does not expeditiously proceed to correct punch list items or if the Port considers that the punch list items, are unlikely to be completed prior to the date established for Final Completion (or such other period of time as is specified in the Contract Documents), the Port may, upon seven (7) days' written notice to the Contractor, take over and perform some or all of the punch list items. The Port may also take over and complete any portion of the Work at any time following Substantial Completion and deduct the actual cost of performing the Work (including direct and indirect costs) from the Contract Sum. The Port's rights under this Section 6.04 are not obligations and shall not relieve the Contractor of its responsibilities under any other provisions of the Contract Documents.

6.05 FINAL COMPLETION

- A. Final Completion. Upon receipt of written notice from the Contractor that all punch list items and other Contract requirements are completed, the Contractor will notify the Port, and the Port will perform a final inspection. If the Port determines that some or all of the punch list items have not been addressed, the Contractor shall be responsible to the Port for all costs, including re-inspection fees, for any subsequent reviews to determine completion of the punch list. When the Port determines that all punch list items have been satisfactorily addressed, that the Work is acceptable under the Contract Documents, and that the Work has fully been performed, the Port will promptly notify the Contractor of Final Completion.
- B. Contractor responsible for costs if Final Completion is not timely achieved. In addition to any liquidated damages, the Contractor is liable for, and the Port may deduct from any amounts due the Contractor, all costs incurred by the Port for services performed after the contractual date of Final Completion, whether or not those services would have been performed prior to that date had Final Completion been timely achieved.
- C. Final Completion submittals. The Port is not obligated to accept the Project as complete until the Contractor has submitted all required submittals to the Port.
- D. Contractor responsible for the Work until Final Completion. The Contractor shall assume the sole risk of loss and responsibility for all Work under the Contract, and all materials to be incorporated in the Work, whether in storage or at the Project site, until Final Completion. Damage from any cause to either permanent or temporary Work, utilities, materials, equipment, existing structures, the site, or other property owned by the Port or others, shall be repaired by the Contractor to the reasonable satisfaction of the Port at no change in the Contract Sum.

6.06 FINAL ACCEPTANCE

- A. Final Acceptance. Final Acceptance is the formal action of the Port accepting the Project as complete. Public notification of Final Acceptance will be posted on the Port's external website (<https://www.portoftacoma.com/business/contracting/final-acceptance>).
- B. Final Acceptance not an acceptance of defective Work. Final Acceptance shall not constitute acceptance by the Port of unauthorized or defective Work, and the Port shall not be prevented from requiring the Contractor to remove, replace, repair, or dispose of unauthorized or defective Work or recovering damages due to the same.
- C. Completion of Work under RCW 60.28. Pursuant to RCW 60.28, "Lien for Labor, Materials, Taxes on Public Works," completion of the Contract Work shall occur upon Final Acceptance.

6.07 PORT'S RIGHT TO USE THE PREMISES

- A. Port has right to use and occupy Work. The Port reserves the right to occupy or use any part of the Work before or after Substantial Completion of some or all of the Work without relieving the Contractor of any of its obligations under the Contract. Such occupancy or use shall not constitute acceptance by the Port of any of the Work, and shall not cause any insurance to be canceled or lapse.
- B. No compensation due if Port elects to use and occupy Work. No additional compensation shall be due to the Contractor as a result of the Port's use or occupancy of the Work or a designated portion.

ARTICLE 7 - PAYMENT

7.01 ALL PAYMENTS SUBJECT TO APPLICABLE LAWS AND SCHEDULE OF VALUES

- A. Payment of the Contract Sum. The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Port to the Contractor for performance of the Work under the Contract Documents. Payments made to the Contractor are subject to all laws applicable to the Port and the Contractor. Payment of the Contract Sum constitutes full compensation to the Contractor for performance of the Work, including all risk, loss, damages, or expense of whatever character arising out of the nature or prosecution of the Work. The Port is not obligated to pay for extra work or materials furnished without prior written approval of the Port.
- B. Schedule of Values. All payments will be based upon an approved Schedule of Values. Prior to submitting its first Application for Payment, the Contractor shall submit a Schedule of Values to the Port allocating the entire Contract Sum to the various portions of the Work. The Schedule of Values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Port may require. This schedule, unless objected to by the Port, shall be used as a basis for reviewing the Contractor's applications for payment.

7.02 APPLICATIONS FOR PAYMENT

- A. Applications for Payment. Progress payments will be made monthly for Work duly certified, approved by the Engineer, and performed (based on the Schedule of Values and actual quantities of Work performed) during the calendar month preceding the Application for Payment. These amounts are paid in trust to the Contractor for distribution to Subcontractors to the extent, and in accordance with, the approved Application for Payment.

7.03 PROGRESS PAYMENTS

- A. Progress payments. Following receipt of a complete Application for Payment, the Engineer will either authorize payment or indicate in writing to the Contractor the specific reasons why the payment request is being denied, in whole or in part, and the remedial action the Contractor must take to receive the withheld amount. After a complete Application for Payment has been received and approved by the Port, payment will be made within thirty (30) days. Any payments made by, or through, or following receipt of, payment from third parties will be made in accordance with the third party's policies and procedures.
- B. Port may withhold payment. The Port may withhold payment in whole or in part as provided in the Contract Documents or to the extent reasonably necessary to protect the Port from loss or potential loss for which the Contractor is responsible, including loss resulting from the Contractor's acts and omissions.

7.04 PAYMENT BY CONTRACTOR TO SUBCONTRACTORS

- A. Payment to Subcontractors. With each Application for Payment, the Contractor shall provide a list of Subcontractors to be paid by the Contractor. No payment request shall include amounts the Contractor does not intend to pay to a Subcontractor because of a dispute or other reason. If, however, after submitting an Application for Payment, but before paying a Subcontractor, the Contractor discovers that part or all of a payment otherwise due to the Subcontractor is subject to withholding from the Subcontractor under the subcontract (such as for unsatisfactory performance or non-payment of lower-tier Subcontractors), the Contractor may withhold the amount as allowed under the subcontract, but it shall give the Subcontractor and the Port written notice of the remedial actions that must be taken and pay the Subcontractor within eight (8) working days after the Subcontractor satisfactorily completes the remedial action identified in the notice.
- B. Payment certification to be provided upon request. The Contractor shall provide, with each Application for Payment, a certification signed by Contractor attesting that all payments by the Contractor to Subcontractors from the last Application for Payment were made within ten (10) days of the Contractor's receipt of payment. The certification will also attest that the Contractor will make payment to Subcontractors for the current Application for Payment within ten (10) days of receipt of payment from the Port.

7.05 FINAL PAYMENT

- A. Final payment. Final applications for payment are due within seven (7) days following Final Completion. Final payment of the unpaid balance of the Contract Sum, except retainage, will be made following Final Completion and within thirty (30) days of the Contractor's submission of an approved final Application for Payment.
- B. Releases required for final payment. The final payment shall not become due until the Contractor delivers to the Port a complete release of all liens arising out of the Contract, as well as an affidavit stating that, to the best of Contractor's knowledge, its release includes all labor and materials for which a lien could be filed. If a Subcontractor of any tier refuses to furnish a release or waiver required by the Port, the Port may (a) retain in the fund, account, or escrow funds in such amount as to defray the cost of foreclosing the liens of such claims and to pay attorneys' fees, the total of which shall be no less than 150% of the claimed amount, or (b) accept a bond from the Contractor, satisfactory to the Port, to indemnify the Port against the lien. If any such lien remains unsatisfied after all payments from the retainage are made, the Contractor shall refund to the Port all moneys that the Port may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.
- C. Contractor to hold Port harmless from liens. The Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Port from any liens, claims, demands, lawsuits, losses, damages, disbursements, liabilities, obligations, fines, penalties, costs, and expenses, whether direct or indirect, including but not limited to, attorneys' fees and consultants' fees and other costs and expenses, except to the extent a lien has been filed because of the failure of the Port to make a contractually required payment.

7.06 RETAINAGE

- A. Retainage to be withheld. In accordance with RCW 60.28, a sum equal to five percent (5%) of each approved Application for Payment shall be retained. Prior to submitting its first Application for Payment, the Contractor shall exercise one of the options listed below:
 - 1. Retained percentages will be retained by the Port in a fund; or

2. Deposited by the Port in an interest-bearing account or escrow account in a bank, mutual savings bank, or savings and loan association designated by the Contractor, not subject to withdrawal until after the final acceptance of said improvement or work as completed, or until agreed to by both parties; provided that interest on such account shall be paid to the Contractor. Contractor to complete and submit Port provided Retainage Escrow Agreement (Section 00 61 23.13); or
 3. If the Contractor provides a bond in place of retainage, it shall be in an amount equal to 5% of the Contract Sum plus Change Orders. The retainage bond shall be based on the form furnished in Section 00 61 23 or otherwise acceptable to the Port and duly completed and signed by a licensed surety or sureties registered with the Washington State Insurance Commissioner and on the currently authorized insurance list published by the Washington State Insurance Commissioner. The surety or sureties must be rated at least "A-, FSC(6)" or higher by A.M. Best Rating Guide and be authorized by the Federal Department of the Treasury. Attorneys-in-fact who sign the retainage bond must file with each bond a certified and effective Power of Attorney statement.
- B. Contractor may withhold retainage from Subcontractors. The Contractor or a Subcontractor may withhold not more than five percent (5%) retainage from the monies earned by any Subcontractor or lower-tier Subcontractor, provided that the Contractor pays interest to the Subcontractor at the same interest rate it receives from its reserved funds. If requested by the Port, the Contractor shall specify the amount of retainage and interest due a Subcontractor.
- C. Release of retainage. Retainage will be withheld and applied by the Port in a manner required by RCW 60.28 and released in accordance with the Contract Documents and statutory requirements. Release of the retainage will be processed in the ordinary course of business within sixty (60) days following Final Acceptance of the Work by the Port provided that no notice of lien has been given as provided in RCW 60.28, that no claims have been brought to the attention of the Port, that the Port has no claims under this Contract, and that release of retention has been duly authorized by the State. The following items must also be obtained prior to release of retainage: pursuant to RCW 60.28, a certificate from the Department of Revenue; pursuant to RCW 50.24, a certificate from the Department of Employment Security; and appropriate information from the Department of Labor and Industries including approved affidavits of wages paid for the Contractor and each subcontractor.

7.07 DISPUTED AMOUNTS

- A. Disputed amounts. If the Contractor believes it is entitled to payment for Work performed during the prior calendar month in addition to the agreed-upon amount, the Contractor may submit to the Port, along with the approved Application for Payment, a separate written payment request specifying the exact additional amount claimed to be due, the category in the Schedule of Values to which the payment would apply, the specific Work for which additional payment is sought, and an explanation of why the Contractor believes additional payment is due.

7.08 EFFECT OF PAYMENT

- A. Payment does not relieve Contractor of obligations. Payment to the Contractor of progress payments or final payment does not relieve the Contractor from its responsibility for the Work or its responsibility to repair, replace, or otherwise make good defective Work, materials, or equipment. Likewise, the making of a payment does not constitute a waiver of the Port's right to reject defective or non-conforming Work, materials, or equipment (even though they are covered by the payment), nor is it a waiver of any other rights of the Port.

- B. Acceptance of final payment waives claims. Acceptance of final payment by the Contractor, a Subcontractor of any tier, or a supplier shall constitute a waiver of claims except those previously made in writing and identified as unsettled in Contractor's final Application for Payment.
- C. Execution of Change Order waives claims. The execution of a Change Order shall constitute a waiver of claims by the Contractor arising out of the Work to be performed or deleted pursuant to the Change Order, except as specifically described in the Change Order.

7.09 LIENS

- A. Contractor to discharge liens. The Contractor shall promptly pay (and secure the discharge of any liens asserted by) all persons properly furnishing labor, equipment, materials, or other items in connection with the performance of the Work including, but not limited to, any Subcontractors of any tier.

ARTICLE 8 - CHANGES IN THE WORK

8.01 CHANGES IN THE WORK

- A. Changes in the Work authorized. Without invalidating the Contract and without notice to the Contractor's surety, the Port may authorize changes in the Work after execution of the Contract, including changes in the Contract Sum or Contract Time. Changes shall occur solely by Change Order, Unilateral Change Directive, or Minor Change in Work. All changes in the Work are effective immediately, and the Contractor shall proceed promptly to perform the change, unless otherwise provided in the Change Order or Directive.
- B. Changes in the Work Defined.
 - 1. A Change Order is a written instrument signed by the Port and Contractor stating their agreement to a change in the Work and the adjustment, if any, in the Contract Sum and/or Contract Time.
 - 2. A Unilateral Change Directive is a written instrument issued by the Port to transmit new or revised Drawings, issue additions or modifications to the Contract, furnish other direction and documents adjustment, if any, to the Contract Sum and/or Contract Time. A Unilateral Change Directive is signed only by the Port, without requiring the consent or signature of the Contractor.
 - 3. A Minor Change in the Work is a written order from the Port directing a change that does not involve an adjustment to the Contract Sum or the Contract Time.
- C. Request for Proposal: At any time, the Port may issue a Proposal Request directing the Contractor to propose a change to the Contract Sum and/or Contract Time, if any, based on a proposed change in the Work. The Contractor shall submit a responsive Change Order proposal as soon as possible, and no later than fourteen (14) days after receipt, in which the Contractor specifies in good faith the extent to which the Contract Sum and/or Contract Time would change. All cost components shall be limited to the manner described in Section 8.02(B). If the Contractor fails to timely respond to a Proposal Request, the Port may issue the change as a Unilateral Change Directive.

1. Fixed price method is default for Contractor Change Order proposal. When the Port has requested that the Contractor submit a Change Order proposal, the Port may specify the basis on which the Contract Sum will be adjusted by the Contractor. The Engineer's preference, unless otherwise indicated, is for changes in the Work to be priced using Lump Sums or Unit Prices or on a time and material (Force Account) basis if unit pricing or lump sums cannot be negotiated or determined. In all instances, however, proposed changes shall include a not-to-exceed price for the change and shall be itemized for evaluation purposes in accordance with Section 8.02(B), as requested by the Engineer.
 2. The Port may accept or reject the Contractor's Change Order proposal, request further documentation, or negotiate acceptable terms with the Contractor. If The Port and Contractor reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, such agreement shall be incorporated in a Change Order.
 3. The Change Order shall constitute full payment and final settlement of all claims for time and for direct, indirect, and consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity, related to any Work either covered or affected by the Change Order, or related to the events giving rise to the request for equitable adjustment. The Port may reject a proposal, in which case the Port may either not effectuate the change or issue a Unilateral Change Directive. The Port will not make payment to the Contractor for any work until that work has been incorporated into an executed Change Order.
- D. Unforeseen Conditions: If the Contractor encounters conditions at the site that are: (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or any soils reports made available by the Port to the Contractor, or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall immediately provide oral notice to the Engineer before conditions are disturbed, followed within 24 hours by an initial written notice. The Contractor shall submit a detailed proposal no later than seven (7) days following discovery of differing site conditions. The Engineer will promptly investigate these conditions and, if the Engineer determines that they differ materially and cause an increase or decrease in the Contractor's cost or time required for performance of any part of the Work, will establish a change in the Contract Sum or Contract Time, or both, consistent with the requirements of the Contract Documents. If the Contractor disputes the Engineer's determination, the Contractor may proceed as provided in the dispute resolution procedure (Article 11). No increase to the Contract Sum or the Contract Time shall be allowed if the Contractor does not comply with the contractual requirements or if the Contractor knew, or reasonably should have known, of the concealed conditions prior to executing the Contract.
- E. Proceed Immediately: Pending agreement on the terms of the Change Order or upon determination of a differing site condition as defined in 8.01(D), the Engineer may direct Contractor to proceed immediately with the change in the Work. Contractor shall not proceed with any change in the Work until it has obtained the Engineer's written approval and documentation of the following:
1. The scope of work
 2. An agreed upon maximum not-to-exceed amount
 3. The method of final cost determination

4. Estimated time to complete the changed work
5. As a change in the Work is performed, unless the parties have signed a written Change Order to establish the cost of the change, the Contractor shall maintain an itemized accounting of all costs related to the change based on the categories in Section 8.02(B) and provide such data to the Port upon request. This includes, without limitation, invoices, including freight and express bills, and other support for all material, equipment, Subcontractor, and other charges related to the change and, for material furnished from the Contractor's own inventory, a sworn affidavit certifying the actual cost of such material. Failure to provide data to the Port within seven (7) days of a request constitutes a waiver of any claim. The Port may furnish any material or equipment to the Contractor that it deems advisable, and the Contractor shall have no claim for any costs or fee on such material or equipment.
- F. Procedure for Unilateral Change Directive. Whether or not the Port has rejected a Contractor's proposal, the Port may issue a Unilateral Change Directive and the Contractor shall promptly proceed with the specified Work. If the Contractor disagrees with a Unilateral Change Directive, the Contractor shall advise the Port in writing through a Change Order proposal within seven (7) days of receipt. The Contractor's Change Order proposal shall reasonably specify the reasons for any disagreement and the adjustment it proposes. Without this timely Change Order proposal, the Contractor shall conclusively be deemed to have accepted the Port's proposal.
- G. Payment pending final determination of Force Account work. Pending final determination of the total cost of Force Account Work, and provided that the Work to be performed under Force Account is complete and any reservations of rights have been signed by the Port, the Contractor may request payment for amounts not in dispute in the next Application for Payment accompanied by documentation indicating the parties' agreement. Work done on a Force Account basis must be approved in writing on a daily basis by the Engineer or the Engineer's designee and invoices shall be submitted with an Application for Payment within sixty (60) days of performance of the Work.

8.02 CHANGES IN THE CONTRACT SUM

- A. Port to Decide How Changes are Measured. The Port may elect, in its sole discretion, how changes in the Work will be measured for payment. Change in the Work may be priced on a lump sum basis, through Unit Prices, as Force Account, or by another method documented in the executed Change Order, Unilateral Change Directive, or Minor Change in the Work.
- B. Determination of Cost of Change. The total cost of any change in the Work, including a claim under Article 11, shall not exceed the prevailing cost for the Work in the locality of the Project. In all circumstances, the change in the Work shall be limited to the reasonable, actual cost of the following components:
 1. Direct labor costs: These are the actual labor costs determined by the number of additional craft hours at their normal hourly rate necessary to perform a change in the Work. The hourly cost of labor will be based upon the following:

- a. Basic wages and fringe benefits: The hourly wage (without markup or labor burden) and fringe benefits paid by the Contractor as established by the Washington Department of Labor and Industries or contributed to labor trust funds as itemized fringe benefits, whichever is applicable, not to exceed that specified in the applicable "Intent to Pay Prevailing Wage," for the laborers, apprentices, journeymen, and foremen performing or directly supervising the change in the Work on site. These wages do not include the cost of Contractor's project manager or superintendent or above, and the premium portion of overtime wages is not included unless pre-approved in writing by the Port. Costs paid or incurred by the Contractor for vacations, per diem, subsistence, housing, travel, bonuses, stock options, or discretionary payments to employees are not separately reimbursable. The Contractor shall provide to the Port copies of payroll records, including certified payroll statements for itself and Subcontractors of any tier, upon the Port's request.
 - b. Workers' insurance: Direct contributions to the State of Washington as industrial insurance; medical aid; and supplemental pension by class and rates established by the Washington Department of Labor and Industries.
 - c. Federal insurance: Direct contributions required by the Federal Insurance Compensation Act (FICA); Federal Unemployment Tax Act (FUTA); and State Unemployment Compensation Act (SUCA).
2. Direct material costs: This is an itemization, including material invoices, of the quantity and actual cost of additional materials necessary to perform the change in the Work. The cost will be the net cost after all discounts or rebates, freight costs, express charges, or special delivery costs, when applicable. No lump sum costs will be allowed unless approved in advance by the Port.
3. Construction equipment usage costs: This is an itemization of the actual length of time that construction equipment necessary and appropriate for the Work is used solely on the changed Work times the applicable rental cost as established by the lower of the local prevailing rates published in www.equipmentwatch.com, as modified by the AGC/WSDOT agreement, or the actual rate paid to an unrelated third party. If more than one rate is applicable, the lowest available rate will be utilized. Rates and quantities of equipment rented that exceed the local fair market rental costs shall be subject to the Port's prior written approval. Total rental charges for equipment or tools shall not exceed 75% of the fair market purchase value of the equipment or the tool. Actual, reasonable mobilization costs are permitted if the equipment is brought to the site solely for the change in the Work. Mobilization and standby costs shall not be charged for equipment already present on the site.

The rates in effect at the time of the performance of the changed Work are the maximum rates allowable for equipment of modern design, and in good working condition, and include full compensation for furnishing all fuel, oil, lubrication, repairs, maintenance, and insurance. No gas surcharges are payable. Equipment not of modern design and/or not in good working condition will have lower rates. Hourly, weekly, and/or monthly rates, as appropriate, will be applied to yield the lowest total cost.
4. Subcontractor costs: These are payments the Contractor makes to Subcontractors for changed Work performed by Subcontractors. The Subcontractors' cost of changed Work shall be determined in the same manner as prescribed in this Section 8.02 and, among other things, shall not include consultant costs, attorneys' fees, or claim preparation expenses.

5. Service provider costs: These are payments the Contractor makes to service providers for changed Work performed by service providers. The service providers' cost of changed Work shall be determined in the same manner as prescribed in this Section 8.02.
6. Markup: This is the maximum total amount for overhead, profit, and other costs, including office, home office and site overhead (including purchasing, project manager, superintendent, project engineer, estimator, and their vehicles and clerical assistants), taxes (except for sales tax on the Contract Sum), warranty, safety costs, printing and copying, layout and control, quality control/assurance, small or hand tools (a tool that costs \$500 or less and is normally furnished by the performing contractor), preparation of as-built drawings, impact on unchanged Work, Change Order and/or claim preparation, and delay and impact costs of any kind (cumulative, ripple, or otherwise), added to the total cost to the Port of any Change Order work. No markup shall be due, however, for direct settlements of Subcontractor claims by the Port after Substantial Completion. The markup shall be limited in all cases to the following schedule:
 - a. Direct labor costs -- 20% markup on the direct cost of labor for the party (Contractor or Subcontractor) providing labor related to the change in the Work;
 - b. Direct material costs -- 20% markup on the direct cost of material for the party (Contractor or Subcontractor) providing material related to the change in the Work;
 - c. Construction equipment usage costs -- 10% markup on the direct cost of equipment for the party (Contractor or Subcontractor) providing equipment related to the change in the Work;
 - d. Contractor markup on Subcontractor costs -- 10% markup for the Contractor on the direct cost (excluding markup) of a change in the Work performed by Subcontractors (and for Subcontractors, for a change in the Work performed by lower-tier Subcontractors); and
 - e. Service provider costs -- 5% markup for the Contractor on the direct cost (excluding markup) of a change in the Work performed by service providers.

The total summed markup of the Contractor and all Subcontractors of any tier shall not exceed 30% of the direct costs of the change in the Work. If the markup would otherwise exceed 30%, the Contractor shall proportionately reduce the markup for the Contractor and all Subcontractors of any tier.

7. Cost of change in insurance or bond premium. This is defined as:
 - a. Contractor's liability insurance: The actual cost (expressed as a percentage submitted with the certificate of insurance provided under the Contract Documents and subject to audit) of the Contractor's liability insurance arising directly from the changed Work; and
 - b. Public works bond: The actual cost (expressed as a percentage submitted under the Contract Documents and subject to audit) of the Contractor's performance and payment bond arising directly from the changed Work.

Upon request, the Contractor shall provide the Port with supporting documentation from its insurer or surety of any associated cost incurred. The cost of the insurance or bond premium together shall not exceed 2.0% of the cost of the changed Work.

8. Unit Prices. If Unit Prices are specified in the Contract Documents or established by agreement of the parties for certain Work, the Port may apply them to the changed Work. Unit Prices shall include pre-agreed rates for material quantities and shall include reimbursement for all direct and indirect costs of the Work, including overhead, profit, bond, and insurance costs arising out of, or related to, the Unit Priced item. Quantities must be supported by field measurement statements signed by the Port, and the Port shall have access as necessary for quantity measurement. The Port shall not be responsible for not-to-exceed limit(s) without its prior written approval.

8.03 CHANGES IN THE CONTRACT TIME

- A. Extension of the Contract Time. If the Contractor is delayed at any time in the commencement or progress of the Work by events for which the Port is responsible, by unanticipated abnormal weather (subject to Section 8.03(E) below), or by other causes not the fault or responsibility of the Contractor that the Port determines may justify a delay in the Contract Time, then the Contract Time shall be extended by Change Order for such reasonable time as the Port may determine. In no event, however, shall the Contractor be entitled to any extension of time absent proof of: (1) delay to an activity on the critical path of the Project, or (2) delay transforming an activity to the critical path, so as to actually delay the anticipated date of Substantial Completion.
- B. Allocation of responsibility for delay not caused by Port or Contractor. If a delay was not caused by the Port, the Contractor, or anyone acting on behalf of any of them, the Contractor is entitled only to an increase in the Contract Time but not an increase in the Contract Sum.
- C. Allocation of responsibility for delay caused by Port. If a delay was caused by the Port or someone acting on behalf of the Port and affected the critical path, the Contractor shall be entitled to a change in the Contract Time and Contract Sum in accordance with Section 8.02. The Contractor shall not recover damages, an equitable adjustment, or an increase in the Contract Sum or Contract Time from the Port; however, where the Contractor could reasonably have avoided the delay. The Port is not obligated directly or indirectly for damages for any delay suffered by a Subcontractor of any tier that does not increase the Contract Time.
- D. Allocation of responsibility for delay caused by Contractor. If a delay was caused by the Contractor, a Subcontractor of any tier, or anyone acting on behalf of any of them, the Contractor is not entitled to an increase in the Contract Time or in the Contract Sum.
- E. Adverse weather. If adverse weather is identified as the basis for a claim for additional time, the claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not reasonably have been anticipated and had an adverse effect on the critical path of construction, and that the Work was on schedule (or not behind schedule through the fault of the Contractor) at the time the adverse weather conditions occurred. Neither the Contract Time nor the Contract Sum will be adjusted for normal inclement weather. For a claim based on adverse weather, the Contractor shall be eligible only for a change in the Contract Time (but not a change in the Contract Sum) if the Contractor can substantiate that there was significantly greater than normal inclement weather considering the full term of the Contract Time.

- F. Damages for delay. In the event the Contractor (including any Subcontractors of any tier) is held to be entitled to damages from the Port for delay beyond the amount permitted in Section 8.02(B), the total combined damages to the Contractor and any Subcontractors of any tier for each day of delay shall be limited to the reasonable, actual costs of the delay for which the Port is wholly responsible. The limitation on damages set forth in this Section does not apply to any damages arising exclusively from delay to which the Contractor is entitled to recover under Section 8.03(F).
- G. Limitation on damages. The Contractor shall not be entitled to damages arising out of loss of efficiency; morale, fatigue, attitude, or labor rhythm; constructive acceleration; home office overhead; expectant under run; trade stacking; reassignment of workers; rescheduling of Work, concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy; logistics; ripple; season change; extended or increased overhead or general conditions; profit upon damages for delay; impact damages including cumulative impacts; or similar damages. Any effect that such alleged costs may have upon the Contractor or its Subcontractors of any tier is fully compensated through the markup on Change Orders paid through Section 8.02(B).

8.04 RESERVATION OF RIGHTS

- A. Reservations of rights void unless signed by Port. Reservations of rights will be deemed waived and are void unless any reserved rights are described in detail and are signed by the Contractor and the Port.
- B. Procedure for unsigned reservations of rights. If the Contractor adds a reservation of rights not signed by the Port to any Change Order, Unilateral Change Directive, Change Order proposal, Application for Payment, or any other document, all amounts and all Work therein shall be considered disputed and not payable until costs are re-negotiated or the reservation is withdrawn or changed in a manner satisfactory to, and signed by, the Port. If the Port makes payment based on a document that contains a reservation of rights not signed by the Port, and if the Contractor cashes such payment, then the reservation of rights shall be deemed waived, withdrawn, and of no effect.

8.05 UNIT PRICES

- A. Adjustment to Unit Prices. If Unit Prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed (less than eighty percent (80%) or more than one hundred and twenty percent (120%) of the quantity estimated) so that application of a Unit Price would be substantially unfair, the applicable Unit Price but not the Contract Time, shall be adjusted if the Port prospectively approves a Change Order revising the Unit Price.
- B. Procedure to change Unit Prices. The Contractor or Port may request a Change Order revising a Unit Price by submitting information to support the change. A proposed change to a Unit Price will be evaluated by the Port based on the change in cost resulting solely from the change in quantity, any change in production rate or method as compared to the original plan, and the share, if any, of fixed expenses properly chargeable to the item. If the Port and Contractor agree on the change, a Change Order will be executed. If the parties cannot agree, the Contractor shall comply with the dispute resolution procedures (Article 11).

ARTICLE 9 - SUSPENSION AND TERMINATION OF CONTRACT

9.01 PORT'S RIGHT TO SUSPEND WORK

- A. Port may suspend the Work. The Port may at any time suspend the Work, or any part thereof, by giving notice to the Contractor. The Work shall be resumed by the Contractor as soon as possible, but no later than fourteen (14) days after the date fixed in a notice to resume the Work. The Port shall reimburse the Contractor for appropriate and reasonable expenses consistent with Section 8.02 incurred by the Contractor as a result of the suspension, except where a suspension is the result of the Contractor repeatedly or materially failing to carry out or correct the Work in accordance with the Contract Documents, and the Contractor shall take all necessary steps to minimize expenses.
- B. Contractor obligations. During any suspension of Work, the Contractor shall take every precaution to prevent damage to, or deterioration of, the Work. The Contractor shall be responsible for all damage or deterioration to the Work during the period of suspension and shall, at its sole expense, correct or restore the Work to a condition acceptable to the Port prior to resuming Work.

9.02 TERMINATION OF CONTRACT FOR CAUSE BY THE PORT

- A. Port may terminate for cause. If the Contractor is adjudged bankrupt or makes a general assignment for the benefit of the Contractor's creditors, if a receiver is appointed due to the Contractor's insolvency, or if the Contractor, in the opinion of the Port, persistently or materially refuses or fails to supply enough properly skilled workmen or materials for proper completion of the Contract, fails to make prompt payment to Subcontractors or suppliers for material or labor, disregards laws, ordinances, or the instructions of the Port, fails to prosecute the Work continuously with promptness and diligence, or otherwise materially violates any provision of the Contract, then the Port, without prejudice to any other right or remedy, may terminate the Contractor after giving the Contractor seven (7) days' written notice (during which period the Contractor shall have the right to cure).
- B. Procedure following termination for cause. Following a termination for cause, the Port may take possession of the Project site and all materials and equipment, and utilize such materials and equipment to finish the Work. The Port may also exclude the Contractor from the Project site(s). If the Port elects to complete all or a portion of the Work, it may do so as it sees fit. The Port shall not be required to accept the lowest bid for completion of the Work and may choose to complete all or a portion of the Work using its own work force. If the Port elects to complete all or a portion of the Work, the Contractor shall not be entitled to any further payment until the Work is finished. If the expense of finishing the Work, including compensation for additional managerial and administrative services of the Port, exceeds the unpaid balance of the Contract Sum, the excess shall be paid by the Contractor.
- C. Port's remedies following termination for cause. The Port may exercise any rights, claims, or demands that the Contractor may have against third persons in connection with the Contract, and for this purpose the Contractor assigns and transfers to the Port all such rights, claims, and demands.
- D. Inadequate termination for cause converted to termination for convenience. If, after the Contractor has been terminated for cause, it is determined that inadequate "cause" for such termination exists, then the termination shall be considered a termination for convenience pursuant to Section 9.03.

9.03 TERMINATION OF CONTRACT FOR CONVENIENCE BY THE PORT

- A. Port may terminate for convenience. The Port may, at any time (without prejudice to any right or remedy of the Port), terminate all, or any portion of, the Contract for the Port's convenience and without cause. The Contractor shall be entitled to receive payment consistent with the Contract Documents only for Work properly executed through the date of termination, and costs necessarily incurred by reason of the termination (such as the cost of settling and paying claims arising out of the termination under subcontracts or orders), along with a fee of one percent (1%) of the Contract Sum not yet earned on the whole or part of the Work. The total amount to be paid to the Contractor shall not exceed the Contract Sum as reduced by the amount of payments otherwise made. The Port shall have title to all Work performed through the date of termination.

9.04 TERMINATION OF CONTRACT BY THE CONTRACTOR

- A. Contractor may terminate for cause. The Contractor may terminate the Contract if the Work is stopped for a period of sixty (60) consecutive days through no act or fault of the Contractor or a Subcontractor of any tier, for either of the following reasons:
 - 1. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped; or
 - 2. An act of government, such as a declaration of national emergency, that requires all Work to be stopped.
- B. Procedure for Contractor termination. If one of the reasons described in Section 9.04A exists, the Contractor may, upon seven (7) days' written notice to the Port (during which period the Port has the opportunity to cure), terminate the Contract and recover from the Port payment for Work executed through the date of termination in accordance with the Contract Documents and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead and profit on Work executed and direct costs incurred by reason of such termination. The total recovery of the Contractor shall not exceed the unpaid balance of the Contract Sum.
- C. Contractor may stop the Work for failure of Port to pay undisputed amounts. The Contractor may stop Work under the Contract if the Port does not pay undisputed amounts due and owing to the Contractor within fifteen (15) days of the date established in the Contract Documents. If the Port fails to pay undisputed amounts, the Contractor may, upon fifteen (15) additional days' written notice to the Port, during which the Port can cure, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately, and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay, and start-up.

9.05 SUBCONTRACT ASSIGNMENT UPON TERMINATION

- A. Subcontracts assigned upon termination. Each subcontract is hereby assigned by the Contractor to the Port provided that:
 - 1. The Port requests that the subcontract be assigned.
 - 2. The assignment is effective only after termination by the Port and only for those subcontracts that the Port accepts in writing.
 - 3. The assignment is subject to the prior rights of the surety, if any, under any bond issued in accordance with the Contract Documents.

When the Port accepts the assignment of a subcontract, the Port assumes the Contractor's rights and obligations under the subcontract, but only for events and payment obligations that arise after the date of the assignment.

ARTICLE 10 - BONDS

10.01 CONTRACTOR PERFORMANCE AND PAYMENT BONDS

- A. Contractor to furnish performance and payment bonds. Within ten (10) days following its receipt of a notice of award, and as part of the Contract Sum, the Contractor shall secure and furnish duly executed performance and payment bonds using the forms furnished by the Port. The bonds shall be executed by a surety (or sureties) reasonably acceptable to the Port, admitted and licensed in the State of Washington, registered with the Washington State Insurance Commissioner, and possessing an A.M. Best rating of "A-, FSC (6)" or better and be authorized by the U.S. Department of the Treasury. Pursuant to RCW 39.08, the bonds shall be in an amount equal to the Contract Sum, and shall be conditioned only upon the faithful performance of the Contract by the Contractor within the Contract Time and upon the payment by the Contractor of all taxes, fees, and penalties to the State of Washington and all laborers, Subcontractors, and suppliers, and others who supply provisions, equipment, or supplies for the performance of the Work covered by this Contract. The bonds shall be signed by the person or persons legally authorized to bind the Contractor.
- B. On contracts of one hundred fifty thousand dollars or less, at the option of the contractor as defined in RCW 39.10.210, the Port may, in lieu of the bond, retain ten percent of the contract amount for a period of thirty days after date of final acceptance, or until receipt of all necessary releases from the department of revenue, the Employment Security Department, and the Department of Labor and Industries and settlement of any liens filed under chapter 60.28 RCW, whichever is later. The recovery of unpaid wages and benefits must be the first priority for any actions filed against retainage held by a state agency or authorized local government.

For contracts of one hundred fifty thousand dollars or less, the Port may accept a full payment and performance bond from an individual surety or sureties.
- C. Port may notify surety. If the Port makes or receives a claim against the Contractor, the Port may, but is not obligated to, notify the Contractor's surety of the nature and amount of the claim. If the claim relates to a possibility of a Contractor's default, the Port may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

ARTICLE 11 - DISPUTE RESOLUTION

11.01 NOTICE OF PROTEST AND CLAIM

- A. Dispute resolution procedure mandatory. All claims, direct or indirect, arising out of, or relating to, the Contract Documents or the breach thereof, shall be decided exclusively by the following alternative dispute resolution procedure, unless the parties mutually agree otherwise. If the Port and Contractor agree to a partnering process to assist in the resolution of disputes, the partnering process shall occur prior to, and not be in place of, the mandatory dispute resolution procedures set forth below.

- B. Notice of protest defined. Except for claims requiring notice before proceeding with the affected Work as otherwise described in the Contract Documents, the Contractor shall provide immediate oral notice of protest to the Engineer prior to performing any disputed Work and shall submit a written notice of protest to the Port within seven (7) days of the occurrence of the event giving rise to the protest that includes a clear description of the event(s). The protest shall identify any point of disagreement, those portions of the Contract Documents believed to be applicable, and an estimate of quantities and costs involved. When a protest relates to cost, the Contractor shall keep full and complete records and shall permit the Port to have access to those records at any time as requested by the Port.
- C. Claim defined. A claim is a demand by one of the parties seeking adjustment or interpretation of the Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract Documents. The term "claim" also includes all disputes and matters in question between the Port and Contractor arising out of, or relating to, the Contract Documents. Claims must be initiated in writing and include a detailed factual statement and clear description of the claim providing all necessary dates, locations, and items of Work, the date or dates on which the events occurred that give rise to the claim, the names of employees or representatives knowledgeable about the claim, the specific provisions of the Contract Documents that support the claim, any documents or oral communications that support the claim, any proposed change in the Contract Sum (showing all components and calculations) and/or Contract Time (showing cause and analysis of the resultant delay in the critical path), and all other data supporting the claim. Claims shall also be submitted with a statement certifying, under penalty of perjury, that the claim as submitted is made in good faith, that the supporting cost and pricing data are true and accurate to the best of Contractor's knowledge and belief, that the claim is fully supported, and that the amount requested accurately reflects the adjustment in the Contract Sum or Contract Time for which Contractor believes the Port is liable. A claim shall be deemed to include all changes, direct and indirect, in cost and in time to which the Contractor and Subcontractors of any tier are entitled and may not contain reservations of rights without the Port's written approval; any unapproved reservations of rights shall be without effect.
- D. Claim procedure. The Contractor shall submit a written claim within thirty (30) days of providing written notice of protest. The Contractor may delay submitting supporting data by an additional thirty (30) days if it notifies the Port in its claim that substantial data must be assembled. Any claim of a Subcontractor of any tier may be brought only through, and after review by and concurrence of, the Contractor.
- E. Failure to comply with notice of protest and claim requirements waives claims. Any notice of protest by the Contractor and any claim of the Contractor, whether under the Contract or otherwise, must be made pursuant to, and in strict accordance with, the applicable provisions of the Contract. Failure to properly and timely submit a notice of protest or to timely submit a claim shall waive the claim. No act, omission, or knowledge, actual or constructive, of the Port shall waive the requirement for timely written notice of protest and a timely written claim, unless the Port and the Contractor sign an explicit, unequivocal written waiver approved by the Port. The Contractor expressly acknowledges and agrees that the Contractor's failure to timely submit required notices of protest and/or timely submit claims has a substantial impact upon, and prejudices, the Port. For the purpose of calculating time periods, an "event giving rise to a claim," among other things, is not a Request for Information, but rather is a response that the Contractor believes would change the Contract Sum and/or Contract Time.

- F. False claims. The Contractor shall not make any fraudulent misrepresentations, concealments, errors, omissions, or inducements to the Port in the formation or performance of the Contract. If the Contractor or a Subcontractor of any tier submits a false or frivolous claim to the Port, which for purposes of this Section 11.01(F) is defined as a claim based in whole or in part on a materially incorrect fact, statement, representation, assertion, or record, the Port shall be entitled to collect from the Contractor by offset or otherwise (without prejudice to any right or remedy of the Port) any and all costs and expenses, including investigation and consultant costs, incurred by the Port in investigating, responding to, and defending against the false or frivolous claim.
- G. Compliance with lien and retainage statutes required. If a claim relates to, or is the subject of, a lien or retainage claim, the party asserting the claim may proceed in accordance with applicable law to comply with the notice and filing deadlines prior to resolution of the claim by mediation or by litigation.
- H. Performance required pending claim resolution. Pending final resolution of a claim, the Contractor shall continue to perform the Contract and maintain the Baseline Project Schedule, and the Port shall continue to make payments of undisputed amounts due in accordance with the Contract Documents.

11.02 MEDIATION

- A. Claims must be subject to mediation. At any time following the Port's receipt of a written claim, the Port may require that an officer of the Contractor and the Port's designee (all with authority to settle) meet, confer, and attempt to resolve a claim. If the claim is not resolved during this meeting, the claim shall be subject to mandatory mediation as a condition precedent to the initiation of litigation. This requirement can be waived only by an explicit, written waiver signed by the Port and the Contractor.
- B. Mediation procedure. A request for mediation shall be filed in writing with the other party to the Contract, and the parties shall promptly attempt to agree upon a mediator. If the parties have not reached agreement within thirty (30) days of the request, either party may file the request with the American Arbitration Association, or such other alternative dispute resolution service to which the parties mutually agree, with a copy to the other party, and the mediation shall be administered by the American Arbitration Association (or other agreed service). The parties to the mediation shall share the mediator's fee and any filing fees equally. The mediation shall be held in Pierce County, Washington, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof. Unless the Port and the Contractor mutually agree in writing otherwise, all claims shall be considered at a mediation session that shall occur prior to Final Completion.

11.03 LITIGATION

- A. Claims not resolved by mediation are subject to litigation. Claims not resolved through mediation shall be resolved by litigation, unless the parties mutually agree otherwise. The venue for any litigation shall be Pierce County, Washington. The Contractor may bring no litigation on claims, unless such claims have been properly raised and considered in the procedures of this Article 11. The Contractor must demonstrate in any litigation that it complied with all requirements of this Article.

- B. Litigation must be commenced promptly. All unresolved claims of the Contractor shall be waived and released, unless the Contractor has complied with the requirements of the Contract Documents, and litigation is served and filed within 180 days of the date of Substantial Completion approved in writing by the Port or termination of the Contract. The pendency of mediation (the time period between receipt by the non-requesting party of a written mediation request and the date of mediation) shall toll these deadlines until the earlier of the mediator providing written notice to the parties of impasse, or thirty (30) days after the date of the mediation session.
- C. Port not responsible for attorneys' fees. Neither the Contractor nor a Subcontractor of any tier, whether claiming under a bond or lien statute or otherwise, shall be entitled to attorneys' fees directly or indirectly from the Port (but may recover attorneys' fees from the bond or statutory retainage fund itself to the extent allowable under law).
- D. Port may join Contractor in dispute. The Port may join the Contractor as a party to any litigation or arbitration involving the alleged fault, responsibility, or breach of contract of the Contractor or Subcontractor of any tier.

ARTICLE 12 - MISCELLANEOUS

12.01 GENERAL

- A. Rights and remedies are cumulative. The rights and remedies of the Port set forth in the Contract Documents are cumulative, and in addition to and not in limitation of, any rights and remedies otherwise available to the Port. The pursuit of any remedy by the Port shall not be construed to bar the Port from the pursuit of any other remedy in the event of similar, different, or subsequent breaches of this Contract. All such rights of the Port shall survive completion of the Project or termination of the Contractor.
- B. Reserved rights do not give rise to duty. The rights reserved or possessed by the Port to take any action shall not give rise to a duty for the Port to exercise any such right.

12.02 WAIVER

- A. Waiver must be in writing and authorized by Port. Waiver of any provisions of the Contract Documents must be in writing and authorized by the Port. No other waiver is valid on behalf of the Port.
- B. Inaction or delay not a waiver. No action, delay in acting, or failure to act by the Port shall constitute a waiver of any right or remedy of the Port, or constitute an approval or acquiescence of any breach or defect in the Work, nor shall any delay or failure of the Port to act waive or otherwise prejudice the right of the Port to enforce a right or remedy at any subsequent time.
- C. Claim negotiation not a waiver. The fact that the Port and the Contractor may consider, discuss, or negotiate a claim that has or may have been defective or untimely under the Contract, shall not constitute a waiver of the provisions of the Contract Documents, unless the Port and the Contractor sign an explicit, unequivocal waiver.

12.03 GOVERNING LAW

- A. Washington law governs. This Contract and the rights and duties of the parties hereunder shall be governed by the internal laws of the State of Washington, without regard to its conflict of law principles.

12.04 COMPLIANCE WITH LAW

- A. Contractor to comply with applicable laws. The Contractor shall at all times comply with all applicable Federal, State and local laws, ordinances, and regulations. This compliance shall include, but is not limited to, the payment of all applicable taxes, royalties, license fees, penalties, and duties.
- B. Contractor to provide required notices. The Contractor shall give notices required by all applicable Federal, State and local laws, ordinances, and regulations bearing on the Work.
- C. Contractor to confine operations at site to permitted areas. The Contractor shall confine operations at the Project site to areas permitted by applicable laws, ordinances, permits, rules and regulations, and lawful orders of public authorities and the Contract Documents.

12.05 ASSIGNMENT

- A. Assignment. The Port and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party and to the partners, successors, assigns, and legal representatives of such other party. The Contractor may not assign, transfer, or novate all or any portion of the Contract, including but not limited to, any claim or right to the Contract Sum, without the Port's prior written consent. If the Contractor attempts to make an assignment, transfer, or novation without the Port's consent, the assignment shall be of no effect, and Contractor shall nevertheless remain legally responsible for all obligations under the Contract. The Contractor also shall not assign or transfer, to any third party, any claims it may have against the Port arising under the Contract or otherwise related to the Project.

12.06 TIME LIMIT ON CAUSES OF ACTION

- A. Time limit on causes of action. The Port and Contractor shall commence all causes of action, whether in contract, tort, breach of warranty, or otherwise, against the other arising out of, or related to, the Contract in accordance with the requirements of the dispute resolution procedure set forth in Article 11 of these General Conditions, within the time period specified by applicable law, and within the time limits identified in the Contract Documents. The Contractor waives all claims and causes of action not commenced in accordance with this Section 12.06.

12.07 SERVICE OF NOTICE

- A. Notice. Written notice under the Contract Documents by either the Contractor or Port may be served on the other party by personal service, electronic or facsimile transmission, or delivery service to the last address provided in writing to the other party. For the purpose of measuring time, notice shall be deemed to be received by the other party on the next business day following the sender's electronic or facsimile transmittal or delivery by delivery service.

12.08 RECORDS

- A. Contractor and Subcontractors to maintain records and cooperate with Port audit. The Contractor and Subcontractors of any tier shall maintain books, ledgers, records, documents, estimates, bids, correspondence, logs, schedules, emails, and other tangible and electronic data and evidence relating or pertaining to costs and/or performance of the Contract ("records") to such extent, and in such detail, as will properly reflect and fully support compliance with the Contract Documents and with all costs, charges, and other amounts of whatever nature. The Contractor shall preserve these records for a period of six (6) years following the date of Final Acceptance under the Contract. Within seven (7) days of the Port's request, both during the Project and for six (6) years following Final Acceptance, the Contractor and Subcontractors of any tier shall make available, at their office during normal business hours, all records for inspection, audit, and reproduction (including electronic reproduction) by the Port or its representatives; failure to fully comply with this requirement shall constitute a material breach of contract and a waiver of all claims by the Contractor and Subcontractors of any tier.
- B. Rights under RCW 42.56. The Contractor agrees, on behalf of itself and Subcontractors of any tier, that any rights under Chapter 42.56 RCW will commence at Final Acceptance, and that the invocation of such rights at any time by the Contractor or a Subcontractor of any tier, or their respective representatives, shall initiate an equivalent right to disclosures from the Contractor and Subcontractors of any tier for the benefit of the Port.

12.09 STATUTES

- A. Contractor to comply with Washington statutes. The Contractor shall abide by the provisions of all applicable statutes, regulations, and other laws. Although a number of statutes are referenced in the Contract Documents, these references are not meant to be, and are not, a complete list.
 - 1. Pursuant to RCW 39.06, "Registration, Licensing of Contractors," the Contractor shall be registered and licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27, "Registration of Contractors," and shall satisfy all State of Washington bonding and insurance requirements. The Contractor shall also have a current state Unified Business Identifier number; have industrial insurance coverage for the Contractor's employees working in Washington as required by Title 51 RCW; have an Employment Security Department number as required by Title 50 RCW; have a state excise tax registration number as required in Title 82 RCW; and not be disqualified from bidding on any public works contract under RCW 39.06.010 (unregistered or unlicensed contractors) or RCW 39.12.065(3) (prevailing wage violations).
 - 2. The Contractor shall comply with all applicable provisions of RCW 49.28, "Hours of Labor."
 - 3. The Contractor shall comply with pertinent statutory provisions relating to public works of RCW 49.60, "Discrimination."
 - 4. The Contractor shall comply with pertinent statutory provisions relating to public works of RCW 70.92, "Provisions in Buildings for Aged and Handicapped Persons," and the Americans with Disabilities Act.
 - 5. Pursuant to RCW 50.24, "Contributions by Employers," in general, and RCW 50.24.130 in particular, the Contractor shall pay contributions for wages for personal services performed under this Contract or arrange for an acceptable bond.
 - 6. The Contractor shall comply with pertinent provisions of RCW 49.17, "Washington Industrial Safety and Health Act," and Chapter 296-155 WAC, "Safety Standards for Construction Work."

7. Pursuant to RCW 49.70, "Worker and Community Right to Know Act," and WAC 296-62-054 et seq., the Contractor shall provide to the Port, and have copies available at the Project site, a workplace survey or material safety data sheets for all "hazardous" chemicals under the control or use of Contractor or any Subcontractor of any tier.
8. All products and materials incorporated into the Project as part of the Work shall be certified as "asbestos-free" and "lead-free" by United States standards, and shall also be free of all hazardous materials or substances. At the completion of the Project, the Contractor shall submit certifications of asbestos-free and of lead-free materials certifying that all materials and products incorporated into the Work meet the requirements of this Section, and shall also certify that materials and products incorporated into the Work are free of hazardous materials and substances.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes requirements for the Contractor's insurance.

1.02 SUBMITTAL REQUIREMENTS

- A. Evidence of the required insurance within ten (10) days of the issued Notice of Award to the Contractor.
- B. Updated evidence of insurance as required until final completion.

1.03 COMMERCIAL GENERAL LIABILITY (CGL) INSURANCE

- A. The Contractor shall secure and maintain until Final Completion, at its sole cost and expense, the following insurance in carriers reasonably acceptable to the Port, licensed in the State of Washington, registered with the Washington State Insurance Commissioner, and possessing an A.M. Best rating of "A-, FSC six (6)" or better.
- B. The Port of Tacoma (Port) and the Northwest Seaport Alliance (NWSA) will be included as additional insureds for both ongoing and completed operations by endorsement to the policy using ISO Form CG 20 10 11 85 or forms CG 20 10 04 13 and CG 20 37 04 13 (or equivalent coverage endorsements). The inclusion of the Port and the NWSA as additional insureds shall not create premium liability for either the Port nor the NWSA.

Also, by endorsement to the policy, there shall be:

- 1. An express waiver of subrogation in favor of the Port;
 - 2. A cross liabilities clause; and
 - 3. An endorsement stating that the Contractor's policy is primary and not contributory with any insurance carried by the Port.
- C. If the Contractor, Supplier, or Subcontractors will perform any work requiring the use of a licensed professional, per RCW 18, the Contractor shall provide evidence to the Port of professional liability insurance in amounts not less than \$1,000,000.
 - D. This insurance shall cover all of the Contractor's operations, of whatever nature, connected in any way with the Contract, including any operations performed by the Contractor's Subcontractors of any tier. **It is the obligation of the Contractor to ensure that all Subcontractors (at whatever level) carry a similar program that provides the identified types of coverage, limits of liability, inclusion of the Port and the NWSA as additional insured(s), waiver of subrogation and cross liabilities clause.** The Port reserves the right to reject any insurance policy as to company, form, or substance. Contractor's failure to provide, or the Port's acceptance of, the Contractor's certificate of insurance does not waive the Contractor's obligation to comply with the insurance requirements of the Contract as specifically described below:
 - 1. Commercial General Liability Insurance on an Occurrence Form Basis including, but not limited to:
 - a. Bodily Injury Liability;
 - b. Property Damage Liability;
 - c. Contractual Liability;

- d. Products - Completed Operations Liability;
- e. Personal Injury Liability;

Alternatively, a Commercial General Liability (CGL) policy is acceptable if all of the above coverages are incorporated in the policy and there are no marine exclusions that will remove coverage for either vessels or work done by or above or around the water.

- 2. Comprehensive Automobile Liability including, but not limited to:
 - a. Bodily Injury Liability;
 - b. Property Damage Liability;
 - c. Personal Injury Liability;
 - d. Owned and Non-Owned Automobile Liability; and
 - e. Hired and Borrowed Automobile Liability.
- 3. Technology Professional Liability Errors and Omissions Insurance appropriate to the Consultant's profession and work hereunder, with limits not less than \$2,000,000 per occurrence. Coverage shall be sufficiently broad to respond to the duties and obligations as is undertaken by the Vendor in this agreement and shall include, but not be limited to, claims involving infringement of intellectual property, copyright, trademark, invasion of privacy violations, information theft, release of private information, extortion and network security. The policy shall provide coverage for breach response costs as well as regulatory fines and penalties as well as credit monitoring expenses with limits sufficient to respond to these obligations.

The policy shall include, or be endorsed to include, **property damage liability coverage** for damage to, alteration of, loss of, or destruction of electronic data and/or information "property" of the Agency in the care, custody, or control of the Vendor.

- E. Except where indicated above, the limits of all insurance required to be provided by the Contractor shall be not less than \$2,000,000 for each occurrence. If the coverage is aggregated, the coverage shall be no less than two times the per occurrence or per claim limit. However, coverage in the amounts of these minimum limits shall not be construed as to relieve the Contractor from liability in excess of such limits. Any additional insured endorsement shall NOT be limited to the amounts specified by this Contract, unless expressly waived in writing by the Port.
- F. Contractor shall certify that its operations are covered by the Washington State Worker's Compensation Fund. The Contractor shall provide its Account Number or, if self-insured, its Certificate of Qualification Number. The Contractor shall also provide evidence of Stop-Gap Employers' Liability Insurance.
- G. The Contractor shall furnish, within ten (10) days following issuance of the Notice of Award, a certificate of insurance satisfactory to the Port evidencing that insurance in the types and minimum amounts required by the Contract Documents has been secured. The Certificate of Insurance shall be signed by an authorized representative of the insurer together with a copy of the endorsement, which shows that the Port and the NWSA are named as additional insured(s).
- H. Contractor shall provide at least forty-five (45) days prior written notice to the Port of any termination or material change, or ten (10) day's-notice in the case of non-payment of premium(s).

- I. If the Contractor is required to make corrections to the Work after Final Completion, the Contractor shall obtain at its own expense, prior to the commencement of any corrective work, insurance coverage as required by the Contract Documents, which coverage shall be maintained until the corrections to the Work have been completed and accepted by the Port.

1.04 BUILDER'S RISK INSURANCE

- A. Until Final Completion of the Work, the construction Work is at the risk of the Contractor and no partial payment shall constitute acceptance of the Work or relieve the Contractor of responsibility of completing the Work under the Contract.
- B. To the extent the Work provided under this Contract does not include the construction, rehabilitation or repair of any dam, road or bridge, and whenever the estimated cost of the Work is less than \$25,000,000, the Port and Contractor acknowledge that the Port will purchase, or has purchased, from a company or companies lawfully authorized and admitted to do business in Washington, property insurance written on a Builder's Risk "all-risk" (including Earthquake and Flood with applicable sub-limits) or equivalent policy form to cover the course of construction in the amount of the full insurable value thereof. This property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the Port has an insurable interest in the property, whichever is later. Without further endorsement, the coverage afforded by this insurance includes the interests of the Port, the Contractor, and Subcontractors of any tier on the Project. Coverage for materials intended to be installed in the facility will be covered by the Builder's Risk policy. Losses up to the deductible amount, and payment of any deductible amount, shall be the responsibility of the Contractor. All tools and equipment not intended as part of the construction or installation (including but not limited to Contractor's equipment and tools) will NOT be covered by the policy.

To the extent the Work provided under this Contract involves any dam, roadway or bridge, the value of which exceeds \$250,000, or whenever the estimated cost of the Work is equal to or greater than \$25,000,000, Contractor will purchase from a company or companies lawfully authorized and admitted to do business in Washington, property insurance written on a Builder's Risk "all-risk" (excluding Earthquake and Flood with applicable sub-limits) or equivalent policy form to cover the course of construction in the amount of the full insurable value thereof. This Builder's Risk insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the Port has an insurable interest in the property, whichever is later. Contractor shall provide evidence satisfactory to the Port confirming the coverage afforded by this insurance shall include the interests of the Port, the Contractor, and Subcontractors of any tier on the Project. Coverage for materials intended to be installed in the facility will be covered by the Builder's Risk policy purchased by the Contractor. Losses up to the deductible amount, and payment of any deductible amount, shall be the responsibility of the Contractor.

In all instances, the Contractor shall obtain property insurance for all Contractor-owned equipment and tools and, in the event of loss, payment of any deductible amount shall be the responsibility of the Contractor.

PART 2 - PRODUCTS - NOT USED

PART 3 - PRODUCTS - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 PREVAILING AND OTHER REQUIRED WAGES

- A. The Contractor shall pay (and shall ensure that all Subcontractors of any tier pay) all prevailing wages and other wages (such as Davis-Bacon Act wages) applicable to the Project.
- B. Pursuant to RCW 39.12, "Prevailing Wages on Public Works," no worker, laborer, or mechanic employed in the performance of any part of the Work shall be paid less than the "prevailing rate of wage" in effect as of the date that bids are due.
 - 1. Based on the Bid Date, the applicable effective date for prevailing wages for this Project is December 2, 2025.
- C. The State of Washington prevailing wage rates applicable for this public works Project, which is located in Pierce County, may be found at the following website address of the Department of Labor and Industries:

<https://www.lni.wa.gov/licensing-permits/public-works-projects/prevailing-wage-rates/>
- D. The schedule of the prevailing wage rates is made a part of the Contract Documents by reference as though fully set forth herein, and a printed copy of the applicable prevailing wage rates are also available for viewing at the Port Administration Building, located at 1 Sitcum Plaza, Tacoma, WA 98421 (253-383-5841). Upon request to the Procurement Department at procurement@portoftacoma.com, the Port will email or mail a hard copy of the applicable Journey Level prevailing wages for this Project.
- E. Questions relating to prevailing wage data should be addressed to the Industrial Statistician.
 - Mailing Address: Washington State Department of Labor and Industries
Prevailing Wage Office
P.O. Box 44540
Olympia, WA 98504
 - Telephone: (360) 902-5335
 - Facsimile: (360) 902-5300
 - 1. If there is any discrepancy between the provided schedule of prevailing wage rates and the published rates applicable under WAC 296-127-011, the applicable published rates shall apply with no increase in the Contract Sum. It is the Contractor's responsibility to ensure that the correct prevailing wage rates are paid.
- F. Statement to Pay Prevailing Wages
 - 1. Prior to any payment being made by the Port under this Contract, the Contractor, and each Subcontractor of any tier, shall file a Statement of Intent to Pay Prevailing Wages with the Department of Labor and Industries for approval.
 - 2. The statement shall include the hourly wage rate to be paid to each classification of workers entitled to prevailing wages, which shall not be less than the prevailing rate of wage, and the estimated number of workers in each classification employed on the Project by the Contractor or a Subcontractor of any tier, as well as the Contractor's contractor registration number and other information required by the Department of Labor and Industries.

3. The statement, and any supplemental statements, shall be filed in accordance with the requirements of the Department of Labor and Industries. No progress payment shall be made until the Port receives such certified statement.
- G. The Contractor shall post, in a location readily visible to workers, at the Project site: (i) a copy of the Statement of Intent to Pay Prevailing Wages approved by the Industrial Statistician of the Department of Labor and Industries and (ii) the address and telephone number of the Industrial Statistician of the Department of Labor and Industries to whom a complaint or inquiry concerning prevailing wages may be directed.
- H. If a State of Washington prevailing wage rate conflicts with another applicable wage rate (such as Davis-Bacon Act wage rate) for the same labor classification, the higher of the two shall govern.
- I. Pursuant to RCW 39.12.060, if any dispute arises concerning the appropriate prevailing wage rate for work of a similar nature, and the dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries, and his or her decision shall be final and conclusive and binding on all parties involved in the dispute.
- J. Immediately following the end of all Work completed under this Contract, the Contractor and each Subcontractor of any tier, shall file an approved Affidavit of Wages Paid with the Department of Labor and Industries.
- K. The Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Port harmless from all liabilities, obligations, claims, demands, damages, disbursements, lawsuits, losses, fines, penalties, costs, and expenses, whether direct, indirect, including, but not limited to, attorneys' fees and consultants' fees and other costs and expenses, from any violation or alleged violation by the Contractor or any Subcontractor of any tier of RCW 39.12 ("Prevailing Wages on Public Works") or RCW Title 51 ("Industrial Insurance"), including, but not limited to, RCW 51.12.050.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 REQUIREMENTS APPLICABLE PORT-WIDE

- A. The Contractor shall submit, prior to the start of Work, a list of emergency contact numbers for itself and its Subcontractors, Suppliers, and manufacturer representatives. Each person on the Project site shall have a valid identification card that is tamper proof with laminated photo identification, such as one (1) of the following:
 - 1. State-issued Driver's license (also required if driving a vehicle)
 - 2. Card issued by a governmental agency
 - 3. Passport
 - 4. Pacific Maritime Association card
 - 5. Labor organization identification card
- B. Identification cards shall be visible while on the Project site or easily displayed when requested.

1.02 TRANSPORTATION WORKER IDENTIFICATION CARD (TWIC) SUMMARY

- A. TWIC is required for all personnel needing unescorted access to secure and restricted areas of Port facilities subject to 33 CFR 105, including truckers, surveyors, construction personnel, and delivery personnel. Secure areas are those areas with security measures for access control in accordance with a Coast Guard approved security plan. Restricted areas are those areas within a secure area that require increased limited access and a higher degree of security protection. New terminals under construction prior to terminal operations may not be designated secure areas. Construction on existing maritime transportation facilities and punchlist or other type of work requirements on facilities that have been certified under 33 CFR will require a TWIC.
- B. Contractors should allow for application and enrollment for the security threat assessment and issuance of TWIC when submitting a bid.

1.03 ESCORTING

- A. To access restricted Port facilities, all un-credentialed individuals must be accompanied by a person who has been issued a TWIC and trained as an escort at that specific facility. Each restricted facility has their own guidelines for escorting. Having escort training at one facility does not qualify you to escort at other facilities. Prior to conducting escort services for non-TWIC personnel, the escorts are required to contact the Facility Security Officer at the gate for verification they are on the escort list and to document who is being escorted. For required documentation, upon completion of escorting, the escort is to inform the Security officer that the escort is complete. It is the Contractor's responsibility to schedule escort training with the Facility Security Officer.
- B. For more information, refer to the Port Security website at:
<http://www.portoftacoma.com/shipping/security>
- C. For Project specific information, refer to Section 01 14 00 - Work Restrictions.

1.04 ELIGIBILITY FOR TWIC

- A. Refer to the Transportation Worker Identification Credential website at: <https://www.tsa.gov/for-industry/twic> for information on eligibility and applying for TWIC.

1.05 TWIC USE AND DISPLAY

- A. Each worker granted unescorted access to secure areas of a facility or vessel must present their cards to authorized personnel, who will compare the holder to his or her photo, inspect security features on the TWIC, and evaluate the card for signs of tampering. The Coast Guard will verify TWIC's when conducting vessel and facility inspections and during spot checks using hand-held scanners, ensuring credentials are valid.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SCOPE

- A. The accompanying Drawings and Specifications show and describe the location and type of Work to be performed under this project. Work is more specifically defined on the drawings listed in Section 00 01 15.
 - 1. The Work under this contract is to provide, furnish and install all labor, materials and equipment required to complete the work, installed, tested, and ready for use, and as described in these documents.
 - 2. The West Sitcum Main Substation Replacement consists of:
- B. The accompanying Specifications describe the location and type of Work to be performed under this project.
 - 1. The Work under this contract is to provide, furnish and install all labor, materials and equipment required to complete the work, installed, tested, and ready for use, and as described in these documents.
 - 2. The West Sitcum Main Substation Replacement consists of:
 - a.

1.02 LOCATION

- A. The work is located at:
 - 1002 Milwaukee Way
 - Tacoma, WA 98421

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies work sequence and constraints.
- B. The purpose of the milestones, sequence and limitations of construction are to ensure that the Contractor understands the requirements and limitations on its work by the specific characteristics of the Contract, schedules and conducts work in a manner consistent with achieving these purposes, and complies with the construction schedule, the specific sequence, constraints, milestones and limitations of work specified.
- C. Sequence of construction. Plan the sequence of construction to accommodate all the requirements of the specifications. The Contract Price shall include all specified requirements as described in this Section.

1.02 CONTRACTOR ACCESS AND USE OF PREMISES

- A. Activity Regulations
 - 1. Ensure Contractor personnel deployed to the project become familiar with and follow all regulations or restrictions established by the Engineer.
- B. Working Facility
 - 1. The Facility will remain in operation for the duration of construction. The Contractor shall conduct all items of the Work in such a manner as to prevent interference with the normal operations of the Facility.
 - 2. TWIC Escorting Requirements:
 - a. Designated Escorts must undergo training with SSA Terminal Operator.
 - 3. All truck drive lanes must be available to terminal operations each Wednesday and Friday. No obstructions or open trenching may impede terminal operations during these times. Plan all trenching and asphalt demolition/restoration activities to occur Saturday through Tuesday.
- C. Work Site Regulations
 - 1. Keep within the limits of work and assigned avenues of ingress and egress. Do not enter any areas outside the designated work location unless previously approved by the Engineer. The Contractor must comply with the following conditions:
 - a. Restore all common areas to a clean and useable condition that permits the resumption of Tenant operations after the Contractor ceases daily work.
 - b. Be responsible for control and security of Contractor-owned equipment and materials at the work site. Report to Port Security (phone (253) 383-9472) any missing/lost/stolen property.
 - c. Ensure all materials, tools and equipment will be removed from the site or secured within the designated laydown area at the end of each shift.

1.03 CONSTRAINTS - GENERAL

- A. Constraints for Work at Site
 - 1. Electrical Work Constraints:

- a. Electrical service to terminal cranes must not be interrupted
 - b. Current electrical infrastructure must remain operational until the new substation is ready to be put into service. All service disruptions must be coordinated with Port of Tacoma and SSA Terminal operations.
2. Other:
- a. Drive lanes must be available and accessible to terminal operations each Wednesday and Friday for the duration of the project.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Procedures for preparation and submittal of applications for progress payments.

1.02 PAYMENT PROCEDURES

- A. Monthly pay estimates shall clearly identify the work performed for the given time period based on the approved Schedule of Values.
 - 1. At the Pre-construction meeting, the Engineer and the Contractor shall agree upon a date each month when payment applications shall be submitted.
- B. For each pay estimate the Contractor shall submit the following:
 - 1. Completed Contractor invoice and updated Schedule of Values tracking sheet as required by Division 01 or as established by the Engineer.
 - 2. Baseline Project Schedule and narrative updated as required by Section 01 32 16 of the Project Manual.
 - 3. Completed "Amounts Paid to Subcontracts and Suppliers" showing total contract amount, amount paid this estimate, total paid to date, and balance owing.
 - 4. Completed "Conditional Release and Waiver of Liens and Claims."
 - 5. An estimated cashflow statement projecting the Contractor's monthly billings on the project shall be submitted with each payment application.
- C. Prior to submitting a payment application, the Contractor and Engineer shall meet each month to review the work accomplished to determine the actual quantities including labor, materials and equipment charges to be billed.
 - 1. Prior to the payment application meeting, the Contractor shall submit to the Engineer all measurement documentation as referenced in these contract documents; to include all measurement by weight, volume or field.
 - 2. For all change work being done on a force account basis, the Contractor shall submit prior to meeting with Engineer all Force Account back-up documentation as required to process the payment application where Force Account work is being billed. The Engineer and the Contractor shall review the documentation at the payment application meeting to verify quantities and review the work accomplished.
 - 3. The Contractor shall bring a copy of all documentation to the pay application meeting with the Engineer.
 - 4. The Contractor shall submit the updated baseline project schedule for review prior to submitting the payment application to ensure the payment processing is not held up due to necessary schedule revisions.
- D. Following the Engineers' review, the Contractor shall submit the agreed upon pay estimate electronically, with complete supporting documentation, using e-Builder®.

1.03 PAYMENT PRICING

- A. Pricing for the various lump sum or unit prices in the Bid Form, as further specified herein, shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the work in accordance with the requirements of the Contract Documents.
- B. Pricing also includes all costs of compliance with the regulations of public agencies having jurisdiction, including safety and health requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).
- C. No separate payment will be made for any item that is not specifically set forth in the Bid Form, and all costs therefore shall be included in the prices named in the Bid Form for the various appurtenant items of work.
- D. All other work not specifically mentioned in the measurement and payment sections identified below shall be considered incidental to the work performed and merged into the various unit and lump sum prices bid. Payment for work under one item will not be paid for under any other item.
- E. The Port of Tacoma reserves the right to make changes should unforeseen conditions necessitate such changes. Where work is on a unit price basis, the actual quantities occasioned by such changes shall govern the compensation.

1.04 LUMP SUM MEASUREMENT

- A. Lump sum measurement will be for the entire item, unit of Work, structure, or combination thereof, as specified and as indicated in the Contractor's submitted bid.
 - 1. If the Contractor requests progress payments for lump sum items, such progress payments will be made in accordance with an approved Schedule of Values. The quantity for payment for completed work shall be an estimated percentage of the lump sum amount, agreed to between the Engineer and Contractor, payable in monthly progress payments in increments proportional to the work performed in amounts as agreed between the Engineer and the Contractor.

1.05 MEASUREMENT OF QUANTITIES FOR UNIT PRICES

- A. Measurement Standards:
 - 1. All Work to be paid for at a contract price per unit measurement, as indicated in the Contractor's submitted bid, will be measured by the Engineer in accordance with United States Standard Measures.
- B. Measurement by Weight:
 - 1. Reinforcing steel, steel shapes, castings, miscellaneous metal, metal fabrications, and similar items to be paid for by weight shall be measured by scale or by handbook weights for the type and quantity of material actually furnished and incorporated into the Work.

2. Unless shipped by rail, material to be measured and paid for by weight shall be weighed on sealed scales regularly inspected by the Washington State Department of Agriculture's Weights and Measures Section or its designated representative. Measurement shall be furnished by and at the expense of the Contractor. All weighing, measuring, and metering devices shall be suitable for the purpose intended and shall conform to the tolerances and specifications as outlined in Washington State Department of Transportation Standard Specifications, Division 1, General Requirements, Article 1-09.2, Weighing Equipment.
 3. Provide or utilize platform scales of sufficient size and capacity to permit the entire vehicle or combination of vehicles to rest on the scale platform while being weighed. Combination vehicles may be weighed as separate units provided they are disconnected while being weighed. Scales shall be inspected and certified as often as the Engineer may deem necessary to ascertain accuracy. Costs incurred as a result of regulating, adjusting, testing, inspecting, and certifying scales shall be borne by the Contractor.
 4. A licensed weighmaster shall weigh all Contractor-furnished materials. The Engineer may be present to witness the weighing and to check and compile the daily record of such scale weights. However, in any case, the Engineer will require that the Contractor furnish weight slips and daily summary weigh sheets. In such cases, furnish a duplicate weight slip or a load slip for each vehicle weighed, and deliver the slip to the Engineer at the point of delivery of the material.
 5. If the material is shipped by rail, the certified car weights will be accepted, provided only actual weight of material will be paid for and not minimum car weights used for assessing freight tariff. Car weights will not be acceptable for material to be passed through mixing plants. Material to be measured by weight shall be weighed separately for each bid item under which it is to be paid.
 6. Trucks used to haul material being paid for by weight shall be weighed empty daily and at such additional times as the Engineer may require. Each truck shall bear a plainly legible identification mark. The Engineer may require the weight of the material be verified by weighing empty and loaded trucks on such other scales as the Engineer may designate.
- C. Measurement by Volume:
1. Measurement by volume will be by the cubic dimension indicated in the Contractor's submitted bid. Method of volume measurement will be by the unit volume in place or removed as shown on the Contract Drawings or as specified.
 2. When material is to be measured and paid for on a volume basis and it is impractical to determine the volume by the specified method of measurement, or when requested by the Contractor in writing and accepted by the Engineer in writing, the material may be weighed in accordance with the requirements specified for weight measurement. Such weights will be converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Resident Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities will be accepted.
- D. Measurement by Area: Measurement by area will be by the square dimension shown on the Contract Drawings or as specified. Method of square measurement will be as specified.
- E. Linear Measurement: Linear measurement will be by the linear dimension listed or indicated in the Contractor's submitted bid. Unless otherwise indicated, items, components, or Work to be measured on a linear basis will be measured at the centerline of the item in place.
-

F. Field Measurement for Payment:

1. The Contractor shall take all measurements by providing equipment, workers, and survey crews as required to measure quantities in accordance with the provisions for measurement specified herein. No allowance will be made for specified tolerances.
2. The Engineer will verify all quantities of Work performed by the Contractor on a unit-price basis, for progress payment purposes.

1.06 REJECTED, EXCESS, OR WASTED MATERIALS

- A. Quantities of material wasted or disposed of in a manner not called for under the Contract; rejected loads of material, including material rejected after it has been placed by reasons of the failure of the Contractor to conform to the provisions of the Contract; material not unloaded from the transporting vehicle; material placed outside the lines indicated on the Contract Drawings or established by the Engineer; or material remaining on hand after completion of the Work, will not be paid for, and such quantities shall not be included in the final total quantities. No additional compensation will be permitted for loading, hauling, and disposing of rejected material.

1.07 MEASUREMENT AND PAYMENT

A. Item #1: Mobilization and Demobilization

1. Payment for Mobilization and Demobilization shall be for preparatory work and operations performed by the Contractor including, but not limited to, those necessary for the movement of its personnel, equipment, supplies and incidentals to and from the project site; temporary facilities and controls; for the establishment and removal of its offices, buildings and other facilities necessary for work on the project; for other work and operations which it must perform or costs it must incur before beginning production work on the various items on the project site, and for removal of personnel, equipment, supplies, offices, building facilities, sheds, fencing, and other incidentals from the site.
2. Mobilization and Demobilization shall be paid at the lump sum price listed in the Contractor's submitted bid. Incremental payment shall be made for each location as follows:
 - a. 40% after completion of 5% of the total contract amount of other bid items have been earned.
 - b. 40% after completion of 20% of the total contract amount of other bid items have been earned.
 - c. 20% after completion of all work on the project has been completed, including cleanup and acceptance of the project by the Port.

B. Item #2: Project Administration

1. Item Description: The Work of this item includes all administrative costs associated with administering and supervising the project including, but not limited to supervision of personnel, coordination of all work activities, coordination of subcontractors and/or suppliers, preparation and transmittal of submittals, permit acquisitions, for premiums on bonds and insurance for the project, and project overhead.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.
- C. Item #3: Substation #1 Demolition
1. Item Description: The Work of this item includes demolition, removal and disposal of all existing materials necessary to facilitate the decommissioning of existing Substation #1 including, but not limited to, saw cutting existing pavement, asphalt removal/disposal, bollard removal, fence removal, etc.
 2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
 3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.
- D. Item #4: Substation #1 Electrical
1. Item Description: The Work of this item includes all work necessary for the installation of new electrical infrastructure at Substation #1 including procurement and installation of new switchboard, panels, transformer, panel mounting structure, power factor correction unit. Reconnection of existing loads. Substation grounding grid. Conduit for new TPU work. Misc conduit couplings, pull strings, etc.
 2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
 3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.
- E. Item #5: Substation #1 Civil.
1. Item Description: The Work of this item includes all trenching, excavation and backfilling for below grade utility work, concrete pads, bollards, guardrail, fencing, asphalt restoration
 2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
 3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.
- F. Item #6: Substation #3 Demolition
1. Item Description: The Work of this item includes demolition, removal and disposal of all existing materials necessary to facilitate the decommissioning of existing Substation #3 including, but not limited to, saw cutting existing pavement, asphalt removal/disposal, bollard removal, fence removal, etc.
 2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
 3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.
- G. Item #7: Substation #3 Electrical

1. Item Description: The Work of this item includes all work necessary for the installation of new electrical infrastructure at Suincludng procurement and installation of new switchboard, panels, transformer, panel mounting structure, power factor correction unit. Reconnection of existing loads. Substation grounding grid. Conduit for new TPU work. Misc conduit couplings, pull strings, etc.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

H. Item #8: Substation #3 Civil

1. Item Description: The Work of this item includes sawcutting of pavement, pavement removal, excavation, trenching and backfilling for conduit trenches outside of the substation footprint.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

I. Item #9: Unforeseen Conditions Allowance

1. Item Description: This contingency will be for UNFORESEEN CONDITIONS for work unidentified at the time of bid and will be paid preferably as negotiated unit price(s) or lump sum(s). If unit prices or lump sums cannot be established, work will be paid on a time and materials basis per section 00 72 00 General Conditions Article 8.0. Work under this bid item shall be accomplished upon written direction from the Engineer as a Minor Change in Work. This entire bid item may or may not be used.
2. Measurement: This item will be measured based upon the method agreed upon for each Minor Change issued.
3. Payment: This item will be paid for at the price agreed upon for each Change in Work issued by the Engineer in accordance with procedures noted in Section 01 26 00 – Change Management Procedures.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXEUCION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.02 SUBMITTALS

- A. The Contractor shall submit for approval the following documentation to the Port for force account change orders:
 - 1. List of Labor Rates
 - a. For the Contractor and each subcontractor, a list of labor rates for each trade applicable to the scope of work to be performed. These submitted rates shall be broken down to include the base wage, fringes, FICA, SUTA, FUTA, industrial insurance, and medical aid premiums as stated in the General Conditions. The rates shall not contain any travel time, safety, loss efficiency factors, overhead, or profit. Rates shall be submitted for straight time, overtime, and double time in a form acceptable to the Engineer. Contractor shall provide proof of all labor rate costs as required by the Engineer, including the submission of a copy of the most current Workers Compensation Rate Notice from Labor & Industries and a copy of the Unemployment Insurance Tax Rate notice from the Employment Security Department.
 - 1) If labor rates change during the course of the project or additional labor rates become required to complete the work, the Contractor shall submit new rates for approval.
 - 2. List of Equipment.
 - a. Submit for the Contractor and each subcontractor, a list of equipment and rates applicable to the scope of work to be performed. The equipment rates shall conform to the rates shown on Equipment Watch. A separate page from equipment watch detailing the hourly rate shall be submitted as backup documentation for each piece of equipment.
 - 1) If the list of equipment and/or equipment rates changes during the course of the project or additional equipment becomes required to complete the work, the Contractor shall submit a new list and rates for approval.

1.03 METHOD TO CALCULATE ADJUSTMENTS TO CONTRACT PRICE

- A. One of the following methods shall be used:
 - 1. Unit Price Method;
 - 2. Firm Fixed Price Method (Lump Sum); or,
 - 3. Time and Materials Method (Force Account).
- B. The Port preferred methods are firm fixed price or unit prices.

1.04 MINOR CHANGES IN THE WORK

- A. Engineer will issue a written directive authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.05 PROPOSAL REQUESTS

- A. Port-Initiated Proposal Requests: The Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
1. Work Change Proposal Requests issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.
 2. Contractor shall submit a written proposal within the time specified in the General Conditions. The proposal shall represent the Contractor's offer to perform the requested work, and the pricing set forth within the proposal shall represent full, complete, and final compensation for the proposed change and any impacts to any other Contract Work, including any adjustments in the Contract Time.
 - a. Include a breakdown of the changed work in sufficient detail that permits the Engineer to substantiate the costs.
 - 1) Generally, the cost breakdown should be divided into the time and materials categories listed in the General Conditions under Article 8.02.B for either Lump Sum Proposals or Force Account Proposals.
 - 2) For Unit Price Proposals, include the quantity and description of all work involved in the unit pricing being proposed, along with a not to exceed total cost.
 - b. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or differing site conditions require modifications to the Contract, the Contractor may initiate a claim by submitting a request for a change to the Engineer.
1. Notify the Engineer immediately upon finding differing conditions prior to disturbing the site.
 2. Provide follow-up written notification and differing site conditions proposal within the time frames set forth in the General Conditions.
 3. Provide the differing site condition change proposal in the same or similar manner as described above under 1.05.A.
 4. Comply with requirements in Section 00 26 00 Substitution Procedures if the proposed change requires substitution of one product or system for product or system specified.
 5. Proposal Request Form: Use form acceptable to Engineer.

1.06 PROCEEDING WITH CHANGED WORK

- A. The Engineer may issue a directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order per the General Conditions, Article 8.01.E.
1. The directive will contain a description of change in the Work and a not-to-exceed amount. It will designate the method to be followed to determine the change in the Contract Sum or the Contract Time.

1.07 CHANGE ORDER PROCEDURES

- A. Issuance of Change Order

1. On approval of the Contractor's proposal, and following successful negotiations, the Engineer will issue a Change Order for signature by the Contractor and execution by the Engineer.
 - a. The Contractor shall sign and return the Change Order to the Engineer within **four (4) days** following receipt of the Change Order from the Engineer. If the Contractor fails to return the signed Change Order within the allotted time, the Engineer may issue a Unilateral Change Directive.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes specifications for preparation, format, and submittal of Schedule of Values.
- B. The Schedule of Values will establish unit prices for individual items of work.
- C. The Schedule of Values will be the basis for payment of contract work.

1.02 PREPARATION

- A. To facilitate monthly pay requests, develop the Schedule of Values based on the Contractor's submitted Bid Items. The Schedule of Values shall be used to provide an allocation of the Work for measurement and payment to a level of detail to ensure accurate payment for the Work accomplished. The Schedule of Values is based on unit priced bid items and a breakdown of each lump-sum bid item. The total dollars for the Schedule of Values shall total the bid amount.
- B. Obtain the agreement of the Engineer on the Schedule of Values. No payment will be made prior to an agreed upon Schedule of Values.
- C. Include an updated version of the Schedule of Values as changes occur. Update the Schedule of Values to include:
 - 1. Dollars earned and percent complete for the current progress payment period,
 - 2. Dollars earned and percent complete to-date, excluding the current progress payment period,
 - 3. Total dollars earned and percent complete to-date,
 - 4. Total dollars remaining, and
 - 5. Changes resulting from Change Orders.
- D. The total value of the line items in the Schedule of Values plus any approved Change Orders shall be equal to the current approved contract price.
- E. The value of stored material shall be identified in the Schedule of Values with both a material-purchase activity and a separate corresponding installation activity in the Construction Schedule(s).
- F. Include as exhibits, drawings or sketches as necessary, to better define the limits of pay items that are in close proximity and that have no clear boundary in the Contract Drawings.

1.03 SUBMITTAL

- A. Submit preliminary Schedule of Values within 10 days of the effective date of the Notice to Proceed.
- B. Submit corrected Schedule of Values within 10 days upon receipt of reviewed Schedule of Values.
- C. At the Engineer's request, submit documentation substantiating the cost allocations for line items within the Schedule of Values.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 SCHEDULE OF VALUES

- A. Submit the Schedule of Values in a form acceptable to the Engineer.
- B. Provide updated Schedule of Values as required by the Engineer and as indicated in the Contract Documents.

END OF SECTION

PART 1 - GENERAL

1.01 SCOPE

- A. The purpose of this section is to provide the framework for communication between the Port and the Contractor by defining the types and timing of administrative tasks, including meetings and other items related to communications.

1.02 NOTICE TO PROCEED

- A. Contract execution will be made per the requirements of the Contract Documents. Once the contract has been executed and all pre-work submittals have been received, the Engineer will issue a Notice to Proceed (NTP).
 - 1. In certain instances, the Engineer may issue to the Contractor a Limited NTP for specified elements of the work described in these Contract Documents.
- B. The Contractor shall submit all pre-work submittals within 10 days of contract execution.
 - 1. No contract time extension shall be granted for any delays in issuance of the NTP by the Engineer due to the Contractor's failure to provide acceptable submittals required by the Contract Documents.

1.03 COORDINATION

- A. The Contractor shall coordinate all its activities through the Engineer.
- B. The Contractor shall coordinate construction operations as required to execute the Work efficiently, to obtain the best results where installation of one part of the Work depends on other portions.

1.04 PROJECT MEETINGS

- A. Pre-Construction Meeting
 - 1. After execution of the contract, but prior to commencement of any work at the site, a mandatory one time meeting will be scheduled by the Engineer to discuss and develop a mutual understanding relative to the administration of the safety program, preparation of the Schedule of Values, change orders, RFI's, submittals, scheduling prosecution of the work. Major subcontractors who will engage in the work shall attend.
 - 2. Suggested Agenda: The agenda will include items of significance to the project.
 - 3. Location of the Pre-Construction Meeting will be held at the Port of Tacoma Administration Building located at One Sitcum Plaza.
- B. Weekly Progress Meetings – Progress meetings include the Contractor, Engineer, consultants and others affected by decisions made.
 - 1. The Engineer will arrange meetings, prepare standard agenda with copies for participants, preside at meetings, record minutes and distribute copies within ten working days to the Contractor, meeting participants, and others affected by decisions made.
 - a. The Engineer will approve submitted meeting minutes in writing within 10 working days.
 - 2. Attendance is required for the Contractor's job superintendent, major subcontractors and suppliers, Engineer, and representatives of the Port as appropriate to the agenda topics for each meeting.

3. Standard Agenda

- a. Review minutes of previous meeting
- b. Review of work progress
- c. Field observations, problems, and decisions
- d. Identification of problems that impede planned progress
- e. Maintenance of Progress Schedule (3 weeks ahead; 1 week back)
- f. Corrective measures to regain projected schedules
- g. Planned progress during succeeding work period
- h. Coordination of projected progress
- i. Maintenance of quality and work standards
- j. Effect of proposed changes on progress schedule and coordination
- k. Demonstration that the project record drawings are up-to-date
- l. Other business relating to the work

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. The Port and Contractor shall use the Port Contract Management application (e-Builder®) for electronic information exchange throughout the duration of the Contract, as later described.
 - 1. e-Builder® is a web-based application accessed via the web.
 - 2. The Contractor will receive up to two separate user accounts for access to e-Builder®.
 - 3. The joint use of this system is to facilitate and coordinate the electronic exchange of Requests for Information, Submittals, Change Order Proposals, Pay Applications, and project specific correspondence.

1.02 USER ACCESS LIMITATIONS

- A. Contractor's access to e-Builder® is granted and controlled by the Engineer.
 - 1. The users assigned by the Contractor to use e-Builder® shall be competent and experienced with the practices commonly employed in the industry for electronically submitting requests for information, submittals, product data, shop drawings and related items as required by the contract and the methods commonly used for project correspondence transmission and filing.
 - 2. Any users assigned by the Contractor whom the Engineer determines is incapable of performing the prescribed tasks in an accurate, competent and efficient manner will be removed upon request from the Engineer. The qualifications and identity of a replacement user shall be submitted within 24 hours for consideration by the Engineer. Once accepted by the Engineer, the user account will be modified accordingly.

1.03 CONTRACTOR TECHNOLOGY REQUIREMENTS

- A. The Contractor is responsible for providing and maintaining web enabled devices capable of running the desktop version of the e-Builder® website effectively.

1.04 CONTRACTOR SOFTWARE REQUIREMENTS

- A. The Contractor is responsible for providing and maintaining the following:
 - 1. An office suite that is Microsoft Office 2013 compatible for generation and manipulation of correspondence.
 - 2. A program capable of editing, annotating and manipulating Adobe pdf files for inserting the Contractor's review stamp, clouding and adding notation to the files as necessary for review by the Engineer.

1.05 CONTRACTOR RESPONSIBILITY

- A. Provide all the equipment, internet connections, software, personnel and expertise required to support the use of e-Builder® as described in the Contract documents.

1.06 PORT RESPONSIBILITY

- A. Provide the Contractor with the following:
 - 1. All forms necessary for application to obtain permissions to access e-Builder® as described above.
 - 2. Information, basic user guides and requirements on methods for using e-Builder®.

3. Instruction for the Contractor's staff utilizing e-Builder®.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 UTILIZATION OF E-BUILDER®

- A. The Contractor shall provide required information in a timely manner that also supports the project schedule and meets the requirements of the Contract.
- B. The Contractor shall provide and maintain competent and qualified personnel to perform the various tasks required to support the work within e-Builder®.
- C. The Port will not be liable for any delays associated from the usage of e-Builder® including, but not limited to: slow response time, Port maintenance and off-line periods, connectivity problems or loss of information. Under no circumstances shall the usage of e-Builder® software be grounds for a time extension or cost adjustment to the contract.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the requirements to provide a preliminary schedule and construction progress schedule, bar chart type.

1.02 SUBMITTALS

- A. Within 10 days following execution of the contract, submit a baseline project schedule defining planned operations.
- B. If the baseline project schedule requires revision after review, submit revised baseline project schedule within 10 days.
- C. Within 20 days after review of baseline project schedule, submit draft of proposed complete baseline project schedule for review.
- D. Submit updated progress schedule monthly to the Engineer with each pay application as required in Section 01 20 00 Price and Payment Procedures.

1.03 QUALITY ASSURANCE

- A. Scheduler: Contractor's personnel or Consultant specializing in Critical Path Method (CPM) scheduling with one year's minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

1.04 SCHEDULE FORMAT

- A. The baseline project schedule shall be produced using the CPM format.
- B. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
- C. Sheet Size: Multiples of 11 x 17 (280 x 432 mm).

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 BASELINE SCHEDULE

- A. Prepare baseline project schedule in the form of a horizontal bar chart.
- B. The baseline project schedule shall include all the activities listed in the Schedule of Values and be directly related to items listed in the Bid Form. The Contractor is encouraged to add sufficient activities to facilitate a clear understanding of the means and methods planned for the various work items.
- C. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction and critical path. At a minimum it shall include and show the following:
 - 1. A time scale showing the elementary work items needed to complete the work;
 - 2. Estimated time durations for each activity, defined as any single identifiable work step within the project;
 - 3. A graphical network diagram showing the logical sequence of activities, their precedence relationships, and estimated float or leeway available for each;

- 4. The different categories of work as distinguished by crew requirements, equipment requirements, and construction materials; and
 - 5. The different areas of responsibility, such as distinctly separate or subcontracted work, and identifiable subdivisions of work.
- D. It shall be maintained and updated as necessary to accurately reflect past progress and the most probable future progress.
- E. Activities shown shall include submittals, milestones, and sufficient task breakdown for major components of work.
- F. Identify work of separate stages and other logically grouped activities.
- G. Provide sub-schedules to define critical portions of the entire schedule.
- H. Provide separate schedule of submittal dates for shop drawings, product data, samples, owner-furnished products, products identified, and dates reviewed submittals will be required from the Engineer. Indicate decision dates for selection of finishes.

3.02 PROGRESS SCHEDULE

- A. From the regularly-maintained baseline project schedule, progress schedules showing a three-week look-ahead, one-week look-back, shall be submitted and distributed at the weekly progress meetings. The progress schedule shall represent a practical plan to complete the work shown within the contract work window presented. At a minimum, the presentation, typically a Gantt-style chart, shall convey the task durations, a logical work sequence, task interdependencies, and identify important or critical constraints.
- B. Submittal and distribution of progress schedules will be understood to be the Contractor's representation that the scheduled work meets the requirements of the contract documents and that the work will be executed in the manner and sequence presented, and over the durations indicated.
- C. The scheduling, coordination, and execution of construction in accordance with the contract documents are the responsibility of the Contractor. The Contractor shall involve, coordinate, and resolve scheduling with all subcontractors, material suppliers, or others affected in development of the progress schedules.
- D. The progress schedule shall be used for coordination purposes for inspection and testing purposes as well as validation of work progress against the baseline schedule.

3.03 UPDATING SCHEDULE

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- D. Indicate changes required to maintain Date of Substantial Completion.
- E. Submit reports required to support recommended changes.
- F. Contractor shall submit an updated progress schedule with each pay application and include a written narrative describing the overall progress of the work. The narrative shall include the following key aspects:

1. Progress in the last period.
2. Critical Path progress and schedule concerns.
3. Changes to schedule logic or sequencing of the work.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes the requirements to provide a submittal log and project submittals.

1.02 SUBMITTAL LOG

- A. Contractor shall, within 14 days of contract execution prepare and submit for Engineer approval a detailed log of all the submittals required under this Contract, along with any other submittals identified by the Port or Contractor. The log shall include, but not be limited to, schedules, required construction Work plans, equipment and material cut sheets, shop drawings, project record documents, test results, survey records, record drawings, results of QC testing, and all other items for which a submittal is required. The submittal log shall be organized by CSI Specification Division, and Section number and include the following information:
 - 1. Item Description
 - 2. Category
 - 3. Specification Section information of the applicable section
 - 4. After the submittal log is reviewed and approved by the Engineer, it shall become the basis for the submittal of all items by Contractor.

1.03 COMPLIANCE

- A. Failure to comply with these requirements shall be deemed as the Contractor's agreement to furnish the exact materials specified or materials selected by the Engineer based on these specifications.

1.04 SHOP DRAWINGS AND MANUFACTURERS' LITERATURE

- A. The Port will not accept shop drawings that prohibit the Port from making copies for its own use.
- B. Shop drawings shall be prepared accurately and to a scale sufficiently large to indicate all pertinent features of the products and the method of fabrication, connection, erection, or assembly with respect to the Work.
- C. All drawings submitted to the Engineer for approval shall be drawn to scale as ANSI D.
- D. Required electronic formats for these drawings are as follows:
 - 1. AutoCad DWG
 - 2. PDF - Formatted to print to half-scale using 11x17 paper
- E. Catalog cuts or brochures shall show the type, size, ratings, style, color, manufacturer, and catalog number of each item and be complete enough to provide for positive and rapid identification in the field. General catalogs or partial lists will not be accepted. Manufacturers' original electronic files are required for submitting.

1.05 SUBMITTAL REVIEW

- A. After review of each of Contractor's submittals, the submittal will be returned to Contractor with a form indicating one or more of the following:

1. No Exceptions Taken - Means, accepted subject to its compatibility with future submittals and additional partial submittals for portions of the work not covered in this submittal. But it does not constitute approval or deletion of specified or required items not shown in the partial submittal.
 2. Make Corrections Noted - Same as Item 1, except that minor corrections as noted shall be made by Contractor.
 3. Reviewed - Submittal has been reviewed by the Port, does not constitute approval, and the Contractor is responsible for requirements in submittal.
 4. Review as Noted - Submittal has to be reviewed by the Port with comments as noted.
 5. Revise and Resubmit - Means, rejected because of major inconsistencies or errors. Resolve or correct before next submittal.
 6. Rejected - Means, submitted material does not conform to the Contract Documents in a major respect (e.g., wrong material, size, capacity, model, etc.).
- B. Submittals marked "No Exceptions Taken," "Make Corrections Noted," or "Reviewed as Noted" authorizes Contractor to proceed with construction covered by those data sheets or shop drawings with corrections, if any, incorporated.
- C. When submittals or prints of shop drawings have been marked "Revise and Resubmit" or "Rejected," Contractor shall make the necessary corrections and submit required copies. Every revision shall be shown by number, date, and subject in a revision block, and each revised shop drawing shall have its latest revision numbers and items clearly indicated by clouding around the revised areas on the shop drawing.
- D. Submittals authorized by the Engineer do not in any case supersede the Contract Documents. The approval by the Engineer shall not relieve the Contractor from responsibility to conform to the Drawings or Specifications, or correct details when in error, or ensure the proper fit of parts when installed. A favorable review by the Port of shop drawings, method of work, or information regarding material and equipment Contractor proposes to furnish shall not relieve Contractor of its responsibility for errors therein and shall not be regarded as assumption of risk or liability by the Port or its officers, employees, or representatives. Contractor shall have no claim under the Contract on account of failure or partial failure, or inefficiency or insufficiency of any plan or method of work, or material and equipment so accepted. Favorable review means that the Port has no objection to Contractor using, upon its own full responsibility, the plan or method of work proposed, or furnishing the material and equipment proposed.
- E. It is considered reasonable that the Contractor's submittals shall be complete and acceptable by at least the second submission of each submittal. The Port reserves the right to deduct monies from payments due Contractor to cover additional costs for review beyond the second submission.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 PREPARATION OF SUBMITTALS

- A. The Contractor shall submit all shop drawings, catalog cuts, brochures and physical samples using e-Builder® (a web based construction management software). All post-document-generated notations such as notes, arrows, stamps, clouding, or other items, are required to be shown directly on the submittal document. **Each submittal shall be accompanied by a transmittal developed within the e-Builder® software.**

- B. A separate submittal shall be prepared for each product or procedure and shall be further identified by referencing the Specification Section and paragraph number and each submittal shall be numbered consecutively.
- C. Product submittals that cannot be accomplished electronically shall be submitted electronically without attachments, marked as being hand delivered, and accompanied by a printed version of a transmittal.
- D. Shop and detail drawings shall be submitted in related packages. All equipment or material details which are interdependent, or are related in any way, must be submitted indicating the complete installation. Submittals shall not be altered once marked "No Exceptions Taken" Revisions shall be clearly marked and dated. Major revisions must be submitted for approval.
- E. The Contractor shall thoroughly review all shop and detail drawings, prior to submittal, to assure coordination with other parts of the work.
- F. Components or materials which require shop drawings and which arrive at the job site prior to approval of shop drawings shall be considered as not being made for this project and shall be subject to rejection and removal from the premises.
- G. All submittal packages including, but not limited to, product data sheets, mix designs, shop drawings and other required information for submittal must be submitted, reviewed and approved before the relevant scheduled task may commence. It is the responsibility of the Contractor to provide the submittal information which may drive a task on the construction schedule to submit items well enough in advance as to provide adequate time for review and comment from the Engineer without adversely impacting the construction schedule.
- H. When completing the e-Builder® submittal form, a Date Due field is required to be completed. This field is intended to inform the Port of the urgency of the submittal. Failure of the Port to return the submittal by the date provided by the Contractor will not be considered grounds for a contract time extension.

3.02 PRE-WORK SUBMITTALS

- A. Prior to issuance of Notice to Proceed, the following submittals must be submitted and returned to the Contractor as No Exceptions Taken, Make Corrections Noted, Reviewed, or Reviewed as Noted.
 - 1. Per 00 72 00 and 01 32 16, Baseline Project Schedule
 - 2. Per 00 73 63, Emergency Contact Numbers
 - 3. Per 01 35 29, Health and Safety Plan (HASP)
 - 4. Per 01 35 29, Spill Prevention and Countermeasures Plan (SPCC)
 - 5. Per 01 35 47, List of equipment and written certification

3.03 MAINTENANCE OF SUBMITTAL LOG

- A. Prepare and submit for Port review a detailed submittal log conforming to the requirements of paragraph 1.02 of this section. When approved by the Engineer, use the submittal log to track the transmittal of submittals to the Engineer, the receipt of submittal comments from the Engineer, and all subsequent action with respect to each submittal. Provide an updated copy of the submittal log to the Engineer during each weekly progress meeting, unless otherwise approved by the Engineer.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. The work includes the requirements for health and safety provisions necessary for all work at the site for this project. The work also includes compliance with all laws, regulations and ordinances with respect to safety, noise, dust, fire and police action, civil disobedience, security or traffic.
- B. Some of the work tasks may place workers in the potential position of coming into contact with regulated building materials, waste, or environmental media. Detailed information regarding the known nature and extent of refuse and regulated materials in the project area is included in Section 00 31 26 Existing Hazardous Material Information.
- C. The Contractor shall monitor site conditions for indications of identified and other potentially hazardous, dangerous, and/or regulated materials (suspicious material). Indicators of suspicious material include, but are not limited to, refuse, oily sheen or coloring on soil or water, or oily or chemical odors. If suspicious materials are encountered, the Contractor shall stop all work in that area and notify the Engineer immediately.
- D. This project is a Washington State Department of Ecology (Ecology) Remedial Action, subject to Ecology oversight.
- E. Landfill have the potential to create hazardous conditions if not controlled or recognized. Some of the hazards include:
 - 1. Fires that may start spontaneously from exposed and/or decomposed refuse.
 - 2. Fires and explosions that may occur from the presence of methane gas.
 - 3. Landfill gases and other trace gases may cause an oxygen deficiency in confined spaces such as trenches, vaults, conduits, and structures.
 - 4. Hydrogen sulfide, a highly toxic and flammable gas, and/or other toxic gases may be present.
 - 5. Possible caving of trenches and excavations when working over or in refuse fills.
- F. The Contractor is alerted to the presence of odorous conditions during excavation and stockpiling of materials due to hydrogen sulfide and possibly other odorous gases. Section 00 31 26 Existing Hazardous Material Information describes odorous conditions encountered during site investigations. The Contractor shall take appropriate health and safety measures to assess concentrations of these gases, and mitigate as required. Mitigation measures shall include the use of personal protective equipment, if required.

1.02 SUBMITTALS

- A. Prior to Notice to Proceed, the Contractor shall provide a site specific Health and Safety Plan (HASP), which meets all the requirements of local, state and federal laws, rules and regulations. The HASP shall address all requirements for general health and safety and shall include, but not be limited to:
 - 1. Description of work to be performed and anticipated chemical and/or physical hazards associated with the work;
 - 2. Map of the site(s) illustrating the location of the anticipated hazards and areas of control for those hazards (including containments, exclusion/work zones, and contaminant reduction/decontamination zones);

3. Hazardous material inventory and safety data sheets (SDSs) for all chemicals which will be brought on site;
 4. Signage appropriate to warn site personnel and visitors of anticipated site hazards;
 5. Documentation that the necessary workers have completed the required Hazardous Waste Operations and Emergency Response (HAZWOPER) training;
 6. Engineering controls/equipment to be used to protect against anticipated hazards;
 7. Personal protective equipment and clothing including head, foot, skin, eye, and respiratory protection;
 8. Procedures which will be used for:
 - a. Lockout/Tagout,
 - b. Fall protection,
 - c. Trenching and shoring,
 - d. Hot work,
 - e. Explosive conditions due to methane,
 - f. Oxygen deficient conditions,
 - g. Asbestos and lead hazards,
 - h. Suspicious materials and/or unidentified materials,
 - i. Confined-space entry (could include dewatering storage tanks, manholes, or other items),
 - j. Confined-space rescue, and
 - k. Odorous conditions and toxic gases;
 9. Site housekeeping procedures and personal hygiene practices;
 10. Personnel and equipment decontamination plan;
 11. Administrative controls;
 12. Emergency plan including locations of and route to nearest hospital;
 13. Medical surveillance program for site personnel before, during, and after completion of site work;
 14. Recordkeeping including:
 - a. Documentation of appropriate employee training (e.g., Hazardous Waste Operations and Emergency Response [HAZWOPER] 40-hour training for staff involved with excavation and handling of soil),
 - b. Respirator fit testing, and
 15. Name and qualification of person preparing the HASP and person designated to implement and enforce the HASP;
 16. Name and qualifications for Certified Safety Professional (CSP) or Certified Industrial Hygienist (CIH) and a copy of the CIH's or CSP's certification and resume;
 17. Excavation, stockpiling, and truck loading procedures;
-

18. Lighting and sanitation; and
 19. Signatory page for site personnel to acknowledge receipt, understanding, and agreement to comply with the HASP.
- B. Prior to the start of any Work, the Contractor shall provide a site specific Spill Prevention, Control and Countermeasures (SPCC) Plan, which meets all the requirements of local, state and federal laws, rules and regulations.
 - C. Contractor may submit the HASP and SPCC Plan as one comprehensive document or may submit the plans as separate documents.
 - D. The Contractor shall include in the HASP recent requirements associated with the State's COVID-19 Job Site Requirements as noted at in the Appendix or online at <https://www.governor.wa.gov/sites/default/files/Phase%201%20Construction%20COVID-19%20Safety%20Requirements%20%28final%29.pdf>.

1.03 POTENTIAL CHEMICAL HAZARDS

- A. Site Contaminants
 1. The Contractor must provide site workers with Hazard Communication standard information for potential site contaminants (in accordance with WAC 296-843). The Contractor shall ensure that all site workers are aware of and understand this information. Additional information shall also be provided by the Contractor, as necessary, to meet the Hazard Communication Standard and HASP requirements as noted in WAC 296-901-14010 and 296-843. Workers shall be instructed on basic methods or techniques to assist in detecting suspicious material.
 2. The Project soils, in many areas, contain greater than 20 ppm of inorganic arsenic and the Contractor shall comply with all applicable requirements of Washington Department of Labor and Industries Division of Occupational Safety and Health (DOSH) Arsenic Standard, WAC 296-848 including but not limited to personal exposure monitoring, use of respirators and PPE, and worker training. Refer to WAC 296-848-100 Table 1 to determine applicable sections. Arsenic remnant soils are present throughout the site.
- B. Potential Exposures Routes
 1. Inhalation: Airborne dusts, fibers, particulates, or vapors may be released during site activities. Inhalation of airborne inorganic arsenic may occur.
 2. Skin and Eye Contact: Dusts generated during site work activities may settle on the skin or clothing of site workers. Also, workers may contact potentially regulated sediments, or water, in the normal course of their work. Precautions to prevent skin or eye contact with hazardous materials will be included in the HASP. Arsenic exposure may cause skin irritation.
 3. Ingestion: Inadvertent transfer of site contaminants from hands or other objects to the mouth could occur if site workers eat, drink, smoke, chew tobacco, or engage in similar activities in work areas. This could result in ingestion of site contaminants. Precautions to prevent accidental or inadvertent ingestion of hazardous materials will be included in the HASP.
- C. Chemical hazards may also result from Contractor operations resulting in inadvertent release of fuel, oil, or other chemicals in a manner that would expose workers.

1.04 POTENTIAL PHYSICAL AND OTHER HAZARDS

- A. The Work of the Contractor is described elsewhere in these specifications. Precautions to prevent all anticipated physical and other hazards, including heavy equipment and vessels, shall be addressed in the HASP.
- B. Specific aspects of construction resulting in physical hazards anticipated for this project include, but are not limited to the following:
 - 1. Work over or adjacent to water, presenting hazards of falling into water, hypothermia from exposure to the elements, and drowning;
 - 2. Operation of marine equipment, including winches, dredges, and related equipment, entrapment, ensnarement, and being struck by moving parts hazards;
 - 3. Completion of diver surveys with specific health and safety elements;
 - 4. Major hazards associated with earthwork impacts from moving construction vehicles and trucks, noise, thermal stress, contact with unguarded machines, excavation hazards (i.e., cave-in, utility, etc.), strains from heavy lifting, and reduced visibility and communications difficulties in work area; and
 - 5. Operation of equipment, including excavators, loaders, and related equipment, presenting hazards of entrapment, ensnarement, and being struck by moving parts.
- C. Other anticipated physical hazards:
 - 1. Heat stress, such as that potentially caused by impermeable clothing (may reduce the cooling ability of the body due to evaporation reduction);
 - 2. Cold stress, such as that potentially caused during times when temperatures are low, winds are high, especially when precipitation occurs during these conditions;
 - 3. Biological hazards, such as mold, insect stings, or bites, poisonous plants (i.e., poison oak, sumac, etc.); and
 - 4. Trips and falls.
- D. Firewatch Procedures
 - 1. A firewatch is implemented to ensure the fire-safety of a building, structure or area in the event of any act (e.g., hot work) or situation instigating an increased risk of fire. The term "firewatch" is used to describe a dedicated person or persons whose sole responsibility is to look for fires within an established area.
 - 2. A firewatch is required when all hot work is being performed.
 - 3. The firewatch is to perform the following functions:
 - a. Firewatch personnel are to keep diligent watch for fires in the general area where the work is being performed.
 - b. Firewatch personnel are to be familiar with facilities and procedures for sounding an alarm in the event of a fire.
 - c. Firewatch personnel are to have fire extinguishing equipment readily available and be trained in its use, including practice on test fires.

- d. Firewatch personnel are to inspect the site prior to hot work activities to ensure that combustibles are removed or covered and that any nearby holes or penetrations in the ground and walls are sealed or covered with fire-safe materials.
- e. Firewatch personnel are to watch for fires in all exposed areas. If a fire is located, firewatch personnel are to sound the evacuation alarm immediately and after that try to extinguish the fire, only when obviously within the capacity of the equipment available.
- f. The firewatch is to be maintained for at least 120 minutes after completion of hot work such as cutting, welding, or other open flame operations, in order to detect and extinguish smoldering and flaming fires. During this time, the work area and other adjacent areas where sparks or flame may have traveled are to be searched for signs of combustion.

PART 2 - PRODUCTS

2.01 SAFETY SIGNAGE

- A. The Contractor shall provide signage at strategic locations within the project site to alert jobsite workers and visitors of the remediation work, associated hazards, and required precautions.

2.02 PRODUCTS SPECIFIED FOR HEALTH AND SAFETY

- A. Provide the equipment and supplies necessary to support the work as described in the site-specific HASP. Equipment and supplies may include, but are not limited to:
 - 1. All chemicals to be used on site;
 - 2. A hazardous materials inventory and SDSs for the chemicals brought on site;
 - 3. Enclosure equipment (for dust and asbestos fiber control);
 - 4. Fencing and barriers;
 - 5. Warning signs and labels;
 - 6. Trenching equipment;
 - 7. Fire extinguishers;
 - 8. Equipment to support hot work;
 - 9. Equipment to support lockout/tagout procedures;
 - 10. Scaffolding and fall protection equipment;
 - 11. Personal protective equipment (hard hats, foot gear, skin, eye, and respiratory protection);
 - 12. Area and personnel exposure monitoring equipment;
 - 13. Demolition equipment and supplies;
 - 14. Decontamination equipment and supplies;
 - 15. First aid equipment;
 - 16. Spill response and spill prevention equipment; and
 - 17. Field documentation logs/supplies.

PART 3 - EXECUTION

3.01 WORK AREA PREPARATION

- A. Contractor shall comply with health and safety rules, regulations, ordinances promulgated by the local, state, and federal government, the various construction permits, and other sections of the Contract Documents. Such compliance shall include, but not be specifically limited to: any and all protective devices, equipment and clothing; guards; restraints; locks; latches; switches; and other safety provisions that may be required or necessitated by state and federal safety regulations. The Contractor shall determine the specific requirements for safety provisions and shall have inspections and reports by the appropriate safety authorities to be conducted to ensure compliance with the intent of the regulations.
- B. Contractor shall inform employees, subcontractors and their employees of the potential danger in working with any potentially regulated materials, equipment, soils and groundwater at the project site.
 - 1. The Contractor shall not proceed with jobsite activities that might result in exposure of employees to hazardous materials, including arsenic, until the HASP is reviewed by the Engineer.
 - 2. In addition, the Engineer will submit a copy of the Contractor's HASP to Ecology for review. Ecology and the Engineer will review but not approve HASP.
- C. All Contractor employees expected to work at the jobsite or individuals entering the jobsite shall read the Contractor HASP before they enter the jobsite, and will sign a statement provided by the Contractor that they have read and understand the HASP. A copy of the Contractor's HASP shall be readily available at the site at all times the work is being performed.
- D. The Contractor's HASP shall be amended as needed by the CIH or CSP to include special work practices warranted by jobsite conditions actually encountered. Special practices could include provisions for decontamination of personnel and equipment, and the use of special equipment not covered in the initial plan.
- E. Contractor shall perform whatever work is necessary for safety and be solely and completely responsible for conditions of the job site, including safety of all persons (including employees of the Engineer, Engineer's Representative, and Contractor) and property during the Contract period. This requirement applies continuously and is not limited to normal working hours.
- F. The Engineer's review of the Contractor's performance does not include an opinion regarding the adequacy of, or approval of, the Contractor's safety supervisor, the site-specific HASP, safety program or safety measures taken in, on, or near the job site.
- G. Accidents causing death, injury, or damage must be reported immediately to the Engineer and the Port Security Department in person or by telephone or messenger. In addition, promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.
- H. If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing within 24 hours after occurrence, to the Engineer, giving full details of the claim.

3.02 SITE SAFETY AND HEALTH OFFICER

- A. Contractor shall provide a person designated as the Site Safety and Health Officer, who is thoroughly trained in rescue procedures, has a minimum current 40-hour HAZWOPER certification (minimum), and trained to use all necessary safety equipment, air monitoring equipment, and gas detectors. The person must be available and/or present at all times while work is being performed, and conduct testing, as necessary.
- B. The Site Safety and Health Officer shall be empowered with the delegated authority to order any person or worker on the project site to follow the safety rules. Failure to observe these rules is sufficient cause for removal of the person or worker(s) from this project.
- C. The Site Safety and Health Officer is responsible for determining the extent to which any safety equipment must be utilized, depending on conditions encountered at the site.

3.03 GENERAL SAFETY GUIDELINES FOR HAZARDOUS GASES

- A. The generally accepted procedure to protect the worker from the effects of the dangers from hazardous gases is through the use of four safeguard measures:
 - 1. Test the atmosphere: Before entering a trench, underground vault, or any other excavation, the atmosphere shall be tested to detect any adverse environmental conditions with a gas detector instrument. Test instruments shall be properly maintained and calibrated. The test shall be conducted from top to bottom of the excavation or every four (4) feet.
 - 2. Ventilate all confined spaces: Before entry and during the entire time workers are in the confined space. Forced ventilation is the generally accepted procedure.
 - 3. Use appropriate safety equipment: All personnel shall be trained to operate the appropriate safety equipment that are to be utilized during the course of their work. It is the responsibility of the Contractor's Site Safety and Health Officer to ascertain that all safety equipment is being used when appropriate.
 - 4. Provide backup safety personnel: Prior to any personnel entering an excavation or confined space, a separate individual shall be positioned outside the space.
- B. Safety Monitoring Instrumentation: The Safety and Health Officer shall have appropriate instruments (detector[s]) to test for oxygen deficiency and for the presence of methane gas, hydrogen sulfide, and/or other known or suspected vapors and gases. The Site Safety and Health Officer shall periodically calibrate the instruments, regularly test the excavation or space areas and other work areas for safe working conditions, and ensure that appropriate safety equipment is available.

3.04 SUPPLEMENTAL SAFETY PROGRAM FOR GASES

- A. Supplemental to the Contractor's regular safety program, the Contractor shall develop and institute procedures to inform all workers at the site of the potential for the presence of methane and other landfill gases emanating from the natural decomposition of refuse buried at or near the job site, and the importance of safety precautions to ensure the safety of workers and the public.
- B. Recommended Precautions: In addition to conforming to safety rules and regulations of governmental authorities having jurisdiction, the Contractor shall conform to the following minimum precautionary measures:

1. Frequently monitor for all possible hazardous gases, oxygen deficiency and other known or suspected vapors and gases.
 2. Prohibit smoking in or near open excavations, exposed refuse, and in the vicinity of underground pipe laying activities. Smoking will be permitted only in those areas designated by the Site Safety and Health Officer.
 3. In the event toxic gas is present in sufficient quantities to trigger a gas detection alarm, the Contractor shall immediately evacuate all personnel from the area until determined safe by the Site Safety and Health Officer.
 4. Do not use explosives.
 5. Do not leave refuse exposed overnight, unless otherwise approved by the Engineer. Any refuse exposed during construction activities shall be covered with at least a 6-inch layer of earth, tarps, or membrane.
 6. Do not weld in trenches, enclosed areas, or over refuse unless performed in areas tested and approved by the Site Safety and Health Officer.
 7. Construction equipment used in excavation activities and/or refuse removal operations shall be equipped with vertical exhaust and spark arresters.
 8. Electric motors utilized in excavation areas and below ground shall be explosion-proof.
 9. As construction progresses, all pipe openings and valves shall be closed as soon as installed to prevent the migration of gases through the pipeline system.
- C. Suggested Measures: If not already included in the Contractor's standard safety practices, the Contractor shall add the following measures to their safety program:
1. Workers shall be cautioned on the possibility of collapsing excavations during construction operations near and in open excavations particularly in refuse-filled areas. Anyone working near the edge of deep excavations should be secured with a safety belt, harness, or limit line to preclude the possibility of falling into the opening. Refuse filling operations and compaction is quite variable and therefore may not provide the same slope stability as excavations in native soils.
 2. Any personnel working near the edge of well excavations or similar construction should wear a harness securely attached to a lanyard. The lanyard shall be made as short as possible and securely fastened to a safe object.
 3. Safe and suitable ladders that project 2 feet above the top of the trench shall be provided for all trenches over 4 feet in depth. A minimum of one ladder shall be provided for each 25 feet of open trench, and be so located that workers in the trench need not move more than 25 feet to a ladder.
 4. No worker shall be allowed to work alone in an excavation. An individual shall be positioned outside the excavation, but within eyesight of the workers in the excavation, and assist them should an emergency develop.
 5. Work upwind of an excavation where possible, unless the excavation is constantly monitored and declared safe.
 6. Workers should avoid contact with exposed refuse where possible.
 7. No excavation or drilled hole greater than 2 feet deep shall be left unattended or open overnight unless it is securely covered in a manner acceptable to the Engineer.

8. Fire extinguishers with a rating of at least A, B, and C shall be available onsite.
9. Startup and shutdown of equipment shall be avoided in areas of exposed refuse.
10. Personnel in an open excavation or in the presence of landfill gas shall be fully clothed with appropriate personal protection equipment. Workers shall immediately vacate the excavation if gases are detected therein, and shall not be permitted to re-enter the excavation unless satisfactory precautionary measures are implemented.

3.05 SPILL PREVENTION AND CONTROL

- A. The Contractor shall be responsible for prevention, containment and cleanup of spilling petroleum and other chemicals/hazardous materials used in the Contractor's operations. All such prevention, containment and cleanup costs shall be borne by the Contractor.
- B. The Contractor is advised that discharge of oil, fuel, other petroleum, or any chemicals/hazardous materials from equipment or facilities into state waters or onto adjacent land is not permitted under state water quality regulations.
- C. In the event of a discharge of oil, fuel or chemicals/hazardous materials into waters, or onto land with a potential for entry into waters, containment and cleanup efforts shall begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup shall include proper disposal of all spilled material and used cleanup materials.
- D. The Contractor shall, at a minimum, take the following measures regarding spill prevention, containment and cleanup:
 1. Fuel hoses, lubrication equipment, hydraulically operated equipment, oil drums and other equipment and facilities shall be inspected regularly for drips, leaks or signs of damage, and shall be maintained and stored properly to prevent spills. Proper security shall be maintained to discourage vandalism.
 2. All land-based chemical, oil and products' storage tanks shall be diked, contained and/or located so as to prevent spills from escaping into the water. Dikes and containment area surfaces shall be lined with impervious material to prevent chemicals or oil from seeping through the ground and dikes.
 3. All visible floating sheen shall be immediately contained with booms, dikes or other appropriate means and removed from the water prior to discharge into state waters. All visible spills on land shall be immediately contained using dikes, straw bales or other appropriate means and removed using sand, sawdust or other absorbent material, which shall be properly disposed of by the Contractor. Waste materials shall be temporarily stored in drums or other leak-proof containers after cleanup and during transport to disposal. Waste materials shall be disposed offsite in accordance with applicable local, state and federal regulations.
 4. In the event of any oil or product discharges into public waters, or onto land with a potential for entry into public waters, the Contractor shall immediately notify the Port Security at their listed 24-hour response number:
 - a. Port Security: 253-383-9472
- E. The Contractor shall maintain the following materials (as a minimum) at each of the project sites:
 1. Oil-absorbent booms: 100 feet;

2. Oil-absorbent pads or bulk material, adequate for coverage of 200 square feet of surface area;
3. Oil-skimming system; and
4. Oil dry-all, gloves, and plastic bags.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section discloses procedures to follow if unknown regulated materials are encountered.

1.02 NOTIFICATION AND SUSPENSION

- A. In the event the Contractor detects the presence of potentially regulated materials not previously identified in this specification, the Contractor shall stop work and immediately notify the Port. Following such notification by the Contractor, the Port shall in turn notify the various governmental and regulatory agencies concerned with the presence of regulated materials, if warranted. Depending upon the type of materials identified, the Port may suspend work in the vicinity of the discovery under the provisions of General Conditions.
1. Following completion of any further testing necessary to determine the nature of the materials involved, the Port will determine how the material shall be managed. Although the actual procedures used in resuming the work shall depend upon the nature and extent of the regulated material, the following alternate methods of operation are foreseen as possible:
 - a. Contractor to resume work as before the suspension.
 - b. Contractor to move its operations to another portion of the work until measures to eliminate any hazardous conditions can be developed and approved by the appropriate regulatory agencies.
 - c. The Port to direct the Contractor to dispose or treat the material in an approved manner.
 - d. The Port to terminate or modify the Contract accordingly, for unforeseen conditions.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Soils that cannot be reused onsite and are anticipated to be exported to an off-site facility must have a completed soil profile prior to export. The Port will conduct testing of material as defined further in this specification. The Contractor is responsible for any additional testing necessary to satisfy requirements of the Contractor's receiving facility.
- B. Soils excavated within the project area, as shown on the drawings, are anticipated to be free of regulated material; however, should the Contractor identify soil that cannot be reused as part of the project, the Contractor shall notify the Engineer to determine if the soil requires special handling.
 - 1. Soil with unexpected regulated material, as identified by visual and/or olfactory methods, shall be segregated from other excavated material until such time as appropriate testing and analysis can be completed by the Port. Upon completion of the soil profile, the Engineer will inform the Contractor of any special handling requirements based on the results.
 - 2. Soil beyond construction excavation limits will not require excavation unless free draining product is observed or other special conditions exist; in which case the Engineer will direct the Contractor in additional excavation. Soils determined to require special handling will be hauled and disposed of at an approved disposal facility.
- C. No soil shall be removed from the site without prior notification to the Engineer. The notification shall include:
 - 1. An estimate of the number of truck-trips, the haul destination, and the period in which these trips will be made (e.g., 20 truck-trips to the Waste Management Facility over the two-week period beginning on March 1, 2012).

1.02 DEFINITIONS

- A. Olfactory Indications (methods): Of or relating to the sense of smell. Soils containing petroleum and other volatile constituents typically exhibit characteristic odors that can be detected (and sometimes identified) by smell.
- B. Regulated Material: Any chemical, physical, biological, or radiological substance that does not occur naturally in the environment, or that occurs at concentrations higher than natural background levels, and is regulated by agencies as to the disposal/recycling facility(ies) the material can and cannot go (i.e., EPA, Department of Ecology, Tacoma-Pierce County Health Department).
- C. Soil (waste) Profile: A characterization of the chemical and physical properties of soil material designated for off-site disposal, including the presence of pollutants and their concentrations as measured by approved laboratory analytical methods. A profile is required by the receiving permitted disposal or recycling facility.
- D. Special Handling: Refers to hauling and disposal of soils that cannot be reused in place as backfill or as general fill at another (off-site) location due to the presence of pollutants in concentrations above allowable limits. Such soils must be hauled to and managed at a permitted disposal facility.

- E. Type A Regulated Soil: Soil that must be removed from the Project site and has been determined by the Engineer to contain pollutants in concentrations that exceed state or federal dangerous or hazardous designations (respectively), or other special Port-determined criteria. Type A Regulated Soil requires disposal at an approved Subtitle C hazardous waste landfill.
- F. Type B Regulated Soil: Soil that must be removed from the Project site and has been determined by the Engineer to contain pollutants in concentrations that are below dangerous or hazardous levels, but could negatively impact the quality of air, waters of the state, soils or sediments, or pose a threat to the health of humans or other living organisms, depending on where the soil is disposed. Type B Regulated Soil requires disposal an approved Subtitle D solid waste landfill.
- G. Type C Regulated Soil: Soil that must be removed from the Project site and has been determined by Engineer to contain unknown constituent(s) and/or in unknown concentration(s) and requires further analysis and characterization. Type C Regulated soil will require disposal at an approved Subtitle C hazardous waste landfill or Subtitle D solid waste landfill if additional soil characterization indicates special handling is required.
- H. Type D Soil: Soil determined by the Engineer not to require special handling with regard to this Contract. Classification of material as Type D Soil by the Port is not a certification nor does it release the Contractor of liability or obligation to meet any disposal or storage facility acceptance or testing requirements.
- I. Unexpected Regulated Material: Regulated material unexpectedly found in an excavation or in other locations where there is no prior knowledge, information, or history to indicate possible spills or releases of regulated material.
- J. Visual Indications (methods): A preliminary evaluation of the potential presence of contamination based on visual observation. For example, soils containing petroleum are frequently discolored or stained relative to non-petroleum impacted native soils or clean fill.

1.03 HEALTH AND SAFETY

- A. The Contractor is required to implement all health and safety provisions as required by Specification 01 35 29 – Health, Safety and Emergency Response. These provisions include any special monitoring, personal protective equipment, or work plans to accommodate regulated soil or material special handling. Use of environmental characterization data may not be appropriate for health and safety purposes.

1.04 SUBMITTALS

- A. Prior to excavation of any subsurface materials, the Contractor shall submit a Soils Management Plan to the Engineer. The Soils Management Plan must be approved by the Engineer prior to any excavation of subsurface materials. The Soils Management Plan must include the following:
 - 1. Identification of all soil disposal facilities anticipated to be used for soils that are determined to be Type A or Type B Regulated Soil.
 - 2. Identification of all fill sites, disposal/recycling facilities and/or end uses anticipated to be used for soil determined to be Type D Soil in accordance with paragraph 3.02 of this section.
 - 3. Contingency for delivery and placement of Type C Regulated Soil at an on-site soil stockpile area.

4. Contingency for managing soil/debris encountered during excavation that may disqualify soil for disposal or recycle at the anticipated facilities.
5. General description of how equipment operators, safety staff and other applicable on-site personnel will identify and respond to soil containing potentially regulated material.
6. Contractor shall coordinate with the Engineer to facilitate handling of regulated soil in accordance with this specification.
7. Description of all haul routes to be used on the project.

B. A completed soil profile prior to export to an off-site receiving facility.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 EXCAVATION/TESTING

- A. The field-testing for soil to be exported offsite will be performed by the Port and will result in the following classification of material:
 1. Type A Regulated Soil as defined in 1.02(E) of this Section
 2. Type B Regulated Soil as defined in 1.02(F) of this Section
 3. Type C Regulated Soil as defined in 1.02(G) of this Section
 4. Type D Soil as defined in 1.02(H) of this Section
- B. Contractor shall give Port no less than one week notice for sampling export soil prior to disposal offsite. Contractor shall anticipate at least two weeks for lab results.
- C. Laboratory turnaround times may require additional time for analytical results; therefore, Contractor should coordinate with Engineer well in advance of anticipated disposal date. Samples that are required to have "rush" analysis performed due to the Contractor's failure to disclose the anticipated disposal date shall have the difference in service fees paid by the Contractor, or the Contractor may delay the disposal until the standard analysis turnaround time is complete, at no additional cost to the Port.

3.02 TRANSPORTATION AND OFF-SITE DISPOSAL OF SOILS

- A. The Contractor shall be responsible for handling, re-handling, loading, transporting, and legal off-site removal of all waste materials and excavated soils not reused onsite.
 1. Contractor shall ensure that transport truck gross weight meets federal and/or state Department of Transportation (DOT) requirements and the requirements of the receiving facility, whichever is more stringent.
 2. Contractor shall take measures to prevent debris from being spilled from trucks or tracked from the site to local streets. Contractor shall sweep streets adjacent to the site as necessary or as directed by the Engineer.
 3. Contractor shall ensure that any vehicle transporting materials offsite are properly labeled and placarded in accordance with federal and state DOT requirements.
- B. Type A Regulated and Type B Regulated Soil shall be hauled to an approved facility by the Contractor for disposal.

- C. Type C Regulated Soil is of unknown origin or special circumstances. Type C Regulated Soil shall be hauled to an on-site segregated stockpile area. The Contractor shall protect the material from weather and other disturbances once stockpiled. The Port will inform the Contractor of the soil profile following additional analysis of the suspect material (as needed), and the soil will be categorized as either Type A Regulated, Type B Regulated or Type D Soil and disposed of accordingly.
- D. Type D Soil that is not reused onsite shall be hauled by the Contractor to a site determined by the Contractor. If the receiving/disposal facility requires additional testing or certification of this soil, Contractor shall complete these requirements, at no additional cost to the Port. The Port will not certify or declare the material suitable for unrestricted use.

3.03 OTHER REQUIREMENTS

- A. Type A, Type B or Type C Regulated Soil may be, upon approval of the Engineer, temporarily stockpiled within the construction area. Contractor shall place an impervious liner beneath the soil and securely cover the stockpile with waterproof covering (e.g., plastic sheeting). Additional measures (e.g., berm, jersey barriers, silt fence, etc.) may be required to minimize soil runoff from the stockpile area. The soil shall be removed prior to completion of Work.
- B. Contractor shall provide the Engineer with all hauling receipts (or copies of receipts) from the disposal facility for all Type A, Type B or Type C Regulated Soil at least weekly.
- C. The Engineer may shut down excavation activities should unexpected regulated material be encountered during excavation.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. The Work includes the requirements to provide air and noise control measures until Final Completion of the Work.

1.02 SUBMITTALS

- A. Prior to Notice to Proceed, the Contractor shall submit a list of equipment to be used on the project and written certification that all equipment on the list and any additional equipment, including Contractor's, subcontractors or supplier's equipment, shall meet the requirements of 3.01 below.

PART 2 - PRODUCTS - NOT USED

PART 3 – EXECUTION

3.01 AIR POLLUTION CONTROL

- A. The Contractor shall meet or exceed EPA Tier 2 off-road diesel engine emission standards for off-road equipment ≥ 25 hp and meet or exceed EPA 1994 on-road diesel engine emission standards for on-road equipment except as follows:
 - 1. Equipment being used in an emergency or public safety capacity
- B. The Contractor shall not discharge smoke, dust, and other hazardous materials into the atmosphere that violate local, state or federal regulations.
- C. No vehicles can idle for more than 5 consecutive minutes, except as follows:
 - 1. Idling is required to bring or maintain the equipment to operating temperature;
 - 2. Engine idling is necessary to accomplish work for which the equipment was designed (i.e. operating a crane); or
 - 3. Idling vehicles being used in an emergency or public safety capacity.
- D. The Contractor shall minimize nuisance dust by cleaning, sweeping, vacuum sweeping, sprinkling with water, or other means. Equipment for this operation shall be on the job site or available at all times.

3.02 NOISE CONTROL

- A. The Contractor shall comply with all local controls and noise level rules, regulations and ordinances which apply to work performed pursuant to the Contract.
- B. All internal combustion engines used on the job shall be equipped with a muffler of a type recommended by the manufacturer.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

- A. The Work shall consist of the procedures to be followed in the event that cultural and/or historical resources are inadvertently discovered during the projects activities.
- B. The project is located in an area previously inventoried for cultural and historical resources; however it is possible that additional, previously unidentified archaeological resources and/or skeletal remains could be inadvertently discovered during project activities. In the event that prehistoric, historic-era archaeological materials or skeletal remains are discovered, the appropriate protection measures and protocols described in this section must be followed.
- C. The Port will provide archaeological monitoring by or under the guidance of a professional archaeologist (archaeologist).
 - 1. All ground disturbing activities in native soils must be observed by the archaeologist.

1.02 REFERENCES

- A. The rules, requirements, and regulations that apply to this Work include, but are not necessarily limited to the following:
 - 1. Port of Tacoma "Archaeological Monitoring and Inadvertent Discovery Plan"

1.03 AUTHORITY OF ARCHAEOLOGIST

- A. At any time, when the archaeologist determines that possible cultural resources or skeletal remains might be present, they have the authority to stop work, secure the area of the find and determine a work stoppage zone. This area shall remain protected until further decisions can be made regarding the work site.
- B. The archaeologist will stand in close proximity of the construction equipment to view subsurface deposits as they are exposed and will be in close communication with the equipment operators to ensure adequate opportunity for observation and documentation. The monitor will coordinate the depths of the lifts with the Port and the Contractor.
- C. The archaeologist will be provided the opportunity to screen excavated sediments and matrix samples when this is judged to be useful.
- D. Archaeological monitoring will proceed until it can be determined by the archaeologists that skeletal remains or other cultural resources are not likely to be impacted by construction activities.

PART 2 – PRODUCTS – NOT USED.

PART 3 – EXECUTION

3.01 PROTOCOLS FOR DISCOVERY OF ARCHAEOLOGICAL RESOURCES

- A. In the event that archaeological resources are encountered within the project, the following actions will be taken:
 - 1. All ground disturbing and construction activity at the specific location will stop and the area will be protected via temporary fencing or other appropriate measures.
 - 2. The Contractor's work supervisor will be notified immediately.
 - 3. Contact the PORT's Engineer and Environmental Project Manager immediately.

4. A work stoppage zone, as determined by the Archaeologist and PORT, will be established.
5. The PORT's Environmental Project Manager will contact the appropriate agencies where the discovery is located as well as the Washington State Department of Archaeology and Historic Preservation (DAHP) the Puyallup Tribe (TRIBE) and the U.S. Army Corps of Engineers (Corp).
6. The Work Stoppage Zone will remain protected until further decisions can be made regarding the area.
7. The Contractor will be allowed to continue ground disturbing and other construction activities outside of the established work stoppage zone.

3.02 PROTOCOLS FOR DISCOVERY OF HUMAN REMAINS

- A. In the event of that human remains are encountered within the project, the following actions, consistent with RCWs 68.50.645, 27.44.055 and 68.60.055 will be taken:
 1. All ground disturbing and construction activity at the specific location will stop and the area will be protected via temporary fencing or other appropriate measures. The remains will not be touched, moved or further disturbed.
 2. The Contractor's work supervisor will be notified immediately.
 3. Contact the Port's Engineer and Environmental Project Manager immediately.
 4. The Environmental Project Manager will notify the county medical examiner / coroner and local law enforcement.
 5. A Work Stoppage Zone will be determined and remain protected until further decisions can be made regarding the area.
 6. The Contractor will be allowed to continue ground disturbing and other construction activities outside of the established work stoppage zone.

3.03 PROTOCOLS FOR CONFIDENTIALITY

- A. In the event of that human remains or cultural resources are discovered within the project area, the Port and the Contractor shall keep and maintain all information regarding any discovery confidential.
 1. At no time shall the Contractor contact the media, any third party or otherwise share information regarding the discovery with any member of the public.
 2. If the Contractor is contacted by the media or the public regarding any discovery, they shall refrain from comment, and contact the Port's Environmental Project Manager immediately.

END OF SECTION

PART 1 - GENERAL

1.01 PERMITS, CODES, AND REGULATIONS

- A. The following permits/approvals have been applied for (or are on file) and incorporated into the Contract:
 - 1. State Environmental Policy Act (SEPA) Compliance
 - 2. Shoreline Management Act / Critical Areas Compliance
 - 3. Hydraulic Code Compliance
 - 4. Section 404 of CWA and Section 10 of RHA Compliance
 - 5. Section 106 of NHPA Compliance
- B. Conform with the requirements of listed permits and additional or other applicable permits, codes, and regulations as may govern the Work.
- C. Obtain and pay fees for licenses, permits, inspections, and approvals required by laws ordinances, and rules of appropriate governing or approving agencies necessary for proper completion of Work (other than those listed under item 1.01.A above and Special Inspections called for by the International Building Code).
- D. Conform with current applicable codes, regulations and standards, which is the minimum standard of quality for material and workmanship. Provide labor, materials, and equipment necessary for compliance with code requirements or interpretations, although not specifically detailed in Drawings or specifications. Be familiar with applicable codes and standards prior to bidding.
- E. Process through Engineer, request to extend, modify, revise, or renew any of the permits (listed in 1.01.A above). Furnish requests in writing and include a narrative description and adequate Drawings to clearly describe and depict proposed action. Do not contact regulatory agency with requests for permit extensions, modifications, revisions, or renewals without the prior written consent of the Engineer.

1.02 VARIATIONS WITH CODES, REGULATIONS AND STANDARDS

- A. Nothing in the Drawings and specifications permits Work not conforming to codes, permits, or regulations. Promptly submit written notice to the Engineer of observed variations or discrepancies between the Contract Documents and governing codes and regulations.
- B. Appropriate modifications to the Contract Documents will be made by Change Order to incorporate changes to Work resulting from code and/or regulatory requirements. Contractor assumes responsibility for Work contrary to such requirements if Work proceeds without notice.
- C. Contractor is not relieved from complying with requirements of Contract Documents which may exceed, but not conflict with requirements of governing codes.

1.03 COORDINATION WITH REGULATORY AGENCIES

- A. Coordinate Work with appropriate governing or regulating authorities and agencies.
- B. Provide advance notification to proper officials of Project schedule and schedule revisions throughout Project duration, in order to allow proper scheduling of inspection visits at proper stages of Work completion.

- C. Regulation coordination is in addition to inspections conducted by Engineer. Notify Engineer at least 48 hours in advance of scheduled inspections involving outside regulating officials, to allow Engineer to be present for inspections.

PART 2 - PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes requirements relating to referenced standards.

1.02 QUALITY ASSURANCE

- A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard of date of issue specified in this section, except where a specific date is established by applicable code.
- C. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Engineer shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 QUALITY CONTROL FOR COMPLIANCE:

- A. The Contractor shall perform such detailed examination, inspection, quality control and assurance of the Work as to ensure that the Work is progressing and is being completed in strict accordance with the Contract Documents. The Contractor shall plan and lay out all Work in advance of operations so as to coordinate all Work without delay or revision. The Contractor shall be responsible for inspection of portions of the Work already performed to determine that such portions are in proper condition to receive subsequent Work. Under no conditions shall a portion of Work proceed prior to preparatory work having been satisfactorily completed. The Contractor shall ensure that the responsible Subcontractor has carefully examined all preparatory work and has notified the Contractor (who shall promptly notify the Port in writing) of any defects or imperfections in preparatory work that will, in any way, affect completion of the Work.

1.02 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop Drawings or as instructed by the manufacturer.
- G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 TOLERANCES

- A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.04 TESTING SERVICES

- A. Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities.
 - 1. Neither observations by an inspector retained by the Port, the presence or absence of such inspector at the site, nor inspections, tests, or approvals by others, shall relieve the Contractor from any requirement of the Contract Documents, nor is any such inspector authorized to change any term or condition of the Contract Documents.

- B. Necessary materials testing shall be performed by an independent testing laboratory during the execution of the Work and paid for by the Port of Tacoma, unless otherwise specified. Access to the area necessary to perform the testing and/or to secure the material for testing, shall be provided by the Contractor.
- C. Testing does not relieve Contractor from performing work to contract requirements.
- D. Re-testing required because of non-conformance to specified requirements will be charged to the Contractor by deducting testing charges from the Contract Sum via Change Order.
- E. Material testing for initial material approval will be performed by an independent, certified laboratory and paid for by the Contractor. These tests must be dated within six (6) months of the submittal date.
- F. Subsequent sampling and testing, required as the work progresses to ensure continual control of materials and compliance with all requirements of the Contract documents, shall be the responsibility of the Port, except as required by other sections of these Specifications.

1.05 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up equipment, test, and adjust and balance equipment as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer subject to approval of Engineer.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes requirements relating to the following:
 - 1. Temporary utilities,
 - 2. Temporary telecommunications services,
 - 3. Temporary sanitary facilities,
 - 4. Temporary Controls: Barriers, enclosures, and fencing, and
 - 5. Field offices.

1.02 TEMPORARY UTILITIES

- A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes. Contractor is responsible for getting required permits and meters from the City of Tacoma.
- B. Existing facilities may not be used.
- C. New permanent facilities may not be used.
- D. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.03 TELECOMMUNICATIONS SERVICES

- A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization. It is the Contractor's responsibility to be able to receive phone calls and emails at the job site.

1.04 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.
- C. At end of construction, return facilities to same or better condition as originally found.

1.05 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for Port's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 FENCING

- A. Construction: Contractor's option.
- B. Provide 6 ft. (1.8 m) high fence around construction site; equip with sufficient with locks.

1.07 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to final inspection.

- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition.
- D. Restore new permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes requirements relating to the following:
 - 1. Access roads
 - 2. Parking
 - 3. Construction parking controls
 - 4. Traffic Control
 - 5. Flares and lights
 - 6. Haul routes
 - 7. Maintenance
 - 8. Removal, repair
 - 9. Mud from site vehicles

PART 2 - PRODUCTS

2.01 SIGNS, SIGNALS, AND DEVICES

- A. Post Mounted and Wall Mounted Traffic Control and Informational Signs, as specified.
- B. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.
- C. Flag Person Equipment: As required by local jurisdictions.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Clear areas, provide surface and storm drainage of road, parking, area premises, and adjacent areas.

3.02 ACCESS TO SITE

- A. Contractor shall conduct all business through the gate assigned by the Engineer.
 - 1. The Contractor may be required to relocate entry and related work areas as required by Port Operations.
- B. Provide unimpeded access for emergency vehicles. Maintain 20 foot (6 m) width driveways with turning space between and around combustible materials.
- C. Provide and maintain access to fire hydrants free of obstructions.

3.03 PARKING

- A. All Contractor's employee cars and work vehicles will be parked on-site as designated by the Engineer.

3.04 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Port operations.
- B. Prevent parking on or adjacent to access roads or in non-designated areas.

3.05 TRAFFIC CONTROL

- A. Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- B. The Contractor shall erect and maintain all construction signs, warning signs, detour signs, flaggers and other traffic control devices necessary for the safe ingress and egress of the Project Site. Traffic control shall include but is not limited to:
 - 1. Flaggers to direct traffic as required by Tacoma Rail to accommodate the Contractor's work.
 - 2. The Contractor shall be liable for injuries and damages to persons and property suffered by reason of the Contractor's operations or any negligence in connection therewith.
 - 3. Flagging, signs, and all other traffic control devices furnished or provided shall conform to established WSDOT and City of Tacoma standards. No work shall be done on or adjacent to the above locations until all necessary signs and traffic control devices are in place. During the course of the work, the Contractor shall be responsible for providing and maintaining adequate traffic control measures for the protection of the Contractor's work and the public.

3.06 FLARES AND LIGHTS

- A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.07 HAUL ROUTES

- A. Confine construction traffic to designated haul routes.
- B. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

3.08 MAINTENANCE

- A. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, Products, mud, snow, and ice.
- B. Maintain existing paved areas used for construction. Promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

3.09 REMOVAL, REPAIR

- A. Repair existing facilities damaged by use, to original condition.
- B. Repair damage caused by installation.

3.10 PUBLIC STREET AND ONSITE ROADWAY CLEANING

- A. The Contractor shall be responsible for preventing dirt and dust escaping from trucks and other vehicles operating on or departing the project site by sweeping, covering dusty loads, washing truck tires, and all other reasonable methods.
- B. When trucks and other equipment are operating on paved public streets and site roadways/paved surfaces, the Contractor will be required to clean said streets, roadways, and other paved surfaces at least daily, and at other times if required by the Engineer.

- C. In the event that the above requirements are violated and no action is taken by the Contractor after notification of infraction by the Engineer, the Port reserves the right to have the streets, roadways, and other paved surfaces in question cleaned by others and have the expense of the operation charged to the Contractor.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

- A. The Work shall consist of planning, installing, inspecting, maintaining and removing Temporary Erosion and Sediment Control (TESC) Best Management Practices (BMPs) to prevent pollution of air and water; and to control, respond to, and dispose of eroded sediment and turbid water during the term of the Contract.
- B. The Contractor shall use a project-specific SWPPP to meet or exceed the control measures required by the Washington Department of Ecology (Ecology). The SWPPP describes the proposed construction activities and all Temporary and Permanent Erosion and Sediment Control (ESC) measures, pollution prevention measures, inspection/monitoring activities, and recordkeeping that will be implemented during the proposed construction project. The Contractor shall have an individual who is a Certified Erosion and Sediment Control Lead (CESCL) on site or on-call at all times.
 - 1. The SWPPP consists of planning, installing, inspecting, maintaining, and removing TESC BMPs per Volume II of the Stormwater Management Manual for Western Washington (current version). The BMPs are designed to prevent pollution of air and water, to control peak volumetric flow rates and velocity of stormwater, and to control, respond to, and dispose of eroded sediment and turbid water during the term of the Contract.
 - 2. The Contractor will be responsible for updating the SWPPP to reflect changes to BMPs, as needed, to comply with the Construction Stormwater General Permit at no additional cost to the Port.
- C. These TESC requirements shall apply to all areas associated with the Work, including but not limited to the following:
 - 1. Work areas;
 - 2. Equipment and material storage areas;
 - 3. Staging areas;
 - 4. Stockpiles; and
 - 5. Discharge points within or adjacent to the work areas that are impacted by stormwater runoff from the site.
- D. Acceptance of TESC plans does not constitute an approval of permanent Work or drainage design (e.g., size and location of roads, pipes, restrictors, channels, retention facilities, utilities, etc.).
- E. Contractor shall read and conform to all requirements set forth in Washington Department of Ecology's (Ecology) NPDES General Permit for Discharges Associated with Construction Activities (CSGP).

1.02 REFERENCES

- A. The rules, requirements, and regulations that apply to this Work include, but are not necessarily limited to the following:
 - 1. Washington Department of Ecology, "Stormwater Management Manual for Western Washington," current version.

2. Washington Department of Ecology NPDES General Permit for Discharges Associated with Construction Activities (CSGP), current version.
3. Washington State Department of Transportation, current version, Standard Specification M41-10, Division 8-01 Erosion Control and Water Pollution Control.
4. Pierce County Stormwater and Site Development Manual, current version (if applicable).

1.03 SUBMITTALS

- A. Prior to the start of any construction activities, a Construction Stormwater Pollution Prevention Plan (SWPPP), as required by the CSGP.
 1. Contractor shall comply with a Contractor provided project SWPPP.
 2. Contractor shall be responsible for updating the project SWPPP during construction to reflect the required changes to BMPs and personnel, as needed, to comply with the CSGP at no additional cost to the Port.
- B. Safety Data Sheet (SDS) for any dust palliative product.
- C. A copy of all Contractor site inspection logs and monthly Discharge Monitoring Reports (DMRs).
- D. The name and contact number of the Certified Erosion and Sediment Control Lead (CESCL).

1.04 AUTHORITY OF ENGINEER

- A. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations, as determined by analysis of project conditions; and to direct the Contractor to provide immediate permanent or temporary pollution control measures to minimize impacts to adjacent streams or other watercourses, lakes, ponds, and other areas of water impoundment.
- B. In the event that areas adjacent to the work area are suffering degradation due to erosion, sediment deposit, water flows, or other causes, the Engineer may stop construction activities until the Contractor rectifies the situation.

PART 2 – PRODUCTS

2.01 DUST CONTROL

- A. Dust palliative for dust control proposed by the Contractor and approved by the Engineer.

PART 3 – EXECUTION

3.01 GENERAL

- A. The Port is subject to a NPDES General Permit for Discharges Associated with Construction Activities (CSGP). The permit shall be transferred to the Contractor prior to ground disturbing activities. The Contractor shall be the responsible Operator/Permittee for the duration of the project.
- B. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply as determined by the Engineer.
- C. No project discharge of water shall be allowed that exceeds the regulated pollutant levels in Ecology's NPDES permit associated with the Project and any CSGP-associated Administrative Orders (if applicable).

- D. Contractor shall be solely responsible for all BMP modifications and upgrades to comply with the CSGP and the requirements of this Section, at no additional cost to the Port.
- E. Contractor shall be solely responsible for any damages and fines incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this Section.
- F. The Contractor shall be solely responsible for schedule impacts incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this Section.

3.02 TEMPORARY EROSION AND SEDIMENT CONTROL DEVELOPMENT

- A. The Contractor is responsible for developing the TESC BMPs and incorporating them into the SWPPP. The Contractor shall address the following issues as part of developing and implementing the BMPs.
 - 1. The TESC notes and details shown in the Drawings and the information in this Section of these Specifications are minimum requirements for the anticipated site conditions during the construction period. During the construction period the Contractor shall, at no additional cost to the Port, upgrade the TESC measures as needed for unexpected storm events and modify these measures for changing site conditions (such as relocation of ditches and silt fences, etc.) and update the SWPPP to document the modifications made.
 - 2. The Contractor shall inspect the TESC measures daily and maintain these measures to ensure continued proper functioning during the construction period. The Contractor will keep written records on site of inspections on a weekly basis during the wet season (October 1 through April 30) and on a monthly basis during the dry season (May 1 through September 30). The Contractor shall provide the Port with copies of the TESC inspections, as stated in Section 1.03 above.
 - 3. Any areas needing TESC measures not requiring immediate attention shall be addressed by the Contractor at the Port's discretion.
 - 4. The TESC measures in an inactive site shall be inspected and maintained by the Contractor at a frequency described in the Project Construction Stormwater NPDES General Permit.
 - 5. The Contractor shall be responsible for implementing the SWPPP and shall modify the SWPPP as required to reflect on-site activities and personnel.
- B. Contractor shall develop project-specific TESC BMPs and incorporate them into the SWPPP.
 - 1. The SWPPP shall comply with the requirements in Ecology's Volume II of the Stormwater Management Manual for Western Washington (current version) or equivalent.
 - 2. TESC notes and details shown in the Drawings and the information in this Section form a basis of the minimum requirements for a TESC Plan. Contractor shall develop a TESC Plan specific to the construction schedule and proposed means and methods prior to commencing construction activities for the duration of the Project.
- C. Contractor shall inspect the existing system and report to the Engineer the levels of existing material prior to installation of TESC BMPs.

3.03 TEMPORARY EROSION AND SEDIMENT CONTROL IMPLEMENTATION

- A. Contractor is responsible for implementing and updating the SWPPP including TESC BMPs.
 - 1. Contractor shall inspect the TESC measures daily and maintain these measures to ensure continued proper functioning for the duration of the Project.

2. Contractor will be responsible for documenting TESC site inspections on a weekly basis in areas of active construction and on a monthly basis in areas that have undergone stabilization. Contractor shall keep records of the inspections on site.
 3. During the construction period the Contractor shall, at no additional cost to the Port, upgrade and/or maintain TESC measures as needed, based on Contractor means and methods, work sequencing, and changing site conditions (e.g., changes to impervious surface coverage, proximity of work to storm conveyance systems, storm events, etc.). Contractor shall modify these measures for changing site conditions and update the SWPPP to document all modifications made.
- B. Contractor shall clean all stormwater components affected by construction debris prior to Work completion, per TESC BMPs for catch basin maintenance. The cleaning process shall not flush sediment-laden water into a downstream system.
 - C. Contractor shall ensure that water, or a dust palliative and a dispensing subcontractor, if needed, is available for project use. It is the responsibility of the Contractor to develop and adhere to appropriate safety measures pertaining to the palliative use. This also includes ensuring the dispensing subcontractor develops and adheres to the appropriate safety measures, if a dispensing subcontractor is used. Water used for dust suppression shall not be applied at such a rate or in a location that it will generate runoff from the site.
 - D. Areas of exposed soils, including embankments, which will not be disturbed for two days during the wet season (October 1 through April 30) or seven days during the dry season (May 1 through September 30), shall immediately be stabilized by the Contractor with an Ecology-approved TESC measure (e.g., seeding, mulching, plastic covering, etc.).
 - E. TESC measures in an inactive area shall be inspected and maintained by the Contractor until the area is permanently stabilized.
 - F. In the event that additional temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the Work as scheduled or as ordered by the Engineer, such work shall be performed by the Contractor at its own expense.
 - G. Contractor shall remove all TESC facilities, install permanent site surfacing improvements and permanent BMPs with minimal disturbance, and shall clean stormwater facilities prior to Work completion.
 - H. Contractor shall terminate the CSGP upon final stabilization of the site.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes the requirements to provide product data under the applicable specification section.

1.02 SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 - PRODUCTS

2.01 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.

2.02 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

PART 3 - EXECUTION

3.01 TRANSPORTATION AND HANDLING

- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- B. Transport and handle products in accordance with manufacturer's instructions.
- C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.02 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Prevent contact with material that may cause corrosion, discoloration, or staining.
- H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes information on warranty, operation and maintenance manuals, and as built documentation.
- B. Prior to requesting final inspection, the Contractor shall assure itself that the project is complete in all aspects.

PART 2 - PRODUCTS

2.01 WARRANTY

- A. The Contractor warrants the labor, materials and equipment delivered under the contract to be free from defects in design, material, or workmanship, and against damage caused prior to final inspection. Unless otherwise specified, this warranty extends for a period of one (1) year from the date of Substantial Completion.
- B. The Contractor shall promptly (within 48-hours) repair or replace all defective or damaged items delivered under the contract. The Contractor will haul away all defective or damaged items prior to Substantial Completion.
- C. In the event of equipment failure, during such time or in such a location that immediate repairs are mandatory, the Contractor shall respond promptly, irrespective of time. If the Contractor is not available, the Port will effect repairs. The Contractor shall then reimburse the Port for parts and labor necessary to correct deficiencies as defined within the warranty clause and time.

2.02 OPERATION AND MAINTENANCE MANUALS

- A. The following information (minimum of 3 copies) shall be furnished for all items of equipment on the Project requiring operational and/or maintenance procedures and for any additional items indicated by the Engineer:
 - 1. Lubrication Information: This shall consist of the manufacturer's recommendations regarding the lubricants to be used and the lubrication schedule to be followed.
 - 2. Control Diagrams: Diagrams shall show internal and connection wiring and as-built wiring diagrams (where applicable).
 - 3. Start-up Procedures: These instructions consist of equipment manufacturer's recommendations for installation, adjustment, calibration, and troubleshooting.
 - 4. Operating Procedures: These instructions consist of the equipment manufacturer's recommended step-by-step procedures for starting, operating, stopping the equipment under specified modes of operation, and for long-term shut-down (moth-balling).
 - 5. Preventative Maintenance Procedures: These instructions consist of the equipment manufacturer's recommended steps and schedules for maintaining the equipment.
 - 6. Overhaul Instructions: These instructions consist of the manufacturer's directions for the disassembly, repair and reassembly of the equipment and any safety precautions that must be observed while performing the work.
 - 7. Parts List: This list consists of the generic title and identification number of each component part of the equipment. This list shall include weights of individual components of each item of equipment weighing over 100 pounds.

8. Spare Parts List: This list consists of the manufacturer's recommendations of number of parts which should be stored by the Port and any special storage precautions which may be required.
9. Exploded View: Exploded or cut views of equipment shall be provided if available as a standard item of the manufacturer's information. When exploded or cut views are not available, plan and section views shall be provided with detailed callouts.
10. Specific Information: Where items of information not included in the above list are required, they will be provided as described in the specifications for the equipment.
11. Complete identification, including model and serial numbers.
12. Submittal information, as specified in Section 013300 Submittal Procedures.
13. Warranty Information: This information consists of the name, address, and telephone number of the manufacturer's representative to be contacted for warranty, parts, or service information.
14. Maintenance information summaries shall be prepared on 8-1/2" x 11" paper and digital version (PDF format) on CD-ROM and shall contain the following information compiled from manufacturer's recommendations in the order shown.
 - a. Description or name of item of equipment
 - b. Asset number (to be provided at a later date)
 - c. Manufacturer
 - d. Name, address, and telephone number of local manufacturer's representative
 - e. Serial number (where applicable)
 - f. Equipment nameplate data
 - g. Recommended maintenance procedures:
 - 1) Description of procedures.
 - 2) Lubricant(s) or other materials required (where applicable), including type of lubricant, lubricant manufacturer, and specific compound.
 - 3) Additional information as required for proper maintenance.
 - h. Maintenance schedule, broken down into:
 - 1) Daily
 - 2) Weekly
 - 3) Monthly
 - 4) Quarterly
 - 5) Semi-Annually
 - 6) Annually
 - i. Recommended spare parts (where applicable)
 - j. Asset Number Information:
 - 1) Provide the following information in Excel spreadsheet format:

- (a) Asset Number (to be provided at a later date)
- (b) Description
- (c) Plan Sheet Number
- (d) Parcel Number
- (e) Vendor
- (f) Manufacturer
- (g) Model Year
- (h) Serial Number
- (i) Warranty - Start Date; Finish Date
- (j) Required Preventative Maintenance
- (k) Purchase Price
- (l) Make
- (m) Model
- (n) Fuel Used
- (o) Capacity

2) Asset Number Information will be required for the following items:

- (a) (a)

- 15. Provide video tapes, DVDs, and audio-visual training materials utilized in the manufacturer's instruction program for the Port.
- 16. All such information shall be organized by the Contractor into 3-inch, 3-post, expandable metal binders. The binders shall be sized for material approximately 8-1/2 by 11 inches, and the material in the binders shall not protrude beyond the covers. The binder(s) shall be divided with coversheets for each major item of equipment. The cover sheets shall be typewritten to indicate the name, type of equipment, and location(s) within the Project where installed. A neatly typewritten index shall be provided. The number of copies of such binders to be submitted shall be equal to the total of the Contractor's requirements plus five (5) paper copies and an electronic copy in PDF format to be retained by the Port.
- 17. All operation and maintenance information shall be comprehensive and detailed and shall contain information adequately covering all normal operation and maintenance procedures.
- 18. All information shall be specific for the items of equipment installed on the project. Material not directly applicable shall be removed, omitted, or clearly marked as inapplicable.
- 19. Lubricants shall be described in detail, including type, recommended manufacturer, and manufacturer's specific compound to be used.
- 20. If manufacturer's standard brochures and manuals are used to describe operating and maintenance procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project.

21. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated. It shall be the responsibility of the Contractor to ensure that all operation and maintenance materials are obtained. Material submitted must meet the approval of the Engineer prior to project acceptance.

PART 3 - EXECUTION

3.01 FINAL DOCUMENTS

A. Project As-Built Drawings

1. Project As-Built Drawings shall be compiled by the Contractor and submitted to the Engineer for translation to the Record Drawings on a monthly basis.
2. The Project As-Built Drawings will be submitted on paper full-sized (ANSI D) copy.
3. Drawings shall be kept current and shall be done at the time the material and equipment is installed. Annotations to the record documents shall be made with an erasable colored pencil conforming to the following color code:
 - a. Additions - Red
 - b. Deletions - Green
 - c. Comments - Blue
 - d. Dimensions - Graphite
4. Project As-Built Drawings must be complete and accepted by the Engineer before Final Completion is issued.
5. As-Built Drawings shall be in accordance with horizontal and vertical control as shown on the drawings.

B. Final Survey

1. See Section 01 71 23 Field Engineering for Final Survey requirements. The Final Survey shall be completed and submitted to the Engineer within 30 days of Substantial Completion. Final Survey must be complete and accepted by the Engineer before Final Completion is issued.

C. The following Certificates shall be submitted by the Contractor prior to Final Completion:

1. Certificates of Conformance
 - a. Notice of Termination (NOT) Construction Stormwater General Permit: (Confirmation of Termination request acceptance by DOE).

3.02 CLEAN-UP

- A. Definition: Except as otherwise specifically provided, "clean" (for the purpose of this Article) shall be interpreted as meaning the level of cleanliness generally provided by commercial building maintenance subcontractors using commercial quality building maintenance equipment and materials.
- B. General: Prior to completion of the work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described above.
- C. Site: Unless otherwise specifically directed by the Engineer, hose down all paved areas on the site, all public sidewalks and catch basins on adjoining streets. Completely remove all resultant debris.

D. Structure:

1. Exterior: Visually inspect all exterior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. If necessary to achieve a uniform degree of exterior cleanliness, hose down the exterior or the structure. In the even of stubborn stains not removable with water, the Engineer may require light sandblasting or other cleaning at no additional cost to the Port.
 2. Interior: Visually inspect all interior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. Remove all paint droppings, spots, stains, and dirt from finished surfaces. Use only the specified cleaning materials and equipment.
 3. Clean all glass inside and outside.
 4. Polished Surfaces: To all surfaces requiring the routine application of buffed polish, apply the specified polish as recommended by the manufacturer of the material being polished.
- E. Timing: Schedule final cleaning as approved by the Engineer to enable the Port to occupy a completely clean project.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes requirements relating to the following:
 - 1. Examination, preparation, and general installation procedures
 - 2. Cutting and patching

1.02 SUBMITTALS

- A. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
 - 1. Structural integrity of any element of Project;
 - 2. Integrity of weather exposed or moisture resistant element;
 - 3. Efficiency, maintenance, or safety of any operational element;
 - 4. Visual qualities of sight exposed elements; and
 - 5. Work of the Port or separate Contractor.
- B. Project As-Built Documents: Accurately record actual locations of capped and active utilities.

PART 2 - PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.

- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.04 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
 - 1. Complete the work;
 - 2. Fit products together to integrate with other work;
 - 3. Provide openings for penetration of mechanical, electrical, and other services;
 - 4. Match work that has been cut to adjacent work;
 - 5. Repair areas adjacent to cuts to required condition;
 - 6. Repair new work damaged by subsequent work;
 - 7. Remove samples of installed work for testing when requested; and
 - 8. Remove and replace defective and non-conforming work.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work snug to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. Patching:
 - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 - 2. Match color, texture, and appearance.

3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.05 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.06 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes field engineering and land surveying services by Contractor.

1.02 DESCRIPTION OF SERVICES

- A. Specific services listed in this section are in addition to, and do not supersede, general Execution and Closeout Requirements.
- B. Sole responsibility for establishing all locations, dimensions and levels of items of work.
- C. Sole responsibility for provision of all materials required to establish and maintain benchmarks and control points, including batter boards, grade stakes, structure elevation stakes, and other items.
- D. Keeping a transit, theodolite, or TST (total station theodolite with electronic distance measurement device); leveling instrument; and related implements such as survey rods and other measurement devices, at the project site at all times.
- E. Provision of facilities and assistance necessary for Architect to check lines and grade points placed by Contractor.
 - 1. Performance of excavation or embankment work until after all cross-sectioning necessary for determining payment quantities for Unit Price work have been completed and accepted by Architect.
- F. Preparation and maintenance of daily reports of activity on the work. Submission of reports containing key progress indicators and job conditions to Architect.
 - 1. Major equipment and materials installed as part of the work.
 - 2. Location of areas in which construction was performed.
 - 3. Work performed, including field quality control measures and testing.
 - 4. Weather conditions.
 - 5. Instructions received from Architect or Port, if any.
- G. Preparation and maintenance of professional-quality, accurate, well organized, legible notes of all measurements and calculations made while surveying and laying out the work.

1.03 REFERENCE STANDARDS

- A. FGDC-STD-007.1 - Geospatial Positioning Accuracy Standards - Part 1: Reporting Methodology; 1998.
- B. FGDC-STD-007.2 - Geospatial Positioning Accuracy Standards - Part 2: Standards for Geodetic Networks; 1998.
- C. FGDC-STD-007.4 - Geospatial Positioning Accuracy Standards - Part 4: Architecture, Engineering, Construction, and Facilities Measurement; 2002.
- D. State Plane Coordinate System for the State in which the Project is located.

1.04 QUALITY ASSURANCE

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 FIELD ENGINEERING

- A. Maintain field office files, drawings, specifications, and record documents.
- B. Coordinate field engineering services with Contractor's subcontractors, installers, and suppliers as appropriate.
- C. Prepare layout and coordination drawings for construction operations.
- D. Check and coordinate the work for conflicts and interferences, and immediately advise Architect and Port of all discrepancies of which Contractor is aware.
- E. Cooperate as required with Architect and Port in observing the work and performing field inspections.
- F. Review and coordinate work on a regular basis with shop drawings and Contractor's other submittals.
- G. Check the location, line and grade of every major element as the work progresses. Notify the Architect when deviations from required lines or grades exceed allowable tolerances. Include in such notifications a thorough explanation of the problem, and a proposed plan and schedule for remedying the deviation. Do not proceed with remedial work without Port's concurrence of the remediation plan.

3.02 LAND SURVEYING

- A. General: Follow standards for geospatial positioning accuracy.
 - 1. FGDC-STD-007.1as amended by Authority Having Jurisdiction.
 - 2. FGDC-STD-007.2as amended by Authority Having Jurisdiction.
 - 3. FGDC-STD-007.4as amended by Authority Having Jurisdiction.
- B. Coordinate survey data with the State Plane Coordinate System of the State in which the Project is located.
- C. Contractor is responsible for the restoration of all property corners and control monuments damaged or destroyed by construction-related activities. Any disturbed monuments must be replaced at Contractor's expense by a surveyor licensed in the State in which the Project is located, and approved by the Architect.
 - 1. Temporarily suspend work at such points and for such reasonable times as the Port may require for resetting monuments. The Contractor will not be entitled to any additional compensation or extension of time.

3.03 REPORTS

- A. Submit two copies of Contractor's daily reports at Architect's field office (or electronically) by 9:00 AM the next working day after the day covered in the associated report. Daily report shall be signed by responsible member of Contractor's staff, such as project manager or superintendent, or foreman designated by Contractor as having authority to sign daily reports.

3.04 RECORDS

- A. Maintain at the Site a complete and accurate log of control and survey work as it progresses.
 - 1. Organize and record survey data in accordance with recognized professional surveying standards, Laws and Regulations, and prevailing standards of practice in the State in which the Project is located. Record Contractor's surveyor's original field notes, computations, and other surveying data in Contractor-furnished hard-bound field books. Contractor is solely responsible for completeness and accuracy of survey work, and completeness and accuracy of survey records, including field books. Survey records,(including field books) may be rejected by Port due to failure to organize and maintain survey records in a manner that allows reasonable and independent verification of calculations, and/or allows identification of elevations, dimensions, and grades of the work.
 - 2. Illegible notes or data, and erasures on any page of field books, are unacceptable. Do not submit copied notes or data. Corrections by ruling or lining out errors will be unacceptable unless initialed by the surveyor. Violation of these requirements may require re-surveying the data questioned by Architect.
- B. Submit three copies of final property survey to Port. Include on the survey a certification, signed by the surveyor, that principal metes, bounds, lines, and levels of the Project are accurately positioned as shown on the survey. Include the following information:

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes information for progress and final cleaning and restoration of damaged work prior to final inspection.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.01 PROGRESS CLEAN-UP

- A. The Contractor shall clean the project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with all requirements for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 - 3. Containerize unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials for the type of material to be stored.
 - 4. Coordinate progress cleaning for joint use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free from waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section _____.

- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration until Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.02 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances.
 - f. Remove debris and surface dust from limited access spaces, including roofs, attics, and similar spaces.
 - g. Sweep concrete floors broom clean in unoccupied spaces.
 - h. Remove labels that are not permanent.
 - i. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - j. Leave Project clean and ready for occupancy.

3.03 REPAIR OF WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surface, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
2. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes construction waste management requirements.

1.02 DESCRIPTION OF WORK

- A. The work includes demolition and removal within the project areas as shown on the drawings. The work also includes waste generated by construction activities, materials, packaging, scraps, and garbage.
- B. Soils excavated within the projects areas, as shown on the drawings, are anticipated to be free of contamination, however, should the Contractor, using visual and olfactory methods, identify potentially contaminated soil, the Contractor shall notify the Engineer to determine if the soil requires special handling. This material shall be segregated from other excavated material. It shall be stockpiled on plastic and covered with plastic until such time as appropriate testing and analysis can be completed by the Engineer. Upon completion of the testing and analysis the Engineer will direct the Contractor concerning the disposition of the material. Soil beyond construction excavation limits will not require excavation unless free draining product is observed or other special conditions exist in which case the Engineer will direct the Contractor in additional excavation. Soils determined to be contaminated will be hauled and disposed of at a locations designated in the following paragraphs.

1.03 DEFINITIONS

- A. Co-mingled or Off-site Separation: Collecting all material types into a single bin or mixed collection system and separating the waste materials into recyclable material types at an off-site facility.
- B. Construction, Demolition and Land-Clearing (CDL) Waste: Includes all nonhazardous solid wastes resulting from construction, remodeling, alterations, repair, demolition, and land clearing. Includes material that is recycled, reused, salvaged or disposed as garbage.
- C. Hazardous/Dangerous Waste: As defined by Chapter 70.105.010 Revised Code of Washington and 40 Code of Federal Register 261 and by Washington Administrative Code 173-303.
- D. Proper Disposal: As defined by the jurisdiction receiving the waste.
- E. Recyclable Materials: Products and materials that can be recovered and remanufactured into new products.
- F. Recycling: The process of sorting, cleaning, treating and reconstituting materials for the purpose of using the material in the manufacture of a new product. Can be conducted on-site (as in the grinding of concrete).
- G. Recycling Facility: An operation that is permitted to accept materials for the purpose of processing the materials into an altered form for the manufacture of a new product.
- H. Salvage for Reuse: Existing usable product or material that can be saved and reused in some manner on the project site or other projects off-site.
- I. Salvage for Resale: Existing usable product or material that can be saved and removed intact (as is) from the project site to another site for resale to others without remanufacturing.
- J. Source-Separated Materials: Materials that are sorted at the site into separate containers for the purpose of reuse or recycling.

- K. Sources Separation: Sorting the recovered materials into specific material types with no, or a minimum amount of, contamination on site.
- L. Time-Based Separation: Collecting waste during each phase of construction or deconstruction that results in primarily one major type of recovered material. The material is removed before it becomes mixed with the material from the next phase of construction.
- M. Garbage: Product or material typically considered to be trash or debris that is unable to be salvaged for resale, salvaged and reused, returned, or recycled.
- N. Olfactory Indications (methods): Of or relating to the sense of smell. Soils contaminated with petroleum and other volatile constituents typically exhibit characteristic odors that can be detected (and sometimes identified) by smell.
- O. PID: Photo Ionization Detector. A field instrument that is used to detect the presence of and give a relative indication of the concentration of vapors emitted from volatile constituents (contamination) in environmental media (soil and water).
- P. Soil (waste) Profile: A characterization of the chemical and physical properties of a waste material including the types of contaminants and their concentrations as measured by approved laboratory analytical methods. A profile is required by the receiving permitted disposal or recycling facility.
- Q. Special Handling: Refers to hauling and disposal of soils that, because they are contaminated, cannot be reused in place as backfill or as general fill at another location. Such soils must be hauled to and managed at a permitted disposal or recycling facility.
- R. Type A Contaminated Soil: Soil that must be removed from the Project site and has been determined by the Engineer to contain petroleum hydrocarbons in concentrations exceeding state or federal cleanup standards or special Port determined criteria. Type A soil requires disposal at an approved facility.
- S. Type B Contaminated Soil: Soil that must be removed from the Project site and has been determined by the Engineer to contain petroleum hydrocarbons or other contaminants in concentrations that will require disposal or recycling at one of the approved facility.
- T. Type C Contaminated Soil: Soil determined by Engineer to contain unknown constituent(s) and requires further testing and classification. Type C soil requires disposal at one of the approved facility.
- U. Type D Material: Material including soil, determined by the Engineer not to require special handling with regard to this Contract. Classification of material as Type D material by the Port is not a certification nor does it release the Contractor of liability or obligation to meet any disposal or storage facility acceptance or testing requirements.
- V. Unanticipated Contamination: Contamination unexpectedly found in an excavation or in other locations where there is no prior knowledge, information, or history to indicate possible spills or releases of contamination.
- W. Visual Indications (methods): A preliminary evaluation of the potential presence of contamination based on visual observation. For example, fuel contaminated soils are frequently discolored or stained relative to non-petroleum impacted native soils or clean fill.

1.04 SUBMITTALS

- A. Waste Management Plan
- B. Waste Management Final Report

C. Soils Management Plan

D. Soils Hauling Receipts

1.05 PERFORMANCE GOALS

- A. General: Divert CDL waste to the maximum extent practicable from the landfill by one or a combination of the following activities:
 - 1. Salvage
 - 2. Reuse
 - 3. Source separated CDL recycling
 - 4. Co-mingled CDL recycling
- B. CDL waste materials that can be salvaged, resold, reused or recycled, include, but are not limited to the following:
 - 1. Clean dimensional wood, pallet wood, plywood, OSB, and particleboard
 - 2. Asphalt
 - 3. Concrete and concrete masonry units
 - 4. Ferrous and non-ferrous metals
 - 5. Field office waste paper, aluminum cans, glass, plastic, and cardboard
- C. Hazardous/Dangerous Wastes, contaminated soils and other hazardous materials such as paints, solvents, adhesives, batteries, and fluorescent light bulbs and ballasts shall be disposed of at applicable permitted facilities.

1.06 WASTE MANAGEMENT PLAN

- A. Submit a Waste Management Plan within 10 days after the notice to proceed and not less than 5 days before any demolition activities in accordance with these specifications. Provide a Waste Management Plan in a format as approved by the Engineer.
- B. The Waste Management Plan shall include the following:
 - 1. Name of designated Waste Management Coordinator.
 - 2. A list of waste materials, including estimated types and quantities, of the waste that will be generated. Indicate salvaged for resale, salvaged for reuse, recycled, or disposed for each item.
 - 3. Identify waste handling methods to be used, including one or more of the following:
 - a. Method 1 - Contractor or subcontractor(s) hauls recyclable materials to an approved recycling facility.
 - b. Method 2 - Contracting with diversion/recycling hauler to haul recyclable material to an approved recycling or material recovery facility.
 - c. Method 3 - Recyclable material reuse on-site.
 - d. Method 4 - Recyclable material salvage for resale.
 - e. Method 5 - Contractor or subcontractor hauls waste to an approved disposal facility.

4. Identification of each recycling, disposal, or material recovery facility to be utilized, including name, address and types of materials being recycled at each facility.
 5. Description of the method to be employed in collecting, and handling, waste materials.
 6. Description of methods to communicate Waste Management Plan to personnel and subcontractors.
 7. Actions that will be taken to reduce solid waste generation.
- C. Revise and resubmit Waste Management plan as required by the Engineer. Approval of the Contractor's Plan does not relieve the Contractor of responsibility for compliance with all applicable laws and regulations. Distribute copies of the Waste Management Plan to each subcontractor.

1.07 WASTE MANAGEMENT FINAL REPORT

- A. Provide a Waste Management Final Report, in a format approved by the Engineer. The Waste Management Final Report shall list the following for the project:
1. A record of each waste material type and quantity recycled, reused, salvaged, or disposed from the Project. Include total quantity of waste material removed from the site and hauled to a landfill.
 2. Percentage of total waste material generated that was recycled, reused, or salvaged.
- B. Quantities shall be reported by weight (tons) unless otherwise approved by the Engineer.
- C. Submit copies of manifests, weight tickets, recycling/disposal receipts or invoices, which validate the calculations or a signed certification of completeness and accuracy of the final quantities reported.

1.08 SOILS MANAGEMENT PLAN

- A. A minimum of 10 days prior to excavation of any subsurface materials, submit a Soils Management Plan to the Engineer. The Soils Management Plan must be approved by the Engineer prior to any excavation of subsurface materials. Include the following in the Soils Management Plan:
1. Identification of all soil disposal/recycling facilities to be used on the project for Type A and B Contaminated Soil.
 2. Identification of all fill sites, disposal facilities and/or end uses of material determined to be Type D Material.
 3. Contingency for delivery and placement of Type C Contaminated Soil at an onsite Soil Stockpile area.
 4. Contingency for managing debris encountered during excavation that may disqualify soil for disposal or recycle at the approved facilities.
 5. General description of how equipment operators, safety personnel and other applicable Contractor shall coordinate with the Engineer to facilitate handling of contaminated soil in accordance with this specification.
 6. Description of all haul routes to be used on the project.
- B. Include in the Two Week Look Ahead Schedule specific time frames for excavation. Each excavation activity shall be given an individual line item description, time frame and duration.

- C. Notify the Engineer prior to hauling contaminated soil to the soil disposal facility. The notification shall include:
 - 1. An estimate of the number of truck-trips, the haul destination, and the period in which these trips will be made (e.g., 20 truck-trips to the Waste Management Facility over the two-week period beginning on March 1, 2012).

1.09 QUALITY ASSURANCE

- A. Regulatory Requirements: The Contractor shall maintain compliance with all applicable Federal, State, or Local laws that apply to Construction Waste Management and material salvage, reuse, recycling and disposal.
- B. Disposal Sites, Recyclers and Waste Materials Processors: All facilities utilized for management of any materials covered under this specification must maintain all necessary permits as required by federal, state and local jurisdictions.

1.10 HEALTH AND SAFETY

- A. The Contractor is required to implement all health and safety provisions as required by Specification 01 35 29 - Health, Safety and Emergency Response Procedures.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 WASTE DISPOSAL

- A. Source-Separated CDL Recycling: Provide individual containers for separate types of CDL waste to be recycled, clearly labeled with a list of acceptable and unacceptable materials.
- B. Co-Mingled CDL Recycling: Provide containers for co-mingled CDL waste to be recycled, clearly labeled with a list of acceptable and unacceptable materials.
- C. Landfill: Provide containers for CDL waste that is to be disposed of in a landfill clearly labeled as such.
- D. Removal of CDL Waste from Project Site: Transport CDL waste off Port's property and provide legal disposal.

3.02 SOIL DISPOSAL

- A. Excavation/Testing: The field-testing for contaminated soil will be performed by the Port and will result in the following classification of material as defined in paragraph DEFINITIONS of this section:
 - 1. Type A Contaminated Soil.
 - 2. Type B Contaminated Soil.
 - 3. Type C Contaminated Soil.
 - 4. Type D Material.
- B. Disposition of Material
 - 1. Type A and B Contaminated Soil: Material determined to be Type A or B Contaminated Soil shall be hauled by the Contractor to an approved facility for disposal.

2. Type C Material: Material determined to be Type C is of unknown origin or special circumstances. Material determined to be Type C contaminated soils shall be hauled to an onsite Soil Stockpile Site area. The Contractor shall protect the material once stockpiled. The Port will direct the Contractor on the disposition of the material following the analysis of the suspect material.
3. Type D Material: Material determined not to require special handling (Type D) shall be hauled by the Contractor to a site determined by the Contractor. If testing or certification of this material is required by the receiving site, the Contractor shall complete these requirements. The Port will not certify or declare the material suitable for unrestricted use.

C. Other Requirements

1. Cover all soil stockpiles and maintain stockpile areas in accordance with SECTION 01 57 13 - Temporary Erosion and Sediment Control and Construction Stormwater Pollution Prevention.
2. Material determined to be Type A, Type B or Type C contaminated material may be, upon approval of the Engineer, temporarily stockpiled within the construction area. Provide an impervious liner beneath this soil and securely cover with a waterproof covering. Remove the material prior to completion of work in the work area.
3. Submit all hauling receipts (or copies of receipts) from the receiving facility for all Type A, Type B or Type C Contaminated soil at least weekly.
4. The Engineer may require shut down of excavation should unforeseen condition warrant.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures
 - 2. Final completion procedures
 - 3. Warranties
 - 4. As-Built Drawings

1.02 ACTION SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

1.03 PROJECT SUBMITTALS

- A. Submittal of Project Warranties
- B. Record Drawings
 - 1. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous recordkeeping requirements and submittals in connection with various construction activities.
- C. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.04 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Port unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in individual Sections, including specific warranties, operation and maintenance manuals, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 3. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by the Contract Document or Engineer. Label with manufacturer's name and model number where applicable.
 - 4. Submit test/adjust/balance records.
 - 5. Submit changeover information related to Port's occupancy, use, operation, and maintenance.

- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:
 - 1. Make final changeover of permanent locks and deliver keys to Port
 - 2. Complete startup and testing of systems and equipment
 - 3. Perform preventive maintenance on equipment used prior to Substantial Completion
 - 4. Instruct Port's personnel in operation, adjustment, and maintenance of products, equipment, and systems
 - 5. Advise Port of changeover in heat and other utilities
 - 6. Terminate and remove temporary facilities from Project site
 - 7. Complete final cleaning requirements
- D. Submit a written request for inspection to determine Substantial Completion a minimum of DD days prior to the date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Notice of Substantial Completion after inspection or will notify Contractor of items, either on the Contractor's list or additional items identified by the Engineer, that must be completed or corrected before notice will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for final completion.

1.05 PUNCH LIST (LIST OF INCOMPLETE ITEMS)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of Construction.
 - 1. Organize list of spaces in sequential order.
 - 2. Organize items applying to each space by major elements.

1.06 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete and submit the following:
 - 1. Submittal of all remaining items, including as-built documents, final completion construction photographic documentation, damage or settlement surveys, surveys, and similar final record information and all other submittals defined in the Contract Documents.
 - 2. List of Incomplete Items: Submit copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (Punch List). Copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of DD days prior to date the work will be complete and ready for final inspection and tests. On receipt of request, the Engineer will either proceed with inspection or notify contractor of unfulfilled requirements.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

C. Execution of all Change Orders.

1.07 FINAL ACCEPTANCE PROCEDURES

A. Submittals Prior to Final Acceptance:

1. Receipt and approval of application for final payment; due within seven (7) days of receipt of Final Completion by the Engineer;
2. Contractor's signed waiver and release of claims on the Engineer provided form;
3. Contractor's submittal of list of all suppliers and subcontractors and the total amounts paid to each on the Engineer provided form; and
4. Contractor's submittal of a list of all subcontractors and suppliers requiring Affidavits of Wages paid on the Contract and certify that each of companies will submit an approved Affidavit of Wages paid to the Port within 30 days.

B. The Engineer will issue the Final Acceptance Memo upon receipt of the required submittals.

PART 2 - PRODUCTS

2.01 CONTRACTOR'S WARRANTY

- A. The Contractor warrants the labor, materials and equipment delivered under the contract to be free from defects in design, material, or workmanship, and against damage caused prior to final inspection. Unless otherwise specified, this warranty extends for a period of one (1) year from the date of Substantial Completion.
1. Time of Submittal: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit the Port's rights under warranty.
 2. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Port or Port tenants during construction.
 3. Submit Warranties to the Engineer as a submittal, as described in 01 33 00 – Submittal Procedures.
 4. Provide additional copies of each warranty in Operation and Maintenance Manuals as described in 01 78 23 – Operation and Maintenance Manuals.
- B. In the event of equipment failure, during such time or in such a location that immediate repairs are mandatory, the Contractor shall respond promptly (within 48 hours), irrespective of day of the week. If the Contractor is not available, the Port will affect repairs. The Contractor shall then reimburse the Port for parts and labor necessary to correct deficiencies as defined within the warranty clause and time.

2.02 AS-BUILT DRAWINGS

- A. Project As-Built Drawings: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

- B. Project As-Built Drawings shall be compiled by the Contractor and submitted to the Engineer for translation to the Record Drawings on a monthly basis.
 - 1. The Project As-Built Drawings will be submitted on paper full-sized (ANSI D) copy.
 - 2. Drawings shall be kept current and shall be done at the time the material and equipment is installed. Annotations to the record documents shall be made with an erasable colored pencil conforming to the following color code:
 - a. Additions – Red
 - b. Deletions – Green
 - c. Comments – Blue
 - d. Dimensions – Graphite
 - 3. Project As-Built Drawings must be complete and accepted by the Engineer before Final Completion is issued.
 - 4. As-Built Drawings shall be in accordance with horizontal and vertical control as shown on the drawings.

PART 3 – EXECUTION

3.01 MAINTENANCE OF AS-BUILT DRAWINGS

- A. The Contractor shall maintain at the Project site, in good order for ready reference by the Engineer, one complete copy of the Contract Documents, including Addenda, Change Orders, other documents issued by the Port, a current Progress Schedule, and approved Submittals. The Contractor shall also generate and keep on site all documents and reports required by applicable permits.
- B. The Contractor's As-Built Drawings shall be updated to record all changes made during construction. The location of all existing or new underground piping, valves and utilities, and obstructions located during the Work shall be appropriately marked until the Contractor incorporates the actual field dimensions and coordinates into the as-built drawings. The as-built drawings shall be updated at least weekly and before elements of the Work are covered or hidden from view. After the completion of the Work, the as-built drawings shall be provided to the Port.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

- A. Operation and Maintenance Manual Submittal

1.02 SUBMITTALS

- A. Operation and Maintenance Data:

1. For equipment, or component parts of equipment put into service during construction and operated by the Port, submit completed documents within ten days after acceptance.
2. Submit electronic (PDF) copies of completed documents 10 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Engineer comments. Revise content of all document sets as required prior to final submission.
3. Submit electronic (PDF) sets of revised final documents in final form by Final Completion.

PART 2 - PRODUCTS

2.01 OPERATION AND MAINTENANCE MANUALS

- A. For large equipment (such as pumps, generators, machinery), the following information (minimum of 3 printed copies, plus one electronic copy on CD) shall be furnished for all items on the Project requiring operational and/or maintenance procedures and for any additional items indicated by the Engineer. Printed information shall be organized by the Contractor into appropriately sized 3-ring binders (no larger than 3"). The binders shall be sized for material approximately 8-1/2 by 11 inches, and the material in the binders shall not protrude beyond the covers. The binder(s) shall be divided with coversheets for each major item of equipment. The cover sheets shall be typewritten to indicate the name, type of equipment, and location(s) within the Project where installed. A neatly typewritten index shall be provided. Electronic information shall be in PDF format (additional formats where specified) and shall be organized with folders with appropriate file names so information is easily accessible:

1. Equipment Maintenance Summary:
 - a. Provide the following information (as applicable, indicate 'N/A' where an item does not apply) in Excel spreadsheet format:
 - 1) Asset Number (to be provided by the Engineer at a later date)
 - 2) Description
 - 3) Plan Sheet Number
 - 4) Parcel Number
 - 5) Vendor
 - 6) Manufacturer
 - 7) Model Year
 - 8) Serial Number
 - 9) Warranty – Start Date; Finish Date
 - 10) Required Preventative Maintenance
 - 11) Purchase Price

- 12) Make
 - 13) Model
 - 14) Fuel Used
 - 15) Capacity
2. Lubrication Information: This shall consist of the manufacturer's recommendations regarding the lubricants to be used and the lubrication schedule to be followed. Lubricants shall be described in detail, including type, recommended manufacturer, and manufacturer's specific compound to be used.
 3. Control Diagrams: Diagrams shall show internal and connection wiring and as-built wiring diagrams (where applicable).
 4. Start-up Procedures: These instructions consist of equipment manufacturer's recommendations for installation, adjustment, calibration, and troubleshooting.
 5. Operating Procedures: These instructions consist of the equipment manufacturer's recommended step-by-step procedures for starting, operating, stopping the equipment under specified modes of operation, and for long-term shut-down (moth-balling).
 6. Preventative Maintenance Procedures: These instructions consist of the equipment manufacturer's recommended steps and schedules for maintaining the equipment.
 7. Overhaul Instructions: These instructions consist of the manufacturer's directions for the disassembly, repair and reassembly of the equipment and any safety precautions that must be observed while performing the work.
 8. Parts List: This list consists of the generic title and identification number of each component part of the equipment. This list shall include weights of individual components of each item of equipment weighing over 100 pounds.
 9. Spare Parts List: This list consists of the manufacturer's recommendations of number of parts which should be stored by the Port and any special storage precautions which may be required.
 10. Exploded View: Exploded or cut views of equipment shall be provided if available as a standard item of the manufacturer's information. When exploded or cut views are not available, plan and section views shall be provided with detailed callouts.
 11. Specific Information: Where items of information not included in the above list are required, they will be provided as described in the specifications for the equipment.
 12. Complete identification, including model and serial numbers.
 13. Submittal information, as specified in Section 01 33 00 Submittal Procedures.
 14. Warranty Information: This information consists of the name, address, and telephone number of the manufacturer's representative to be contacted for warranty, parts, or service information.
 15. Provide DVDs, and audio-visual training materials utilized in the manufacturer's instruction program for the Port.
 16. All operation and maintenance information shall be comprehensive and detailed and shall contain information adequately covering all normal operation and maintenance procedures.

17. All information shall be specific for the items of equipment installed on the project. Material not directly applicable shall be removed, omitted, or clearly marked as inapplicable.
 18. If manufacturer's standard brochures and manuals are used to describe operating and maintenance procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project.
 19. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated. It shall be the responsibility of the Contractor to ensure that all operation and maintenance materials are obtained. Material submitted must meet the approval of the Engineer prior to project final acceptance.
- B. For small equipment and products (such as furnishings or equipment not requiring routine maintenance), the following information (minimum of 3 printed copies, plus one electronic copy on CD) shall be furnished for all items on the Project requiring operational and/or maintenance procedures and for any additional items indicated by the Engineer. Printed information shall be organized by the Contractor into appropriately sized 3-ring binders (no larger than 3"). The binders shall be sized for material approximately 8-1/2 by 11 inches, and the material in the binders shall not protrude beyond the covers. The binder(s) shall be divided with coversheets for each major item of equipment. The cover sheets shall be typewritten to indicate the name, type of equipment, and location(s) within the Project where installed. A neatly typewritten index shall be provided. Electronic information shall be in PDF format (additional formats where specified) and shall be organized with folders and appropriate file names so as to make the information easily accessible:
1. Product Summary:
 - a. Provide the following information (as applicable, indicate 'N/A' where an item does not apply) in Excel spreadsheet format:
 - 1) Asset Number (to be provided by the Engineer at a later date)
 - 2) Description
 - 3) Plan Sheet Number
 - 4) Parcel Number
 - 5) Vendor
 - 6) Manufacturer
 - 7) Model Year
 - 8) Serial Number
 - 9) Warranty – Start Date; Finish Date
 - 10) Purchase Price
 - 11) Make
 - 12) Model
 2. Operating Procedures: These instructions consist of the manufacturer's recommended step-by-step procedures for use of the product.
 3. Maintenance Procedures: These instructions consist of the equipment manufacturer's recommended steps and schedules for maintaining the product.

4. Specific Information: Where items of information not included in the above list are required, they will be provided as described in the specifications for the equipment.
5. Complete identification, including model and serial numbers.
6. Submittal information, as specified in Section 01 33 00 Submittal Procedures.
7. Warranty Information: This information consists of the name, address, and telephone number of the manufacturer's representative to be contacted for warranty, parts, or service information.
8. Provide DVDs, and audio-visual training materials utilized in the manufacturer's instruction program for the Port.
9. All operation and maintenance information shall be comprehensive and detailed and shall contain information adequately covering all normal operation and maintenance procedures.
10. All information shall be specific for the items of equipment installed on the project. Material not directly applicable shall be removed, omitted, or clearly marked as inapplicable.
11. If manufacturer's standard brochures and manuals are used to describe operating and maintenance procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project.
12. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated. It shall be the responsibility of the Contractor to ensure that all operation and maintenance materials are obtained. Material submitted must meet the approval of the Engineer prior to project final acceptance.

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions and General Requirements, apply to this work as if specified in this section. Work related to this section is described in the following.
 - 1. Section 01 10 00 – Summary
 - 2. Section 01 35 43.19 – Export Soil Management
 - 3. Section 01 74 16 – Soil Characteristics and Waste Management
 - 4. Section 31 23 33 – Trenching and Backfilling

1.02 DESCRIPTION OF WORK

- A. The extent and location of the "Demolition" work is indicated on the drawings, in the specifications, and as outlined below.
 - 1. Removal and disposal, in whole or in part, of all items (demolition materials, debris, etc.) in compliance with the specifications and all agencies of jurisdiction. All items shall become the property of the Contractor unless otherwise noted.
 - 2. Backfilling and compaction of holes, voids, trenches, or pits that result from such removal.
- B. The details shown on the drawings are based upon information contained in the reference drawings. The details indicate typical features of the various structures and shall not be construed as complete or adequate to supplant actual on-site inspection, additional review, and interpretation of the reference drawings by the Contractor.
- C. In general, demolition work shall be in accordance with all applicable local, state, and federal regulations, and all permit requirements for the project.

1.03 SITE CONDITIONS:

- A. The West Sitcum Terminal is an operating facility. The work shall be completed in accordance with access shown on the drawings. Access to the site is restricted by ongoing terminal operations. Contractor operations shall be restricted to the designated areas. See Section 01 14 00 – Work Restrictions
 - 1. Coordinate and schedule, with the Engineer, access to the site in advance, and acknowledge that terminal operations take precedence over construction activities.
 - 2. For access to the site see Section 01 55 00 – Vehicular Access and Parking
 - 3. All demolition items not identified for salvage or recycle shall become the property of the Contractor. Disposal of all demolition items shall be in accordance with the specifications, local, state and federal requirements.

1.04 SUMMARY

- A. Items and material categories for demolition include, but are not limited to, the following:
 - 1. 480V Switchboards and 480V Tacoma Power and Utility (TPU) Transformers. Coordinate with TPU for removal of TPU equipment .
 - 2. Asphalt and concrete pavement, fencing, and bollards for construction of electrical equipment and appurtenances.

1.05 SUBMITTALS

- A. Demolition Management Plan (DMP) with documentation that includes and addresses the following:
 - 1. Work sequence and schedule. Include phased demolition requirements consistent with the overall project schedule.
 - 2. Activity-based schedule.
 - 3. Means and methods to protect existing infrastructure and stockpile materials. Include the methods used to provide temporary supports, bracing, and shoring.
 - 4. Means and methods to prevent demolition materials, debris, water from construction activities, etc. from entering the Sitcum Waterway.
 - 5. Laydown areas for materials management.
 - 6. Worker safety, toolbox meetings, and signs.
 - 7. Protection of the public or other persons in areas surrounding the work.
 - 8. Contractor quality control plan.
 - 9. Schedule of disposal sites, their locations, and the materials that will be disposed at each site.
- B. If the DMP is revised, resubmit with any proposed changes for review by the Engineer prior to incorporating changes to means, methods, equipment, tools, temporary supports, etc.
- C. Utility locate survey results described in Part 3 – Execution

PART 2 - PRODUCTS

2.01 GENERAL

- A. All demolition products that are required to repair, accomplish, or be incorporated into the work shall be selected by the Contractor, subject to the approval of the Engineer.

PART 3 - EXECUTION

3.01 PREPARATION

- A. A utility locate survey, including ground penetrating radar (GPR), shall be performed and submitted to the Engineer for approval that locates all existing utilities in areas of excavation prior to start of demolition. Coordinate and resolve with the Port and terminal operators to turn off or de-energize affected services before starting demolition.
 - 1. Verify all items for demolition and disposal as early as practicable prior to start of the work.
 - a. Notify the Engineer immediately if observed conditions differ from anticipated conditions.

3.02 DEMOLITION OF STRUCTURES

- A. Completely remove and dispose of all designated items. Infrastructure or materials designated to remain that are damaged by Contractor activities shall be replaced or repaired at the Contractor's expense.

- B. All pavements designated for removal shall be broken up, prior to loading and disposal. Do not damage existing pavement which is to remain in place. Pavement demolition shall be accomplished by making neat vertical saw cuts at the boundaries of areas to be removed. Vertical saw cuts damaged by Contractor shall be repeated prior to paving at Contractor's expense.
- C. Blasting shall not be used.

3.03 DEMOLITION OF UTILITIES

- A. Notify the Engineer a minimum of 72 hours before scheduled demolition of utilities. Meeting the conditions required by the Port and affected utility shall be the sole responsibility of the Contractor.
- B. Existing Abandoned Electrical and Communication Utilities: Port shall review and approve any proposed removal of a portion of any existing abandoned electrical or communication conduit within the demolition area.

3.04 EXCESS MATERIAL

- A. The Port encourages recycling of materials from demolition. Contractor shall recycle to the extent possible, in a manner acceptable to environmental agencies and the Port, any of the materials designated for demolition and disposal. See Section 01 74 16 – Soil Characteristics and Waste Management. Existing demolished materials shall not be reused on this project.
- B. Disposal of all asphalt pavement and concrete shall be at a Contractor-selected recycle site.

3.05 DISPOSAL

- A. Disposal shall be in accordance with the Specifications, and in compliance with local, state, and federal regulatory agencies.
- B. Cleanup: After removal of all demolition items and materials, clean the area. There shall be no debris, rubble or litter left at the site from any of the demolition operations and the site shall be clean.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Work related to this section is described in:
 - 1. Section 03 20 00 – Concrete Reinforcement
 - 2. Section 03 30 00 – Cast-in-Place Concrete

1.02 DESCRIPTION OF WORK

- A. The Work includes furnishing material, labor, and equipment for providing the structural support and physical barriers or forms which control the shape and location of the concrete. Also included in this section are the requirements for the removal of the forms and their supports.

1.03 REFERENCE STANDARDS

- 1. American Concrete Institute ACI 301-16: Specifications for Structural Concrete.
- 2. American Concrete Institute ACI 318-19(22): Building Code Requirements for Structural Concrete and Commentary.
- 3. American Concrete Institute ACI 347-14(21): Guide to Formwork for Concrete.

1.04 QUALITY ASSURANCE

- 1. Design forms, falsework, and accessories to meet the requirements of the concrete type, sequence of placing, schedule, and other conditions of the project. Forms and accessory designs including drawings and calculations shall be stamped by a Professional Engineer registered in the state of Washington.
- 2. Inspect before casting concrete forms, and accessories, using workers having at least five (5) years of experience with the types of construction involved and the techniques necessary for completion of the work.

1.05 SUBMITTALS

- 1. Submit calculations, drawings, and details for forms for review prior to executing the work. Show details of member sizes, connections, product data, and other related elements including proposed construction joints on the drawings.
- 2. Indicate the construction sequence, the methods for release, and the sequence of removal on the drawings and details for forms.
- 3. Do not construct forms until the Engineer has reviewed the drawings, details, and calculations. Review by the Engineer does not relieve the Contractor of the responsibility for sufficiency of the forms.

PART 2 - PRODUCTS

2.01 GENERAL

- 1. Materials for concrete forms may be new or used. The quality of the materials, not the age or previous usage, will be the determining factor as to their suitability.

2. Submit prefabricated forms, whether they are part of a patented system or custom-fabricated, for approval by the Engineer prior to assembly or arrival on site. Keep forms in a condition to produce finished work meeting the location, alignment, and surface tolerances specified.

2.02 JOB-BUILT FORMS

1. Wood Forms:
 - a. Use framing lumber of standard dimensions and of such quality as to meet the requirements of the applied stresses or loads.
 - b. Use Ply Form Grade B-B Plywood for exposed concrete locations.
 - c. Use exterior-type plywood without splits or knotholes, and sanded smooth. Run the face grain of the plywood perpendicular to the studs or joists. Use only vertical or horizontal joints in surfaces of forms used on exposed surfaces. Use minimum 1/2-inch plywood except where curved areas require the use of 3/4-inch thick material. When 3/4-inch-thick material is used, back it with heavier material.
 - d. Shiplap, square-edged boards, or tongue-and-groove sheathing may be used for forming unexposed concrete surfaces.
 - e. Use metal, fiberglass, or other special form linings where required.
2. Miscellaneous Forms:
3. Paper, fiberglass, micarta, asphalt-impregnated fiber, and other miscellaneous form materials shall be approved prior to construction.

2.03 FORM LINERS AND COATINGS

1. Line, coat, or treat forms with a suitable release agent or bond-breaker to ensure their timely removal with no damage to the concrete.
2. Use non-coloring release agents or bond breakers that do not leave a film on the concrete surface that may inhibit subsequent finishing activities required to attain the prescribed finish, including roughening for placement and bonding to an additional concrete pour.

PART 3 - EXECUTION

3.01 GENERAL

1. Set forms to allow for structural camber plus an allowance for shrinkage and settlement. The finished concrete shall conform to the lines and grades indicated on the drawings. Construct forms to be rigid, unyielding, true to line, level, and sufficiently tight to prevent escape of mortar.
2. Place openings, reinforcement, and embedments at locations shown on the drawings. Form and fasten securely in position to maintain minimum cover for reinforcement, and to leave smooth surfaces, true openings, accurate geometry, etc., after the forms are removed.
3. Clean forms of material, debris, or other objects and substances deleterious to the concrete, concrete surface, or element, prior to casting.

3.02 FORM INSTALLATION

1. Prior to final setting or placing of reinforcing steel, treat forms for exposed concrete with a release agent, bond-breaker, or parting compound. Apply the compound at a rate recommended by the manufacturer, to provide a smooth surface free of dusting action caused by the chemical reaction of the compound.
2. Immediately remove any release agent or bond-breaker that comes in contact with reinforcement or embedded objects.
3. Forms may be set with a slight bevel or draft for easy removal, where approved by the Engineer.
4. Use ¾-inch chamfer strips on exposed inside and outside corners including vertical faces.
5. Provide forms that are mortar-tight. Do not allow standing water in the forms. Clean forms before assembly and prior to placing concrete.

3.03 FORM REMOVAL

1. Keep forms in place for the minimum length of time shown below, provided the ambient temperature is 40 degrees Fahrenheit or higher.
2. All Forms 3 days
3. When lower temperatures prevail, keep forms in place longer, and at the Engineer's discretion. Disregard periods where the ambient temperature is below 40 degrees Fahrenheit in determining the length of time forms are to remain in place. A cold-weather concreting plan may be submitted in accordance with Section 03 30 00 – Cast-in-Place Concrete.
4. In lieu of the above methods for determining the minimum time forms remain in place, forms may be removed when concrete cylinder tests, according to ACI 318, indicate that a compressive strength greater than or equal to 80 percent of the specified 28-day strength has been reached. Additional concrete cylinder testing for the purpose of establishing the 80 percent threshold level shall be made and tested at no additional cost to the Port.
5. The removal of forms as stipulated herein shall in no case relieve the Contractor of responsibility for the performance, acceptability, or finish of the work.
6. Perform form work in a manner that prevents damage to the concrete, concrete finishes, and adjacent work elements.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Work related to this section is described in:
 - 1. Section 03 10 00 – Concrete Forming and Accessories
 - 2. Section 03 30 00 – Cast-in-Place Concrete
 - 3. Section 05 50 00 – Metal Fabrications

1.02 DESCRIPTION OF WORK

- A. The work includes the requirements for manufacture, detailing, cutting, bending, transporting, handling, and placing of concrete reinforcement and associated items required or indicated on the drawings.

1.03 REFERENCE STANDARDS

- 1. American Concrete Institute ACI 301-16: Specifications for Structural Concrete for Buildings.
- 2. American Concrete Institute SP-66(04): ACI Detailing Manual (including ACI 315R-18).
- 3. American Concrete Institute ACI 318-19(22): Building Code Requirements for Structural Concrete and Commentary.
- 4. American Society for Testing Materials (ASTM), Standard Specifications and Standard Test Methods, designated by basic reference in this section (use the most current edition at the time of bid unless otherwise indicated).
- 5. American Welding Society (AWS) D1.1 Structural Welding Code – Steel, 2020 Edition.
- 6. American Welding Society (AWS) D1.4 Structural Welding Code – Reinforcing Steel, 2020 Edition.
- 7. Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice (MSP), 2018, 29th Edition.
- 8. Washington Association of Building Officials (WABO) Standard No. 27-13, WABO Welder and Welding Operator Performance Qualification Standard for Structural Steel, Sheet Steel, and Reinforcing Steel.

1.04 QUALITY ASSURANCE

- 1. Provide at least one (1) qualified person present at all times during execution of this portion of work, familiar with the type of materials being installed, skilled in the required methods for installation, and who shall direct the work. Qualified personnel shall have a minimum of five
 - a. (5) years' experience in placement of reinforcement in concrete structures.
- 2. Qualify welders in accordance with AWS D1.4 and WABO Standard 27-13 for the weld procedures and positions to be performed.
- 3. Dowel installers shall be trained and certified by the doweling adhesive, grout, or system manufacturer.

1.05 SUBMITTALS

1. Detailed shop drawings that are coordinated and checked for concrete reinforcement and other embedments prior to casting concrete. Do not deliver concrete reinforcement to the site prior to approval of the shop drawings. Include material specifications, bar lengths, bar bending schedules, order lists, splice lengths, and proposed splice locations.
2. Mill certificates for each heat of reinforcing steel, indicating specification compliance, yield strength, ultimate strength, and chemistry of steel to be furnished.
3. Qualified weld procedure specifications (WPS) including information from Annex A of AWS D1.4.
4. Weld procedure and welder qualification test reports.
5. Data sheets for chairs and other accessories used for placing reinforcement.
6. Doweling system manufacturer's instructions for preparation, placement, drilling holes, installation of anchors and adhesive, and handling of cartridges, nozzles, and equipment.
7. Doweling system manufacturer's ICC Evaluation Service - ES Reports and written letter of certification identifying the installer's qualifications to install the manufacturer's products.

PART 2 - PRODUCTS

2.01 HANDLING

1. Protect reinforcement from damage before, during, and after installation of the work. Protect from damage the installed work and materials of other trades.
2. Provide new reinforcement free from rust, grease, oil, wax, paint, soil, dirt, kinks, bend, or other defects. Store in a manner to prevent fouling with bond-breaking and deleterious coatings.
3. Maintain reinforcement identification after the bundles are broken.
4. In the event of damage, immediately make repairs and replacements necessary as directed by the Engineer and at no additional cost to the Port.

2.02 REINFORCEMENT

1. Provide deformed bars conforming to ASTM A 615, Grade 60. Deformed bars conforming to ASTM A 706 Grade 60 may be substituted for ASTM A 615.
2. Provide ASTM A 706, Grade 60, deformed bars for bars requiring welds, and bars designated as weldable.
3. Provide welded headed studs and welded shear connectors conforming to ASTM A 108, Grades 1010 through 1020 according to ASTM A 29, and with head geometry conforming to AWS D1.1, Section 7.2.
4. Mechanical couplers, where approved, shall be Dayton Superior D-250 Bar-Lock S/CA-Series couplers, Lenton Lock mechanical couplers by Erico Inc., or approved equal. Couplers shall develop a minimum of 125% of the minimum specified yield strength of the reinforcing bar.

2.03 DRILLED-IN AND BONDED DOWEL ADHESIVE

1. Store adhesive at temperatures and in locations indicated in the manufacturer's literature. Do not use and dispose of adhesives with expired shelf lives.

2. Meet ASTM C 881, Type IV, Grade 2 or 3. Overhead applications shall meet Grade 3. Temperature Class A, B, or C shall match, or be endorsed by the manufacturer, the surface temperature of the concrete to which the bonding system is applied.
3. Suppliers, or approved equal:
 - a. Hilti HIT-RE 500, or Hilti HIT-RE 500 SD adhesive, by Hilti Inc., Tulsa, OK.
 - b. Epoxy-Tie SET adhesive, by Simpson Strong-Tie Co., Dublin, CA.

2.04 OTHER MATERIALS

- A. All other materials, not specifically described but required for complete and proper installation of reinforcement, shall be selected by the Contractor, subject to approval by the Engineer.

PART 3 - EXECUTION

3.01 GENERAL

1. Prior to installation of this section, inspect the installed work of other trades and verify that such work is complete to the point where reinforcing steel installation may commence.
2. Conform to ACI 318 for details of bending, placing, and splicing of reinforcing steel, except as modified herein.

3.02 REINFORCING BARS

1. Order Lists: Before ordering material, develop order lists and bending diagrams in accordance with the CRSI MSP and submit to the Engineer for approval. Do not order material until such lists and bending diagrams have been approved. The approval of order lists and bending diagrams by the Engineer does not relieve the Contractor of responsibility for the correctness of such lists and diagrams.
2. Fabrication: Bend bars cold to the shapes indicated on the drawings unless otherwise approved by the Engineer. Do not field-bend bars partially embedded in concrete except as indicated on the drawings or as approved by the Engineer. Make bends and hooks in accordance with the applicable portions of the CRSI MSP.
3. Placing and Fastening:
 - a. Place reinforcement accurately and hold firmly in the position indicated on the drawing during the placing and setting of concrete. Tie bars at all intersections.
 - b. Provide concrete cover to reinforcement as indicated on the drawings:
 - c. Maintain the minimum distance from the forms by means of stays, blocks, ties, hangers, or other approved supports.
 - 1) Blocks for holding reinforcement from contact with the forms shall be precast mortar blocks of compressive strength not less than 5000 pounds per square inch, of approved shape and dimensions, or approved metal chairs.
 - 2) Metal chairs shall be plastic-coated.
 - 3) Separate layers of bars by plastic chairs, by precast mortar blocks of compressive strength not less than 5000 pounds per square inch, or by other devices approved by the Engineer.

- 4) Provide minimum spacing between bars, except at lap splices, not be less than one bar diameter or one inch minimum, but not less than 1-1/3 times the maximum size of the coarse aggregate.
- d. In the event that conduits, anchor bolts, piping, inserts, sleeves, embedded objects, headed studs, or other items interfere with placing reinforcement as indicated on the drawings, or as otherwise required, contact the Engineer and obtain approval of a new procedure before placing concrete.

3.03 REINFORCING BAR SPLICES

1. Furnish reinforcement in the full lengths indicated on the drawings, except that reinforcement over forty feet in length may be spliced.
2. Splicing of bars, except when indicated on the drawings, only as approved by the Engineer. When approved, stagger splices with no more than fifty percent of any particular bar type being spliced at any one location. Length of lap splice shall be 50 times the bar diameter with a minimum of 18 inches unless noted otherwise on the drawings. Provide a minimum distance between splice zones of three lap lengths.

3.04 WELDING

1. Welding of reinforcing steel shall be performed only as indicated on the drawings.
2. Welding shall be performed by welders certified by the Washington Association of Building Officials (WABO) and shall conform to the current specifications of the American Welding Society (AWS) D1.4 except that weld size and reinforcement shall be as shown on the drawings.
3. Processes used to place welds shall be either shielded metal arc or flux core arc (inner shield only) welding. Remove slag from each weld.
4. Procedures and welder qualification tests shall be witnessed by an AWS-certified welding inspector (CWI) approved by the Engineer. Conduct tests in accordance with Section 6 of AWS D1.4. Include longitudinal tension tests and macro-etch tests. Provide procedures and welder qualification tests for weldable grade deformed reinforcing bars. Macro-etch tests for wire spiral in precast piling are not required (tension tests only). Do not start production welding until qualified welding procedures have been established and approved by the Engineer.
5. Conform to Section 5 of AWS D1.4 for filler metal, preheat, and interpass temperature requirements.
6. Conform to Section 5.8 of AWS D1.4 for exposure times for low hydrogen coated electrodes.

3.05 CLEANING REINFORCEMENT AND EMBEDDED ITEMS

- A. Reinforcement, at the time concrete is placed around it, shall be free from loose rust or mill scale, oil, dirt, debris, paint, and other coatings which will destroy, impair, or reduce the bond between steel and concrete. Embedded items shall be free from loose rust or mill scale, oil, dirt or debris.

3.06 INSPECTION

1. Reinforcement in any member shall be inspected by qualified personnel before placement of concrete. Access for inspection by the Engineer prior to concrete placement shall be provided. Concrete placed in violation of this provision will be rejected. Removing reinforced concrete that has been rejected, placing new reinforcing steel, and casting new concrete shall be performed at no additional cost to the Port.
2. Notify the Engineer at least 48 hours in advance of any concrete pour.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this Section. Work related to this Section is described in:
 - 1. Section 03 10 00 – Concrete Forming and Accessories
 - 2. Section 03 20 00 – Concrete Reinforcement
 - 3. Section 05 50 00 – Metal Fabrications

1.02 DESCRIPTION OF WORK

- A. The extent and location of the “Cast-in-Place Concrete” work is indicated on the drawings. The work includes the requirements for providing all cast-in-place concrete and associated work in conformance with these specifications and as indicated on the drawings.

1.03 REFERENCE STANDARDS

- 1. American Concrete Institute (ACI) 301-16: Specifications for Structural Concrete.
- 2. ACI 305.1-2014: Specification for Hot Weather Concreting.
- 3. ACI 306.1-1990 (Reapproved 2002): Specification for Cold Weather Concreting.
- 4. ACI 308.1-11: Specification for Curing Concrete.
- 5. American Concrete Institute ACI 318-19: Building Code Requirements for Structural Concrete and Commentary.
- 6. American Society for Testing Materials (ASTM), Standard Specifications and Standard Test Methods, designated by basic reference in this section (use the most current edition at the time of bid unless otherwise indicated).
- 7. International Building Code (IBC) 2015, as amended and adopted by the City of Tacoma into the Tacoma Municipal Code (TMC).

1.04 QUALITY ASSURANCE

- 1. Concrete work shall conform to the requirements of ACI 301, unless otherwise noted in the drawings or the specifications.
- 2. Inspection and Testing: As determined by the Engineer, the Port will provide inspection and testing as required. The Contractor shall provide all necessary access and assistance in carrying out such inspections and tests at its own expense. The Contractor may obtain results of tests performed by the Port from the Engineer.
- 3. Qualifications of Supplier: Ready-mixed concrete plants shall be approved and certified by the National Ready Mix Concrete Association (NRMCA). Ready-mixed concrete shall be batched in accordance with the applicable portions of ASTM C 94.
- 4. Qualifications of Personnel:

- a. Provide at least one qualified person who shall be present at all times during execution of this portion of the work, who shall be thoroughly trained and experienced in placing the types of concrete specified, and who shall direct work performed under this Section. Qualified personnel shall have at least five (5) years of experience performing the work described in this Section.
 - b. Trained and experienced journeyman concrete finishers having at least five (5) years of experience shall be responsible for finishing exposed surfaces.
5. Building Code: Concrete shall meet the requirements of the IBC. Where provisions of pertinent codes and standards conflict with this Section, the more stringent provisions shall govern, as determined by the Engineer.

1.05 SUBMITTALS

1. Documentation demonstrating the qualifications and experience of supervisors and directors of work, as described above.
2. Proposed concrete design mixes, indicating material contents per cubic yard of concrete, and including certificates of compliance.
3. Written evidence that the ready-mix concrete plant is approved and certified by the NRMCA and other organizations.
4. Test certificates for compressive strength, yield, air content, and slump of the proposed concrete mix. Report strength test results in accordance with ACI 318, Section 1.9.
5. Manufacturer's name, address, catalog number, and specifications for proposed admixtures, concrete bonding agents, curing compounds, fiber reinforcement, etc.
6. Identify aggregate supply pit names and locations. Submit certificates of specification compliance for materials to be used including aggregate alkali-silica reactivity (ASR).
7. Proposed curing methods including manufacturer's data for curing membranes, evaporation retardants, accelerated cure methods, etc. Submit detailed plans for concreting in ambient temperatures below 40 degrees F. Describe the specific methods and procedures used for substrate preparation, concrete placement, curing, and protection. Provide specific references to ACI 306.1 and ACI 308.1.
8. Shop drawings showing pour sequences, construction joints, expansion joints, etc.
9. Manufacturer's data for proposed pre-fabricated construction joint systems and hardware.
10. Concrete delivery tickets for each truck delivered to the site. Submit delivery tickets to the Engineer before unloading at the site and in accordance with ASTM C 94, Section 14.
11. Proposed patching methods and materials for concrete defects.

PART 2 - PRODUCTS

2.01 CONCRETE

1. General:
 - a. Batch and mix concrete, unless otherwise specifically permitted by the Engineer, at the approved ready-mix plant. Conform to ASTM C 94 for batching, mixing, and delivery.
 - b. Proportion cast-in-place concrete on the basis of field experience or laboratory trial mixtures according to ACI 318, Section 1.9.

2. Cementitious Materials:

- a. Type I-II or Type II conforming to ASTM C 150 for mixes without fly ash. Type I or Type I- II conforming to ASTM C 150 in mixes with fly ash. Cement shall not contain more than
 - 1) 0.75 percent alkalis by weight calculated as Na₂O plus 0.658 K₂O and the content of Tricalcium aluminate (C₃A) shall not exceed 8 percent by weight. The time of setting shall be determined by the Vicat Test method in accordance with AASHTO T 131 or ASTM C191.
- b. Fly ash conforming to ASTM C 618, Type F, with the added provisions that the loss on ignition shall not exceed 2 percent, and that the fly ash is stored in a separate silo from the cement.

3. Aggregates:

- a. Conform to ASTM C 33. All coarse and fine aggregate shall consist of hard, tough, durable particles free from foreign and deleterious materials. Store in such a manner as to prevent segregation, excessive breakage, and the introduction of foreign material.
- b. Evaluate and test fine and coarse aggregates to be used in all concrete for alkali-aggregate reactivity in accordance with ASTM C 1260 or ASTM C 1293. Test both coarse aggregate size groups if from different sources. Test results of the combination shall have a measured expansion equal to or less than 0.10 percent at 16 days after casting when aggregates are tested in accordance with ASTM C 1260 or 0.04 percent for aggregates tested in accordance with ASTM C 1293.
- c. Grading for combined aggregate gradation for Portland cement concrete is as follows for maximum nominal aggregate size of 3/4-inch.

Sieve Size	Percent Passing
1"	99-100
3/4"	87-100
3/8"	60-88
No. 4	41-64
No. 8	27-47
No. 16	17-34
No. 30	9-25
No. 50	4-18
No. 100	0-14
No. 200	0-2

- 1) All percentages are by weight
- d. The maximum size of coarse aggregate shall not be larger than three fourths of the minimum clear spacing between reinforcing bars, between reinforcing bars and side forms, and between reinforcing bars and top or bottom surface of the concrete.

4. Water:

- a. Water for concrete, grout, and mortar shall be clear, apparently clean, and suitable for human consumption (potable). If the water contains substances that cause discoloration, unusual smell or taste, or other suspicious content, the Engineer may require the Contractor to provide test results documenting that the water meets the physical test requirements and chemical limits described in ASTM C1602 for nonpotable water.
5. Admixtures: Admixtures shall be supplied by one manufacturer approved by the Engineer.
 - a. Air-entraining admixtures shall conform to ASTM C 260. Dosage rates shall be in accordance with the manufacturer's recommendations to meet the air content specified herein.
 - b. Water-reducing admixtures shall conform to ASTM C 494. Dosage rates shall be in accordance with the manufacturer's recommendations.
 - c. Water reducing admixture shall be Type A, D, F, or G. The amount shall control the desired workability and water/cement ratio of the mix and shall be within the manufacturer's recommended range.

2.02 OTHER MATERIALS

1. General
 - a. Materials not specifically described but required for a complete and proper installation of cast- in-place concrete shall be selected by the Contractor subject to the approval of the Engineer.
2. Expansion Joint Material
 - a. Provide pre-molded filler, bituminous type, in accordance with ASTM D1751.
3. Joint Sealant
 - a. Provide sealant conforming to ASTM D6690 or ASTM C920, Type M, Class 25, Use T.

2.03 MIX PROPORTIONS AND STRENGTH

1. Select mix proportions to produce a mixture that will readily work into corners, sides, and angles of the forms, around reinforcement and embedded items, with no segregation, and prevent free water from collecting on the surface.
2. Select in accordance with ACI 301.
 - a. Test data representing thirty recent consecutive tests for each design shall be submitted to establish the standard deviation used in ACI 301 Section 4.2.3.
 - b. The criteria for acceptance of submitted tests shall be accordance with ACI 301 Section
 - 1) 4.2.3.1. The second sentence shall be amended to read, "...class of concrete within 500 psi of that specified for the work", instead of 1000 psi.
 - c. Where 30 recent consecutive tests are not available, the standard deviation may be determined by records based on no less than 15 tests as described in ACI 301 Section 4.2.3.3.
 - d. Where no previous data are available, the mix or mixes shall be overdesigned in accordance with ACI 301 Section 4.2.3.1.

- e. When consecutive test data have been established during the project the overdemand criteria may be relaxed in accordance with ACI 301 Section 4.2.3.5.
- f. Deviation from any reviewed design mix without approval of the Engineer will not be permitted.
- 3. Provide concrete with a minimum 28-day compressive strength of 5,000 psi.
- 4. Concrete shall also meet the following requirements:
 - a. Minimum Cementitious Material
 - 1) Cement without fly ash 6.5 sacks/cy (611 lbs/cy) Cement with fly ash 6 sacks/cy (564 lbs/cy) and 100 lbs fly ash/cy
 - b. Maximum Water/Cement Ratio (by weight, including free moisture on aggregate) 0.40*
 - (a) * If fly ash is used, the water/cement ratio shall be calculated as the weight of water divided by the weight of cement plus the weight of the fly ash.
 - c. Air Content 3.5 percent to 6.5 percent
 - d. Slump: Maximum 8 inches and chosen to enhance workability without violating the maximum water/cement ratio requirement.

PART 3 - EXECUTION

3.01 PREPARATORY WORK

- 1. General:
 - a. Prior to casting, inspect the installed work of other trades and verify it is complete to the point where this installation may commence.
 - b. Verify that items to be embedded in concrete are in place, properly oriented, located, and secured.
 - c. Verify that concrete may be placed to the lines and elevations indicated on the drawings with required clearances for reinforcement.
 - d. Clean and remove wood debris, sawdust, tie wire cuttings, and other deleterious material from areas where concrete will be placed.
 - e. Bend back tie wire ends so they do not encroach into the specified clear cover of the concrete.
 - f. Thoroughly wet concrete forms which have not been treated with oils, waxes, or other bond breakers shall be prior to placing concrete.
 - g. Clean and roughen existing concrete or concrete from previous pours to provide a bondable surface.
 - h. Clean transporting and handling equipment of hardened concrete and other debris.
- 2. Notification: Notify the Engineer at least 48 hours in advance of any concrete pour. Notify the Engineer when inspection by the Contractor is complete. In the event of discrepancy, immediately notify the Engineer. Do not proceed with installation until all discrepancies have been fully resolved.

3.02 TRANSPORTING AND PLACING CONCRETE

1. Placement:
 - a. Do not use concrete that does not reach its final position in the forms within 1-1/2 hours after the addition of cement. During hot weather, reduce this time limit in accordance with ACI 305.1.
 - b. Place concrete as soon as possible after mixing. Do not re-temper or remix concrete which has developed initial set or partially hardened.
 - c. The method and manner of placing concrete shall not allow segregation of the aggregates or displacement of reinforcement and embedded objects.
 - d. When using a concrete pump as the placing system, discard the pump priming slurry before placement into the forms. Initial acceptance testing may be delayed until the pump priming slurry has been eliminated. Do not use pumps that allow free water to flow past the piston. Do not use aluminum conduits or tremies.
 - e. Place concrete in continuous horizontal layers, or lifts, not exceeding 18 inches and compact so that there will be no line of separation between layers. Fill each part of the forms by depositing concrete directly in its final destination.
 - f. When concrete must be dropped more than five feet into the forms, deposit it through a sheet metal or other approved conduit. Use the same conduit to place concrete in sloping forms or in other locations, as directed by the Engineer, to prevent concrete from sliding around reinforcing steel or other embedded objects.
 - g. Use methods to deposit and compact concrete that produce compact, dense, impervious concrete with the required surface finishes and no segregation.
 - h. Remove defective concrete as directed by the Engineer at no additional cost to the Port.
 - i. Do not place or allow concrete to fall in the water or on the shore. Otherwise, concrete shall be immediately removed from the water or the bank.
2. Hot/Cold Weather Placement: Do not place concrete on frozen ground or against frosted reinforcing steel or forms. Do not mix or place concrete while the atmospheric temperature is below 40 degrees Fahrenheit. If air temperature exceeds 90 degrees Fahrenheit, provide water spray or other approved methods to cool contact surfaces to less than 90 degrees Fahrenheit. Perform hot and cold-weather concrete placement in accordance with ACI 305.1 and ACI 306.1.
3. Underwater Placement: do not place concrete in the water.
4. Consolidation of Concrete:
 - a. Provide suitable internal vibrators for use in compacting concrete. The vibrators shall be of the type designed to be placed directly in the concrete, and their frequency of vibration shall not be less than 7,000 impulses per minute when in actual operation.
 - b. Vibration shall be such that the concrete becomes uniformly plastic. Insert vibrators to a depth sufficient to vibrate the bottom of each layer effectively, but do not penetrate partially hardened concrete. Do not apply the vibrators directly to steel which extends into partially hardened concrete. The intervals between points of insertion shall be not less than 2 feet, nor more than 3 feet.

- c. Do not continue vibration in any one spot such that pools of cement or cement and sand are formed. In vibrating and finishing top surfaces which are exposed to weather or wear, avoid drawing water or laitance to the surface. In relatively high lifts, the top layer shall be comparatively shallow and the concrete mix shall be as stiff as can be effectively vibrated into place and properly finished.
- d. Do not use vibrators to transport or move concrete inside the form.
- e. Supply a sufficient number of vibrators to effectively vibrate all of the concrete placed. Perform hand-tamping or rodding wherever necessary to secure a smooth and dense concrete on the outside surfaces.

3.03 CONSTRUCTION JOINTS

- 1. Conform to ACI 301 and 318 for joints and stoppages, except as specifically shown on the drawings. Do not use wire mesh or similar materials.
- 2. Submit requests for additional, deleted, or relocated construction joints to the Engineer.
 - a. Changes as a result of such requests shall be at no additional cost to the Port.
- 3. Thoroughly clean and roughen joint surfaces and remove loose concrete, gravel, sediment, laitance, and other deleterious substances.
- 4. Thoroughly wet and condition all joint surfaces to a saturated surface dry (SSD) condition for a minimum twelve hour period immediately prior to placing fresh concrete.
- 5. At horizontal surfaces of construction joints, provide a clean and roughened surfaces.
- 6. Unless otherwise noted, joints requiring roughened surfaces shall have grooves ½-inch to 1- inch wide, ¼-inch to 3/8-inch deep, which are spaced at twice the width of the groove.
- 7. Where a roughened surface is not required, provide shear keys with a positive mechanical bond using formed depressions covering one third to one half of the joint area and approximately 1-1/2 inches deep. Provide shear keys where indicated on the drawings.

3.04 CURING CONCRETE

- A. Follow ACI 308.1.
 - 1. Maintain concrete above 40 degrees Fahrenheit and in a moist condition for at least the first seven days (168 hours) after placement.
 - 2. Do not use curing compounds on surfaces to receive additional concrete.
 - 3. Where permitted, apply an ASTM C 309, Type 1, Class A or B curing compound to the fresh concrete immediately after finishing the concrete and as soon as the visible bleed water has evaporated or as directed by the Engineer. Apply according to the manufacturer's recommendations. The rate of coverage shall be at least one gallon per 100 square feet and be sufficient to effectively obscure the original color of the concrete.
 - 4. Apply the curing compound in two applications to ensure full coverage of the concrete, with the second coat applied in a direction perpendicular to that of the first application.
 - 5. Do not apply curing compound to construction joint surfaces, reinforcing steel, or embedments in the concrete. Completely remove curing compound on construction joints, reinforcing steel, or embedments immediately.
 - 6. Supply backup spray equipment and sufficient workers to properly apply the curing compound.

7. Within 12 hours following the application of the curing compound, cover the top surfaces with cotton mats, an approved vapor proof curing paper, or white polyethylene sheeting. Keep cotton mats continuously wet day and night for the period of time specified above. Keep curing paper or sheeting in place for the same period of time specified above.
8. Keep curing paper or sheeting tightly in place by taping and weighting joints, or other methods for the prescribed period of time.
9. Do not use membrane curing compounds which leave a waxy film on the concrete.
10. After the concrete has cured for the required time, sweep the top surfaces clean.
11. Protect concrete from damage and accelerated drying. No fire or excessive heat shall be permitted near the concrete at any time.
12. In lieu of curing compounds wet burlap or other wet cure methods may be used as approved by the Engineer.
13. Only wet cure methods shall be used on concrete surfaces against which additional concrete will be cast.
14. Wet cure methods shall be continuous for the prescribed duration of the curing period.

3.05 FINISHING CONCRETE

1. Finish: Permanently exposed surfaces, unless specifically noted otherwise, shall be free from local bulging and ridges or lips shall be removed to leave a smooth, flat surface. Patching mortar, if used, shall be of the same color as the surrounding concrete. White Portland cement shall be added to the patching mortar for color matching. A test section, approved by the Engineer, shall be completed prior to production work.
2. Protect finished surfaces from damage, stains and abrasion. Repair surfaces or edges damaged during construction at no additional cost to the Port.
3. Defects:
 - a. Surface defects include honeycomb, rock pockets, spalls, chips, air bubbles, voids, pinholes, bug holes, and indentations greater than or equal to 1/4 inch in depth, or greater than or equal to 1/2 inch in width, length, or diameter.
 - b. Surface cracks greater than or equal to 0.007 inches in width.
 - c. Surface irregularities include embedded objects, embedded debris, lift lines, sand lines, bleed lines, segregation, form pop-outs, fins, form leakage, texture irregularities, stains and other discolorations that cannot be removed by water blast cleaning. Repair these defect as specified in this Section unless otherwise directed by the Engineer.
4. Vertical Surfaces and Walls:
 - a. Immediately after removal of forms or form linings, inspect the concrete surfaces for defects and irregularities.
 - b. Repair defects, defective concrete, and tie rod holes immediately after the forms are removed unless otherwise directed by the Engineer. Chip out and remove exposed tie wires and the patch. Repair with BASF EMACO R350 CI or an epoxy mortar approved by the Engineer applied according to the manufacturer's instructions by experienced personnel qualified by the material manufacturer.

- c. Vertical surfaces, against which concrete will be cast, are construction joints, and shall be thoroughly cleaned and roughened to an amplitude of 1/4 inch. Roughen using methods in accordance with the construction permits and approved by the Engineer, to expose sound concrete without undercutting the larger aggregate particles or cracking the concrete to remain.
- 5. Horizontal Surfaces:
 - a. Exposed horizontal surfaces that will not receive additional concrete or hot-mix-asphalt shall have a light broom finish. The broom stria shall be 1/16 inch to 1/8 inch.

3.06 TESTING

- 1. Testing of concrete will be performed by an accredited testing agency retained by the Port. Methods of sampling, testing, evaluation, and acceptance will conform to ACI 301. The Contractor shall assist the Port with access to collect samples and at no additional cost to the Port.
- 2. Testing as described above will be at the Port's discretion and in no way relieves the Contractor of any obligations.
- 3. The Contractor shall perform its own tests and institute a quality assurance program to assure the specified quality of materials and work are provided.
- 4. The Contractor shall perform its own tests to assure that the work progresses without delay.
- 5. Tests performed by the Port will be done at no cost to the Contractor, except as noted below.
 - a. Additional testing and inspection required because of changes in materials, proportions, and procedures requested by the Contractor.
 - b. Additional testing of materials or concrete when either fails to meet the specification requirements when tested in accordance with the ACI standards, or specifications and the appropriate ASTM standards contained therein.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Work related to this section is described in:
 - 1. Section 03 30 00 – Cast-in-Place Concrete
 - 2. Section 32 31 13 – Chain Link Fences and Gates

1.02 DESCRIPTION OF WORK

- A. All metal fabrications are indicated on the drawings and in the specifications. The work shall consist of furnishing all materials, labor, and equipment for fabricating and/or repairing, galvanizing, and erecting metal fabrications, in accordance with the drawings, notes, and this specification.

1.03 REFERENCE STANDARDS

- 1. American Galvanizers Association (AGA), Quality Assurance Manual.
- 2. American Institute of Steel Construction (AISC), Specification for Structural Steel Buildings, July, 2016.
- 3. American Institute of Steel Construction (AISC), Code of Standard Practice for Steel Buildings and Bridges, May, 2022.
- 4. American Welding Society (AWS) D1.1 – 2020, Structural Welding Code – Steel.
- 5. American Welding Society (AWS) A2.4 – 2020, Standard Symbols for Welding, Brazing, and Nondestructive Examination.
- 6. Society for Protective Coatings (SSPC), Surface Preparation Specifications.
- 7. Washington Association of Building Officials (WABO) Standard No. 27-13, WABO Welder and Welding Operator Performance Qualification Standard for Structural Steel, Sheet Steel, and Reinforcing Steel.

1.04 QUALITY ASSURANCE

- 1. The fabricator shall demonstrate a minimum of five (5) years' experience fabricating and working similar metals and configurations, including cutting, bending, forming, welding, and finishing.
- 2. Welders shall be currently certified by the Washington Association of Building Officials (WABO) for structural welding.
- 3. Welding procedures, operations, welders, and tackers shall be qualified in accordance with AWS D1.1.
- 4. The galvanized coating applicator shall specialize in hot-dip galvanizing after fabrication and follow the procedures in the AGA Quality Assurance Manual.
- 5. Nondestructive testing (NDT) and inspection of all shop and field welds will be performed in accordance with AWS D1.1 by an independent testing agency retained by the Port. Welds failing to comply shall be repaired or replaced at the Contractor's expense.

6. Coating application shall be performed by qualified and experienced personnel having demonstrated at least 5 years of experience in coating applications for marine structures and certified to SSPC-QP 1.
7. Conform to all manufacturers' specifications and recommendations for achieving best results with each product, application, and condition.

1.05 SUBMITTALS

1. Submit detailed and coordinated shop drawings indicating all shop and erection details, including cuts, copes, connections, holes, fasteners, material specifications, welds, surface preparations, and finishes.
2. Welder qualifications and certifications.
3. Weld Procedure Specifications (WPS's) proposed for use on the project. Submit supporting Procedure Qualification Records (PQR's) for all WPS's not prequalified by AWS.
4. Galvanized coating applicator's Certificate of Compliance that the hot-dip galvanized coating meets or exceeds the specified requirements of ASTM A 123 or A 153, as applicable.
5. Coating system materials

PART 2 - PRODUCTS

2.01 GENERAL

1. All products shall be new, free from oxidation, corrosion, and defects, and shall be of the specified quality.
2. Protect all materials and fabrications before, during, and after installation from damage.
 - a. Protect the installed work of other trades from damage.
3. Protect galvanized finishes and painted coatings from damage by use of padded slings and straps.
4. In the event of damage, immediately make all repairs and replacements as per the manufacturer's written recommendations and as approved by the Engineer at no additional cost to the Port.

2.02 BOLTS, NUTS, AND WASHERS

1. Anchor bolts or anchor rods: ASTM F 1554, Grade 105, headed, unless noted otherwise.
2. Economy bolts, hex head bolts, and other bolts not specified as high-strength: ASTM A 307, Grade A.
3. Nuts and washers for economy bolts, hex head bolts, and other bolts not specified as high-strength: ASTM A 563, suitable for grade of bolt, ASTM F 844, wide series, maximum thickness, respectively.
4. High-Strength bolts, nuts, and washers: ASTM A 325-X, Type 3, ASTM A 563-DH, hot-dip zinc coated, and ASTM F 436, hot-dip zinc coated, respectively.
5. Unless noted otherwise, anchor bolts, bolts, nuts, and washers shall be hot-dip zinc coated. Use super duplex stainless steel for exposed (not buried) piping hardware (bolts, nuts, washers).

2.03 COATINGS

1. Coatings shall be a two-component aliphatic polyurethane that can be applied by brush, roller, or spray. Coating shall be UV stable and suitable for marine environment.
2. Coating shall be in accordance with Master Painters Institute (MPI). Primer epoxy shall be MPI #101, Intermediate layer shall be MPI #108, and top coat shall be MPI #72. System DFT
 - a. = 8.5 mils. Galvanized steel does not require intermediate coat, and system DFT = 5 mils.
 - 1) All layers of coating system shall be of materials produced by the same manufacturer.
3. Follow manufacturers' instructions for surface preparation, cleaning, and coating application.
4. Color shall be safety yellow.

PART 3 - EXECUTION

3.01 PREPARATORY REVIEW

1. Prior to all work of this section, inspect the installed work of all other trades affecting this work and verify that all such work is complete to the point where this installation may properly commence.
2. Coordinate and furnish placement drawings, templates, instructions, and directions for installation of embedded anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items.
3. Verify that the work can be fabricated and installed in accordance with the drawings, specifications, and reference standards. Immediately report discrepancies to the Engineer and do not proceed with fabrication or installation until discrepancies are resolved and direction is provided.

3.02 FABRICATION

1. All structural steel shall be fabricated in accordance with the approved shop drawings and reference standards.
2. Shop-fabricate and preassemble all items complete for installation to the extent practicable to minimize field assembly. Disassemble units only as necessary for shipping and handling limitations.
3. Unless otherwise indicate on the drawings, weld all shop connections unless otherwise directed on the drawings. All joints shall be tightly fitting, securely fastened, square, plumb, straight, and true.
4. Drill or punch all holes required for attachments and bolted connections including those of other trades. Burned holes are not acceptable.
5. Welding of all metal fabrications shall conform to AWS D1.1.

3.03 PROTECTIVE COATINGS

1. Galvanizing:

- a. All miscellaneous metal, metal fabrications, and fasteners, except as noted in this specification, shall be hot-dip galvanized in conformance with ASTM A 123, A 143, A 153, A 384, and A 385.
 - b. Identify proposed drain holes or vent holes required to produce galvanized coatings to the specified standards. Clearly locate these holes on the shop drawings.
 - c. Galvanize items, to the extent practicable, immediately after fabrication is complete.
 - d. Damaged galvanizing, including damage due to welding, shall be restored in accordance with ASTM A 780 using zinc-based alloys or metalizing. Zinc-rich paints and cold spray are not acceptable. Surface preparation and application shall be according to the manufacturer's specifications.
2. Painting:
- a. Apply coatings in accordance with the manufacturer's recommendations for each application, including provisions for the prevailing temperature and weather conditions.
 - b. Prior to the application of any coating, inspect the substrate for contamination and defects, and prepare the surface in accordance to this Specification.
 - c. Apply each coat evenly without runs, drips, sags, bubbles, mud cracking, laps, brush marks, variations in gloss, color, texture, or sheen, and without "holidays."
 - d. Vary color or sheens between coats and apply all coats to uniform thicknesses. Refinish any work determined defective or damaged, and repair all defective or damaged work at no additional cost to the Owner. Leave finished surfaces clean, completely covered, and uniform in appearance.
3. Touchup and Repairs:
- a. Immediately restore coatings damaged due to field welding or other Contractor activities to original thickness, after thorough cleaning and necessary surface preparation.
 - b. Coating repairs to the coating system shall be in accordance with the coating manufacturer's recommendations. Repair all coating damage regardless of size, location or type of damage. For coating damage observed below water, provide a repair product intended for application underwater and approved for use with the coating manufacturer's coating system. Apply the repair product in accordance with the manufacturer's recommendations.

3.04 INSTALLATION AND ERECTION

- A. Install and erect all miscellaneous metal and metal fabrications in accordance with the design drawings, shop drawings, and reference standards.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes requirements for acceptance testing by the contractor and testing required to be completed by a contractor retained independent testing agency.
- B. Related Documents: The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this Section

1.02 APPLICABLE PUBLICATIONS

- A. All inspections and tests shall be in accordance with the following applicable standards and codes. These publications form a part of this specification to the extent referenced.
 - 1. American Society for Testing and Materials (ASTM):
 - a. D877 - Dielectric Breakdown Voltage of Insulating Liquids Using Disk Electrodes.
 - 2. Insulated Cable Engineers Association (ICEA):
 - a. S-68-516 - Ethylene-Propylene-Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.
 - 3. National Electrical Manufacturers Association (NEMA):
 - a. WC8 - Ethylene-Propylene-Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy. (ICEA S-68-516)
 - b. AB3, AB4- Evaluation and field testing of circuit breakers.
 - 4. Institute of Electrical and Electronic Engineers (IEEE):
 - a. 81 - Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.
 - b. 400 - Guide for Making High-Direct-Voltage Tests on Power Cable Systems in the Field.
 - 5. National Electrical Code – NEC
 - 6. American National Standards Institute - ANSI
 - 7. National Fire Protection Association - NFPA
 - 8. Occupational Safety and Health - OSHA 29CFR Part 1910.269
 - 9. International Electrical Testing Association – NETA
 - 10. Nationally Recognized Testing Laboratory Approved - NRTL
 - 11. State of Washington Administrative Code – WAC
 - 12. Tacoma Public Utilities NEC Amendments
 - 13. Tacoma Public Utilities Standards and Regulations

1.03 WORK INCLUDED:

- A. The Contractor shall perform tests of the electrical system to assure code compliance and proper system operation according to the intent of the contract documents.

B. Applicable Codes, Standards and References for Tests:

1. All inspections and tests shall be in accordance with the following applicable codes and standards.
2. National Electrical Code - NEC
3. National Electrical Manufacturer's Association - NEMA
4. American Society for Testing and Materials - ASTM
5. Institute of Electrical and Electronic Planss - IEEE
6. National Electrical Testing Association - NETA
7. American National Standards Institute - ANSI
8. Washington Administrative Code - WAC
9. Insulated Cable Plans Associate - ICEA
10. Association of Edison Illuminating Companies – AEIC
11. National Institute of Standards and Technology - NIST

1.04 CIRCUIT TESTS:

- A. The Contractor shall perform routine insulation resistance, continuity and grounding tests for all distribution and utilization equipment prior to connection and energization.
- B. A standard megger-type instrument shall be used to demonstrate insulation values are 200 megohms, ground system is continuous and the neutral system is isolated from the grounding system except at the systems' single ground point.
- C. System defects, indicated by the circuit tests, shall be corrected. Tests shall be repeated until satisfactory results are obtained.

1.05 GROUNDING TEST:

- A. Measure the ohmic value of the Electrical Service Entrance "System Ground" with reference to "Earth Ground" using multiple terminal, fall of potential methods and suitable test instruments.
- B. Maximum resistance to ground shall be less than 10 ohms. Notify the Engineer if this resistance value is not obtained for the initially installed system. Contractor shall recommend and provide corrective measures required to reduce ground resistance to less than 10 ohms.

1.06 MOTOR AND EQUIPMENT TESTS:

- A. Verify proper rotation of all motors before placing into service.
- B. Measure and record electrical data for each motor installed under this contract. Data shall include these items:
 1. Motor description
 2. Controller description
 3. Motor nameplate amperes
 4. Actual measured motor running amperes
 5. Overload heater manufacturer and catalog numbers
 6. Overload heater ampere range

7. Voltage (measured) and phase

- C. Motor controller overload heaters shall be sized to the actual motor nameplate full load current. Do not oversize overload heaters.

1.07 PHASE BALANCE TESTS:

- A. Verify the balance of the electrical system's phase currents. Re-assign load connections necessary to obtain a balance that is acceptable to the Engineer.

PART 2 - PRODUCTS

2.01 TEST EQUIPMENT

- A. Utilize test equipment in good mechanical and electrical condition with shape and frequency output waveforms appropriate for the test and the tested equipment.
1. Accuracy shall be appropriate for the test being performed, but not in excess of 2% of the scale being used.
- B. Field test meters used to check installed power system instrument calibration must have an accuracy higher than the instrument being checked.

2.02 TEST INSTRUMENTS AND CALIBRATION

- A. The Testing Firm shall have a calibration program which assures all applicable test instruments are maintained within rated accuracy as dictated by the National Institute of Standards and Technology (NIST).
1. Instruments calibration schedule:
 - a. Field instruments: Analog, 6 months maximum; Digital, 12 months maximum
 - b. Laboratory instruments - 12 months.
 - c. Leased specialty equipment - 12 months (where lessor guarantees accuracy).
 2. Provide visible dated calibration labels on all test equipment.
 3. Maintain up-to-date instrument calibration instructions and procedures for each test instrument.
- B. Provide all testing equipment required including, but not limited to, the following:
1. Wet and dry-bulb thermometer.
 2. 500V, 1000V, 5kV and 15kV meggers.
 3. Battery-powered portable telephone sets
 4. DC high-potential adjustable test set for EPR medium-voltage cables.
 5. Multimeter (Volts-Ohms-Millimeter) rated 20k ohms per volt or higher.
 6. Three-phase rotation meter, 60-Hz.
 7. Commercial model three-point earth ground test set reading directly in ohms.
 8. Miscellaneous cable, test leads, jumpers, test lights, buzzers, bells, switches, plugs, receptacles, and other test equipment as required.
 9. Insulation Tester (Megger): 2,000 Megohms.

10. Dranetz, BMI Model 355, Fluke 41 or equivalent recording type harmonic analyzer to display individual and total harmonic currents and voltages.
11. Clamp-on Ammeter.
12. Circuit Breaker Current Injections Test Set.

2.03 TEST REPORT

- A. Include the following:
 1. Summary of Project.
 2. Description of equipment tested.
 3. Description of test.
 4. Test results.
 5. Analysis and recommendations.
 6. Appendix, including appropriate test forms.
 7. List of test equipment used and calibration date.
- B. Furnish one (1) electronic PDF and one (1) original printed and bound copy of the completed report to the Engineer no later than twenty days after completion of the tests.
- C. These are in addition to requirements on Paragraph 3.05.

2.04 MATERIALS AND INSTRUMENTATION:

- A. Contractor and/or testing agency shall supply all apparatus and materials required for indicated tests.
- B. Contractor shall include all costs associated with testing in bid proposal.

2.05 TEST REPORT(S):

- A. Furnish one (1) electronic PDF and one (1) original and bound copy of test reports, as specified herein, for inclusion into the project operation and maintenance manuals. Each test report shall include the following items:
 1. Name, address and telephone number of the testing agency.
 2. Name(s) of personnel conducting the tests
 3. Type of test
 4. Description of test procedure
 5. List of items tested
 6. List of actual test equipment including make, model(s), serial number(s) and calibration date(s) as applicable.
 7. Test results
 8. Conclusion and recommendations

PART 3 - EXECUTION

3.01 TESTING

- A. General requirements: Test all wire, cable, and electrical equipment installed and connected by the Contractor to assure proper installation, setting, connection, and function as indicated or to conform to Contract Documents and manufacturer's instructions. As an exception to requirements stated elsewhere in the Contract, give the Engineer at least 7 calendar days' notice of the dates and times scheduled for tests (except megger tests) so Engineer may witness the tests. After the installation has been completed, the Contractor shall conduct an operating test demonstrating all equipment and devices operate in accordance with the requirements of the plans and specifications.
 - 1. Perform tests recommended by the equipment manufacturer.
 - 2. Perform additional tests issued by the Engineer which are required due to field conditions.
 - 3. Be responsible for all damage to equipment or material due to improper test procedures or test apparatus handling.

3.02 IDENTIFICATION

- A. Upon completion of the tests and inspections noted in these specifications, attach a label to all serviced devices indicating the date serviced and the testing company responsible.

3.03 TESTING PROCEDURE:

- A. All tests shall be conducted according to applicable industry standards.

3.04 SCHEDULING:

- A. Notify Engineer at least seven (7) calendar working days prior to performance of any test.

3.05 TRANSMITTAL OF REPORTS:

- A. Transmit test reports to the Engineer per Section 017000 – EXECUTION AND CLOSEOUT REQUIREMENTS.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this section.

1.02 DEFINITIONS:

- A. NEC means National Electrical Code.
- B. The term "code" as used herein shall mean all applicable National, State and local codes.

1.03 WORK INCLUDED:

- A. The Electrical work consists of furnishing, installing, testing and placing in satisfactory operation all equipment, materials, devices and appurtenances, necessary to provide a complete electrical system according to the intent of the Drawings and Specifications. In general this includes all labor, materials, equipment, tools, etc. to complete the electrical work.
- B. General requirements for materials and installation methods.
- C. As part of this project Contractor is required to perform civil work as related to Tacoma Power vaults, conduits and trench requirements as indicated on the approved Tacoma Power drawings. Prior to bid Contractor shall become familiar with Tacoma Public Utility Electrical Construction Standards. These can be reviewed at www.mytpu/tacomapower/electrical-permitting/electrical-construction-standards.htm. This work will be inspected by a Tacoma Power Utility Construction Inspector. This is a Tacoma Public Utilities electrical inspector and inspection is separate from the Tacoma Public Utilities, NEC inspector and inspections required inspections by the electrical permit.

1.04 INTENT OF DRAWINGS:

- A. The Electrical Drawings are intended to serve as working Drawings for general layout. Equipment, concrete vaults, switches, panels, disconnects and raceway locations are partially diagrammatic and do not necessarily indicate actual routings or all appurtenances required for a complete installation.
- B. Minor changes in the locations of concrete vaults, raceways, outlets and the like, from those shown on the Drawings, shall be made without extra charge if so directed before installation.
- C. Contractor is required to take all working dimensions from civil drawings and field measurements. Do not scale electrical Drawings.

1.05 MANUFACTURERS' RECOMMENDATIONS:

- A. Make all installations in strict accordance with manufacturers' published recommendations and details. All equipment, materials and installation methods recommended by manufacturers' shall be considered as part of this contract.

1.06 RELATED WORK:

- A. **TEMPORARY CONSTRUCTION POWER & LIGHTING:**
 - 1. Arrange with the serving Utility Tacoma Public Utilities for 120/240 Volt or 208Y/120 Volt service adjacent to construction site.
 - 2. Contractor is responsible for all costs associated with setup and removal of the temporary construction service meter.

3. Provide, maintain and remove, when no longer required, temporary electrical construction wiring from the construction service meter to the number of lights and receptacles required. Wiring to construction sheds, outdoor construction machinery, and temporary exterior work areas shall be the responsibility of individual contractors.
4. Provide and maintain construction lighting with portable wiring and temporary energization of the permanent site wiring, complete with lamps. Suitable construction lighting shall be provided. See NEC ARTICLE 305. Temporary Wiring.
5. Provide adequate feeders, circuit breakers and duplex 15-ampere 120-volt receptacles. Provide 120 volt construction receptacles with Ground Fault circuit protection in accordance with applicable WISHA safety standards.
6. Portable power cords from the outlets specified herein shall be the responsibility of individual contractors using the cords.
7. The Contractor shall assume all responsibility for safety, Electrical and Safety Code compliance, performance and adequacy of the construction power and lighting installation. The Engineer assumes no responsibility for the performance or safety and will not inspect nor design this temporary installation, as it is not part of the completed project.

B. EQUIPMENT FURNISHED BY OTHERS:

1. All equipment furnished for this project shall be coordinated with the Drawings to ensure correctness of Voltage, Phase and Ampacity. Equipment served by single circuit or feeder shall be provided with appropriate internal wiring including fusing of multiple circuits as required by code.
2. Control Voltages shall not exceed 120 volts. Provide control transformers for higher line voltages. Control transformers shall be connected from phase to neutral.

1.07 SUPERVISION AND COORDINATION:

- A. Coordinate work with Tacoma Public Utilities to ensure compliance with their specific requirements. Before starting work, contact Tacoma Public Utilities, and make arrangement for their services to this project. Obtain Tacoma Public utilities approved construction drawings and keep on site. Schedule pre-construction site review with Tacoma Public Utilities prior to starting work.
- B. Contact Electrical Inspection, Tacoma Public Utilities, obtain and pay for electrical permit before starting work. Pick up reviewed and approved electrical drawings at Tacoma Public Utilities and keep on site at all times for inspectors review.
- C. Contractor shall have a responsible and qualified person in charge at the site any time work is in progress or when necessary for coordination with other trades.

1.08 CODES AND REGULATIONS:

- A. All work shall conform to current applicable National, State and local Codes; these shall be regarded as the minimum standard of quality for material and workmanship. Contractor shall provide all Labor and Material required for compliance with Code Requirements or Code Interpretations, although not specifically detailed on the Drawings or in the Specifications. Contractor shall become familiar with all the following codes prior to bidding.
 1. ASTM American Society for Testing and Materials NBFU National Board of Fire Underwriters
 2. NEC National Electrical Code

3. WAC Washington State Administrative Code WSNREC Washington State Non-Residential Energy Code NESC National Electrical Safety Code
 4. NEMA National Electric Manufacturers Association NETA National Electrical Testing Association NFPA National Fire Protection Association
 5. UL Underwriters Laboratories, Inc.
 6. ICEA Insulated Cable ENGINEERs Associations IFC International Fire Code
 7. IBC International Building Code
 8. ETL Electrical Testing Laboratories
 9. --- Tacoma Public Utilities Standards and Requirements
- B. Nothing in these Drawings and Specifications shall be construed as permitting work not conforming with governing codes.
- C. The Contractor shall not be relieved from complying with any requirements of these contract documents which may exceed, but not conflict with requirements of the governing codes.
- D. Contractor shall include in bid all costs to have a Department of Labor & Industries approved firm to evaluate the installation safety, and compliance with code as required per WAC 296- 40-100 for any equipment specified or furnished that is not UL labeled.
- E. For equipment furnished by others not UL labeled the contractor shall not connect the equipment to the electrical system until receiving written approval by the electrical authority having jurisdiction.

1.09 PERMITS AND FEES:

- A. Obtain and pay all fees for licenses, permits, testing and inspections required by laws, ordinances and rules governing work specified herein. Arrange for inspection of work and provide inspectors with all necessary assistance.

1.10 WORKMANSHIP:

- A. A. All work shall be done by competent craftsmen skilled in the specific work to be done. Equipment shall be installed in a neat and workmanlike manner following the best practice of the trade.

1.11 ITEMIZED COST BREAKDOWN:

- A. Furnish an electrical schedule of values.

1.12 OPERATING INSTRUCTIONS:

- A. Fully instruct the Owner's designated representatives in the operation and maintenance of all components of the electrical system upon completion of the work and after all tests and final inspection(s) by the Authority(s) Having Jurisdiction.

1.13 AS-BUILT RECORD DRAWINGS

- A. See Specification Section 01 70 00 Paragraph 1.02A.

1.14 ELECTRICAL EQUIPMENT OPERATION AND MAINTENANCE (O & M) MANUALS:

- A. See Specification Section 01 70 00 Paragraph 1.02D.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All materials shall be new, free from defects, of the quality specified herein and on the Drawings. Materials shall be designed to ensure satisfactory operation and manufacturer's rated life in the prevailing environmental conditions where installed. Materials and equipment shall be listed by Underwriter's Laboratories or a Washington Administration Code (WAC) recognized testing laboratory for use under these conditions.
- B. Each type of material shall be of the same make and quality throughout the job. The materials furnished shall be the latest standard design products of manufacturers regularly engaged in their production.

2.02 TECHNICAL DATA

- A. Technical information contained herein relies entirely on tests and ratings provided by manufacturers who are solely responsible for their accuracy. The Engineer using this information in no way implies having tested or otherwise verified the results of published manufacturer's information.

2.03 AS SPECIFIED EQUIPMENT:

- A. This specification generally lists only one make and model number for each item of equipment or material required for the project. This is not intended to be restrictive but is intended to indicate the standard of quality, design and features required.
- B. In addition, the listed product is the basis of the design regarding physical size, electrical power requirements and performance. The product so identified is designated "as specified."

2.04 COMPLETE SYSTEMS:

- A. All equipment and systems specified herein or shown on the Drawings shall be complete and operational in every detail. Mention of certain materials in bidding documents shall not be construed as releasing the Contractor from furnishing additional materials required by the manufacturer, installation methods, codes and performing all labor required to provide a complete and operable system.

2.05 SUBMITTALS:

- A. Submittal items: Submittals shall include, but not be limited to the following items:
 - 1. Raceways
 - 2. Wires (600V)
 - 3. Grounding Equipment
 - 4. Wiring Devices
 - 5. Nameplates, labels
 - 6. Pre-cast Concrete Vaults/Covers with Calculations

7. Pre-cast Concrete Handholes/Covers with Calculations
8. Switchgear
9. Panelboards
10. Dry-Type Transformers
11. Communications Boxes, Equipment and Wiring

PART 3 - EXECUTION

3.01 PROTECTION OF WORK:

- A. Protect all work, wire, materials and equipment installed under this Division against damage by other trades, weather conditions or any other causes. Equipment found damaged or in other than new condition will be rejected as defective.
- B. Equipment shall be kept covered or enclosed to exclude moisture, dust, dirt, cement, or paint and shall be free of all such contamination before acceptance. Enclosures and trims shall be in new condition, free of rust, scratches or other finish defects. Properly refinish in a manner acceptable to the Engineer if damaged.
- C. Keep conduit and raceways closed with suitable plugs or caps during construction to prevent entrance of dirt, moisture, concrete or foreign objects. Pull a properly sized mandrel through each conduit prior to installation of wire or pull string for empty conduits and within 24 hours of concrete placement (duct tape not acceptable). Raceways shall be clean and dry before installation of wire and at the time of acceptance.
- D. Make up and insulate wiring promptly after installation of conductors. Wire shall not be pulled- in until raceways are complete, all bushings are installed and raceway terminations are completed nor pulled into conduit embedded in concrete until after the concrete is placed and forms are removed.
- E. Empty conduits shall be provided with distance labeled pull tapes, labels at source, pull through locations and destination location matching plans. All openings shall be filled with removable foam.

3.02 CUTTING AND PATCHING:

- A. Obtain permission from the Engineer prior to cutting. Locate cuttings to not weaken structural components. Cut carefully and only the minimum amount necessary. Cut concrete with diamond core drills or saws except where space limitations prevent the use of such equipment.
- B. All construction materials damaged or cut into during installation must be repaired or replaced with materials of like kind and quality as original materials by skilled labor experienced in that particular building trade.

3.03 PAINTING:

- A. Equipment scratched or marred in shipment or installation shall be refinished to manufacturer's standards and to the satisfaction of the Engineer.

3.04 LABELING:

- A. Clearly and properly label the complete conduit only and electrical system, as specified herein, to indicate the loads served or the function of each item of equipment connected under this contract. All labels shall be stamped Brass/Aluminum type. Seton or equal.

- B. Stamped Brass/Aluminum tags shall have source end point, circuit breaker, fused switch, equipment name or equipment ID. Labels shall be provided in all power and signal manholes for all wires, cables and pull ropes provided under this contract.
- C. All vaults (covers and frames) shall be field stamped the same as labeled on record drawings.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this section.

1.02 WORK INCLUDED:

- A. Provide all 600V and below wire and terminations for a complete installation

PART 2 - PRODUCTS

2.01 PACKAGING:

- A. Conductors shall be delivered to the job site in approved original cartons, or on reels as recommended by the manufacturer, and shall bear the Underwriter's Label. Reels shall be provided with suitable protection to prevent fork-lift damage to conductors during shipment or storage prior to use.

2.02 CONDUCTORS - 600 VOLTS:

- A. Stranded Copper, insulated for 90 degree centigrade and 600 volts.
- B. Insulation type XHHW-2. Insulation requirements may vary per the NEC where necessary to suit more stringent installation conditions.
- C. Aluminum wiring is not acceptable.

2.03 CONNECTORS - 600 VOLTS:

- A. Branch circuit conductor splices:
 - 1. Pre-insulated "twist-on" type or "crimped-on" type as approved (Scotch-lok, Ideal or equal).
- B. Terminator lugs of No. 12 wire and smaller: Spade, insulated type to be tool applied.
- C. Terminator lugs for No. 10 wire or larger:
 - 1. Two bolt (or approved positive restraint), tool applied compression type (Burndy or equal).
- D. Where conductor sizes have been increased to compensate for voltage drop, Contractor shall install finger splice crimp connections at lug terminations.

2.04 INSULATING MATERIALS:

- A. Insulating tape or heat shrink tubing shall have the equivalent rating of the applicable conductor insulation (Scotch 3M, RAYCHEM or equal).

2.05 PLASTIC CABLE TIES:

- A. Nylon, or equivalent, locking type (T&B or equal).

PART 3 - EXECUTION

3.01 GENERAL:

- A. Install all wiring in raceway.

3.02 CONDUCTOR TYPES, REFERENCED ON PLAN:

- A. Conductors shall be stranded copper.

3.03 CONDUCTOR COLORING CODE:

- A. Conductor color coding shall be as follows:
- B. 208/120 volt system
 - 1. A Phase - Black
 - 2. B Phase - Red
 - 3. C Phase - Blue Neutral – White Grounding - Green
- C. 480/277 volt system
 - 1. A Phase - Brown
 - 2. B Phase - Orange
 - 3. C Phase - Yellow Neutral -Gray
 - 4. Grounding – Green with Yellow Trace Other Colors - Switched Wires
- D. Conductors shall have colored insulation except wires larger than #8 may be black with colored tape identification at all terminations and splices.
- E. Additional colors may be used where such colors will help in identifying wires and different systems.

3.04 CONDUCTOR INSTALLATION:

- A. Raceways shall be complete, clean and free of burrs before pulling conductors.
- B. U.L. approved pulling compounds may be used with the residue cleaned from the conductors and raceway entrances after the pull is made.
- C. Contractor shall obtain the manufacturer's published recommendations for the handling, pulling and terminating of the cable. Contractor shall perform work in accord with manufacturer's recommendations.
- D. Pulleys or blocks shall be used for alignment of the conductors when pulling. Pulling shall be in accordance with manufacturer's specifications regarding pulling tensions, bending radius of the cable and compounds. No mechanical pulling means shall be used for wires No. 8 AWG and smaller. Cables shall be pulled by the conductor, not by the insulation or shielding.

3.05 MOISTURE PROTECTION:

- A. Cable ends shall be protected at all times from moisture. Provide approved heat-shrink end caps or equivalent for all unterminated cable ends.

3.06 TERMINATIONS - COPPER CONDUCTORS 600 VOLTS:

- A. Control and special systems wires shall be terminated with a crimped on lug when terminating at a screw connection.
- B. All screw and bolt type connectors shall be made up tight and retightened after an eight-hour period. Tighten all bolted connections with a ratcheting type torque wrench per manufacturer's standards.
- C. All tool applied crimped connectors shall be applied per manufacturer's recommendations and physically checked for tightness.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this section.

1.02 WORK INCLUDED:

- A. Provide all raceways for a complete electrical system. Include all fittings, hangers and appurtenances required for a complete installation. Exposed galvanized materials are not allowed. Provide two (2) coats grey or safety yellow (where appropriate) over all bare metal or galvanized materials.

PART 2 - PRODUCTS

2.01 CONDUITS:

- A. Polyvinyl Chloride (PV) Coated Rigid Steel Conduit, Thick Wall (PVRSC).
- B. Non-metallic, polyvinyl chloride (PVC), schedule 80.
- C. Flexible Metal Conduit with polyvinyl chloride jacket.

2.02 FITTINGS:

- A. PVRSC fittings shall have threaded connections.
- B. PVC Coated Flexible Metal Conduit: Thomas & Betts "Super Liquid-Tight" with external ground lug or equal.
- C. PVC Schedule 80 fittings shall be solvent welded type.
- D. All conduit elbows 30 degrees or greater shall be factory made. All 90 degree elbows shall be a minimum radius of 24" or greater. Provide PVRSC for all steel elbows extending above grade.

2.03 EXPOSED RACEWAY IDENTIFICATION:

- A. Provide sign or stencil on all raceway(s) containing conductors above 208 volts. The stencil or sign by "Seton" shall have minimum ½" high red letters indicating voltage.
- B. All exposed raceway shall be PVRSC.

PART 3 - EXECUTION

3.01 GENERAL:

- A. Install raceways concealed in construction or below grade.
- B. Cut conduit ends square, ream smooth and extend maximum distance into all couplings and connectors.
- C. Provide and install manufactured end caps on all conduit ends during construction to prevent the entrance of water or dirt. Tape, as a cover, is unacceptable.
- D. Pull a properly sized mandrel through each conduit prior to installation of conductors or pull-lines to remove any materials trapped within the conduit run. Conduits embedded in concrete shall have a mandrel pulled within 24 hours of concrete pour.
- E. All elbows 45 degrees or greater shall be PVRSC conduit and shall be factory made.
- F. Field made elbows are less than 45 degrees are acceptable for Schedule 80 PVC conduits.

- G. Conduits shall maintain a minimum 12" clearance from any high temperature surface.
- H. The conduit layout shall be carefully planned by the contractor to ensure neat and workmanlike installation. All below grade conduit runs with two or more conduits shall be provided with manufactured conduit saddles. All communications and power conduits shall have a minimum 12" separation.
- I. Provide bell ends for all conduits entering and leaving existing or new precast concrete manholes, vaults and pull boxes.
- J. Any work showing inadequate planning may be ordered removed by the Engineer and shall be replaced in a neat and proper manner at no additional cost to the Port of Tacoma.

3.02 CONDUIT SIZING:

- A. Conduits shall be sized per code for conductors with type XHHW-2 insulation, although thinner insulation types are permitted in some cases. Conduit size shall not be reduced if large size is specified on the drawing. Minimum conduit size shall be 3/4" trade diameter for above grade and 1" trade diameter for below grade.

3.03 PVRSC:

- A. Install PVRSC for all conduits where conduit is exposed above grade.

3.04 FLEXIBLE CONDUIT:

- A. Provide liquid tight flexible metal conduit connection to equipment. Provide flexible conduit connection(s) at each light pole base (steel or wood) to allow for a maximum of 6" settlement. Provide bonding jumper when required by N.E.C.

3.05 PVC CONDUIT SCHEDULE 80:

- A. PVC conduit Schedule 80 may be used underground. Offsets and bends shall not exceed 22 degrees without engineers field review and approval. All bends greater than 30 degrees and less than 45 degrees shall be galvanized rigid steel, 1/2 lap wrapped with corrosion resistant tape. Contractor shall field stake bends for engineers review.

3.06 CONTINUITY OF CONDUIT SYSTEM:

- A. Conduits shall be assembled continuous and secured to boxes, panels, etc., with appropriate fittings to maintain electric continuity.

3.07 PULL-LINES:

- A. Provide 150 pound plastic pull-lines, with numbered distance marks at one-foot increments in all conduit-only systems and spare conduits to facilitate future conductor installation. Provide labels on source and end point of all pull lines

3.08 CONCRETE ENCASEMENT:

- A. All conduits installed for 13.8KV systems (TPU or Port of Tacoma) shall be encased in controlled density fill (CDF) concrete the length of conduit trench: The CDF shall have a red dye added to the mix (five pound bag per yard) by the concrete manufacturer. Adding dye or other coloring after pour is not acceptable.

3.09 ELECTRICAL TRENCHES

- A. All electrical trenching shall comply with Division 31 and Specifications 31 23 33 Trenching and Backfill.

END OF SECTION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this section.

1.02 SUMMARY

- A. This Section includes identification of electrical materials, equipment, and installations.

1.03 REFERENCES

- A. ANSI/IEEE C2 - National Electrical Safety Code.
B. NFPA 70 (National Fire Protection Association) – National Electrical Code.

1.04 QUALITY ASSURANCE

- A. Comply with NFPA 70, as adopted and administered by the Authority Having Jurisdiction.
B. Comply with ANSI C2.

1.05 SUBMITTALS

- A. Product Data for each type of product specified.
B. Provide sample label with identification nomenclature for one of each label type to be used for identification and equipment labels.
C. Contractor shall field stamp one (lid and frame) for Engineer review and approval prior to field stamping all vaults and handholes.

PART 2 - PRODUCTS

2.01 LABEL TYPES

- A. Manufacturer's standard products with colors prescribed by ANSI A13.1, NFPA 70, and these Specifications. Refer to drawings for label schedule and types:

Section	Title	Label Types															
		B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
26 05 19	600-Volt or Less Wire and Cable		X	X			X	X									
26 71 19	Electrical Underground Ducts and Manholes								X	X	X	X	X				

- B. Black felt-tip permanent marker on backside of plate in all locations.
C. Flexible, preprinted pre-tensioned wraparound plastic sleeves sized to suit the diameter of the wire it identifies and arranged to stay in place by pre-tensioned gripping action when placed in position.
D. Preprinted self-adhesive vinyl labels with clear chemical-resistant coating.

- E. Engraved melamine plastic laminate flat stock, 1/16-inch minimum thickness for sizes up to 15 square inches. Use 1/8-inch minimum for sizes larger than 20 square inches. Black with white letters for normal power systems and red with white letters for emergency power systems, with height as shown in table above unless specified otherwise. UV-inhibited when used outdoors. Secure with stainless steel drive screws, stainless steel self-tapping screws or
 - 1. stainless steel oval-head 6-32 screws tapped into enclosure, or with stainless steel bolts with elastic stopnut. Do not attach labels with screws or bolts if it voids manufacturer warranty UL listing of equipment. Provide alternate adhesive type label.
- F. Exterior use adhesive-backed plastic machine-printed labels, white with black letters.
- G. Plain-colored vinyl adhesive tape, 3-mil minimum by 1-inch wide minimum. Apply 1/2-inch minimum over-wrap through 2-inch minimum length.
- H. Stainless-steel machine or hand-stamped wire marker plates, 0.010-inch minimum thickness, with 2 holes at each end for attachment with nylon Ty-wraps. (Reference Panduit MMP350-C series.) Wire tags shall have source point, circuit breaker, fused switch, equipment name or equipment ID. Labels shall be provided in all power signal manholes for all wires, cables and pull ropes provided under this contract.
- I. Provide field stamped label on exposed metal frame and lid. Label shall match vault ID on electrical site plans.
- J. Underground line warning tape with pre-printed warning message identifying type of system. Material shall be compounded for unlimited life when direct buried. 6-inch minimum width by 4-mils thick. (Reference Seton Style 210.)
- K. Underground metallic line-warning tape with pre-printed warning message identifying type of system. Material shall be compounded for unlimited life when direct buried. Use when metal-detection of line is required on Medium Voltage Systems. 6-inch minimum width by 4-mils thick. (Reference Seton style 6ELE.)
- L. Warning signs: Baked Enamel on aluminum plate, 0.040-inch minimum thickness. OSHA standard wording where approved. Custom wording if required. Secure with non-corrosive fasteners.
- M. Warning labels: Flexible pressure-sensitive vinyl conforming to OSHA "Danger" and "Caution" standards. 2½ x 1¾" minimum with black letters on yellow background. Label shall read: "WARNING! DO NOT USE AS WALKWAY, LADDER, OR SUPPORT FOR LADDERS OR PERSONNEL – CABLES ADDED AFTER INITIAL INSTALLATION REQUIRE PORT OF
 - 1. TACOMA APPROVAL." (Reference Seton "On-the-Spot.")
- N. Stencils: Machine-punched patterns, paint with color and formulation appropriate for material and location.
- O. Adhesive-backed metal labels manufactured with testing agency logo. Punched or engraved with actual settings and date.

PART 3 - EXECUTION

3.01 3.01 INSTALLATION

- A. Install identification labels according to manufacturer's written instructions.
- B. Install labels where indicated and as required by the Authority Having Jurisdiction. Locate for optimum viewing and without interference with the operation and maintenance of equipment.

- C. Coordinate names, abbreviations, colors, graphics and other designations used for electrical identification with corresponding designations used in the Contract Documents or as required by codes and standards.
 - 1. Use consistent designations throughout the Project. Labeling abbreviations are not allowed.
- D. Sequence of Work: Where identification is to be applied to surfaces that require finish, install identification after completion of finish work.
 - 1. Coordinate installing electrical identifying labels prior to installing finishes that conceal such items.
- E. Clean surfaces of dust, loose material, and oily films before applying painted or self-adhesive identification products.
- F. Painted Identification Products:
 - 1. Prime surfaces according to manufacturer's instructions prior to applying painted labels:
 - a. For galvanized metal, use single-component, acrylic vehicle coating formulated for galvanized surfaces.
 - b. For concrete masonry units, use heavy-duty, acrylic-resin block filler.
 - c. For concrete surfaces, use clear, alkali-resistant, alkyd binder-type sealer.
 - 2. Apply one intermediate and one finish coat of paint.
- G. Conductor Identification:
 - 1. Conductors to be Extended in the Future: Indicate source and circuit numbers.
 - 2. Multiple Power or Lighting Circuits in the Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color coding for voltage and phase indication of secondary circuit.
 - 3. Multiple Control and Communications Circuits in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color coding, or cable marking tape.
- H. Warning, Caution, and Instruction Signs:
 - 1. Install warning, caution, and instruction signs where indicated or required to ensure safe operation and maintenance of electrical systems and of items to which they connect.
 - 2. Emergency-Operating Signs: Install engraved laminate signs with white legend on red background with minimum 3/8-inch high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.
- I. Apply equipment identification labels of engraved plastic laminate on each major unit of equipment, including central or master unit of each system. This includes communication, signal, and alarm systems, unless units are specified with their own self-explanatory identification. Except as otherwise indicated, provide a single line of text with 1/4-inch high lettering on 1-inch high label. Use white lettering on black field. Apply labels parallel to equipment lines.
- J. Apply instrument labels on all field-mounted instruments, transmitters, pressure gauges and control valves.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 0 and 1 Specification Sections, apply to work of this Section.

1.02 WORK INCLUDED

- A. Provide dry transformers, concrete padmounted and c-channel mounted of the types and characteristics specified herein and shown on the drawings.
- B. All dry-type transformers and unit substations shall be 304 stainless, painted, Nema 3R.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Dry Type Distribution Transformers:
 - 1. Eaton
 - 2. Sorgel Quiet Quality
 - 3. Tierney
 - 4. Federal Pacific
 - 5. Olsun
 - 6. Or Equal

2.02 SHOP DRAWINGS

- A. Prepare and submit for review, prior to manufacture; include dimensioned elevations, base plans, section views, wiring and connection diagrams and bolting templates. Contractor shall review shop drawings and indicate mounting methods and connection lugs required.

2.03 DRY TYPE DISTRIBUTION TRANSFORMERS

- A. Dry type transformers and unit substations (main breaker, transformer, secondary circuit breakers shall be provided to satisfy 208Y/120 volt or 120/240 volt requirements from the 480 volt system. Transformers shall comply with NEMA Standard ST-20, Energy Star and shall bear the UL label. Unit substation shall have bolt on circuit breakers.
- B. Enclosure Construction
 - 1. Steel 304 stainless panel enclosure painted over core, coil and terminal chamber with louvered openings for convection cooling.
 - 2. Provide Nema 3R for installation environment.
- C. Windings: - Separate primary and secondary windings shall have Class H insulation rated for continuous operation at 115 degrees C above a 40 degree C ambient, with a maximum hot spot temperature of 220 degrees C. Windings, core and coil assembly shall be treated and built to resist the effects of dirt and moisture.
- D. Connections: All dry type distribution transformers shall have a 480 volt delta connected primary and 208Y/120 volt, three phase, four wire connected secondary or 480 volt primary to 240/120 volt single phase, secondary. Provisions for external connections shall be made by means of a terminal board employing lugs compatible for the external conductors installed.

- E. Primary Taps: Provide four full capacity taps, minimum of two 2-1/2% above and two 2-1/2% below normal (rated) primary voltage. Single phase transformers, 15 KVA and smaller, shall have at least two taps below normal.
- F. Capacity: Transformers furnished shall have a continuous overload capability not less than 115% of the nominal size shown on the plans.
- G. Efficiency: Transformers shall be designed for substantially lower losses than NEMA standard transformers.
- H. Core Steel: Thin lamination for efficiency, not thicker than 9 mils.
- I. Sound Level: Transformers shall have a guaranteed sound rating. Sound level shall not exceed 36dB per IEEE C57.12.91 testing for all sizes through 300 KVA (similar to Tierney Quietran). All transformers shall be factory certified to have sound levels not exceeding those specified.
- J. Certification: Submittals shall include appropriate test and manufacturing data to show transformers comply with all requirements of this specification.

2.04 VIBRATION ISOLATORS

- A. General: Isolators shall be selected according to manufacturer's recommendations.
- B. Mounting Pads: Shall be ribbed elastomeric pads for direct mounting under equipment.
- C. Spring Vibration Isolators: Shall be seismically restrained type, incorporating integral ribbed noise isolation pad.

PART 3 - EXECUTION

3.01 MOUNTING

- A. General
 - 1. Transformers shall be ground mounted on a concrete pad, sized 6" larger than transformer footprint required for the particular installation. Unit substations mounted on wood poles shall be c-channelled on wood poles with main circuit breaker mounted no higher than 6' – 0" AFG
 - 2. All units shall be seismically restrained/braced to comply with the requirements of the International Building Code (IBC) and manufacturers seismic testing. Concrete mix, size, depth of pad and anchor bolts shall be based on transformer manufacturer's recommendation for compliance with seismic zone testing.
 - 3. Remove all shipping blocks and packing materials prior to installation.
 - 4. Provide shop drawings for approval of any special mounting brackets or hangers.

3.02 VIBRATION ISOLATION

- A. General
 - 1. All transformers shall be provided with vibration isolation as recommended by the manufacturer and sized for the specific application.
- B. Mounting Pads
 - 1. General elastomeric type mounting pads shall be used for vibration isolation. Provide pads directly under the transformer base channels or mounting brackets. Pads shall be punched to accept hold-down/anchor bolts.

3.03 RACEWAY CONNECTIONS

- A. Transformer raceway connections shall be PVC coated, flexible metal conduit for equipment subject to vibration.

3.04 GROUNDING CONNECTIONS

- A. Dry transformers shall be considered "grounded neutral, separately derived systems;" the neutral shall be grounded per code accordingly.

3.05 VOLTAGE TAP CONNECTIONS

- A. Connect all transformers at "normal" voltage tap. Measure and record secondary voltages of all transformers and selected switchgear after the facility is completely energized. Forward a list to the Engineer for evaluation; reconnect taps as subsequently directed. All costs associated with this work shall be included in the basic bid.

END OF SECTION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide all service entrance and main distribution non-walk in, Nema 3R, 316 stainless, switchboard equipment complete with accessories and continuous full load ampacities as indicated.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Siemens
- B. Square D
- C. Cutler Hammer
- D. ABB

2.02 ENCLOSURES

- A. General Description
 - 1. Switchgear shall be freestanding and utilize sectionalized construction to allow localized access without disturbing adjacent sections. Equipment shall be dead front type.
- B. Enclosure Construction
 - 1. Enclosure shall be fabricated of code gauge 316 stainless steel; minimum 12 gauge, except front panels and doors may be 14-gauge minimum.
 - 2. Steel angle and/or channel framework shall be designed to provide strength and rigidity required for the particular installation and shall be suitable for lifting support.
 - 3. A removable lifting angle shall be provided at the top and bottom of each shipping section.
 - 4. Enclosure shall be front access only.
 - 5. Enclosure types shall generally be:
 - a. Nema 3R for exterior applications with hinged and locking doors.
 - 6. Finish: The paint finish shall be factory applied, standard gray color for all exterior and interior painted surfaces. Other colors may be considered.

2.03 SWITCHBOARD DIMENSIONS

- A. Overall height of switchboards shall not exceed 90 inches (not including base channels). Length and depth shall not exceed dimensions as scaled or noted in contract documents. Manufacturers whose equipment dimensions exceed those indicated shall notify the Engineer in writing at least 10 days prior to bid date. These manufacturers may not bid the project unless they properly notify the Engineer and qualify their bid as "Not Conforming to Contract Documents". Contractor's bid shall be based only on equipment, which fully complies with the contract documents. Cost of building modifications, switchboard relocations (if permitted) and other additional work required to accommodate larger switchboard(s) than shown on the drawings shall be borne totally by the Contractor.

2.04 SWITCHBOARD BUSBARS

- A. Aluminum or copper at manufacturer's option, factory fabricated, carried to terminals for connection to service cables or busway. Brace switchboard components for symmetrical fault current shown plus asymmetrical offset (100,000 amp bracing minimum). Aluminum bus shall be tin plated over its full length.
- B. Busbar Joints and Connections:
 - 1. Busbar-to-busbar connections shall be lapped, bolted and silver or tin plates, to produce low contact resistance and low temperature rise joints. Aluminum bus joints shall utilize Grade 5 bolts with belleville washers.
 - 2. Overcurrent devices shall be bolted to busbars using Grade 5 bolts and belleville washers.
 - 3. Conductor connectors shall be bolted to busbars using Grade 5 bolts and belleville washers.
- C. System of Bussing shall be three phase, 4 wire, with full size neutral.
- D. Ground Bus shall be full-length ground bus bonded to frame. Minimum size shall conform to UL 891 for grounding neutral conductor.

2.05 SWITCHBOARD COMPONENTS

- A. General All Switchboards: Switchboard components shall include (but not be limited to) the following:
 - 1. Circuit breakers, size and quantity as shown.
 - 2. Space provisions for future breakers as shown, including complete bussing and hardware for mounting devices.
 - 3. Provisions for utility company metering, and Owner instrumentation components specified.
 - 4. Cleats for securing all conductors within the switchboard.
 - 5. Integral mounted transient Voltage Surge Suppression (TVSS) equipment. Equipment provided by the switchgear manufacturer shall have equal or better characteristics as identified in section 26 43 13.
 - 6. Miscellaneous appurtenances as required for a complete installation.
- B. Service Entrance Switchboards: These switchboards shall include standard components (listed above in paragraph A) as well as the following:
 - 1. Shall conform to UL 869 and have a Service Entrance Type UL label.
 - 2. Shall be full fault current rated and properly coordinated with service overcurrent device.
 - 3. Shall contain current transformers and instrumentation described below.
 - 4. Shall have Transient Voltage Surge Suppressor (TVSS) equipment mounted integral to the switchboard.

2.06 POWER MONITOR EQUIPMENT

- A. In each switchboard, provide a digital line Power Monitor (PM) device Siemens PAC 4200 or equal having the features and functions specified below. The PM shall consist of a single microprocessor-based unit capable of monitoring and displaying the functions listed below with the accuracy indicated; the PM shall auto range between Units, Kilo-units and Mega-units. The PM shall provide the capability to communicate data via twisted pair network. The PM shall be UL listed, CUL and CE certified and also meet ANSI Standard C37.90.1 for surge withstand.
 - 1. METER VALUES
 - 2. (Accuracy % Full Scale)
 - 3. AC Phase Amperes +/- (0.3%) AC Phase Voltage +/- (0.3%) Watts +/- (0.6%)
 - 4. VA +/- (0.6%)
 - 5. VARS +/- (0.6%)
 - 6. Power Factor (+/- 1 digit) Frequency +/- (0.1 HZ) Watt-hours +/- (0.6%)
 - 7. VAR-hours +/- (0.6%)
 - 8. VA-hours +/- (0.6%)
 - 9. Watt Demand with 10 minute interval
 - 10. % THD (through 31st harmonic) Voltage – min./max.
 - 11. Current – min./max. Power –min./max.
 - 12. Power Factor – min./max. Frequency – min./max.
 - 13. Peak % THD
- B. Input ranges of the PM shall accommodate external current transformers with ranges from 5/5 through 12,800/5 amperes. Provide external current transformers with rating as indicated on the drawing or sized for incoming service. Potential transformers shall be self included and fused for 480-Volt system.
- C. Control shall be capable of being supplied from the monitored incoming AC line without the need for a separate AC supply control circuit or separate remote power source.
- D. Provide an addressable communication card capable of transmitting all data over a compatible single mode fiber to an existing central computer for storage and/or printout.
- E. Power Monitor Installation
 - 1. Provide (ampere rating of switchboard) to 5 Amp current transformers (3) and (3) fused voltage circuits to each power monitor.
 - 2. Install power monitors flush in the instrument space behind weather tight doors of switchboards.
 - 3. Provide raceway access for communication wires to access the power monitors.

2.07 NAMEPLATES

- A. Provide engraved phenolic nameplates per Section 26 05 00, Common work Results for Electrical, for each switchboard, instrument, protective device and disconnect device for the entire switchboard lineup. Nameplates for each switchboard shall include project name, voltage, phase and UL short circuit rating.

- B. Each protective device and disconnect nameplate shall include load designation (and fuse size and type when applicable). Furnish complete list with submittal.
 - 1. Provide one job nameplate on the main switchboard with the following information:
 - a. Project Name
 - b. Electrical Consultant (Cross Engineers)
 - c. Electrical Contractor
 - d. Year of Manufacture

2.09 RISER DIAGRAM

- A. A. Provide a complete electrical system riser diagram (as-built) that shows service entrance equipment, panelboards, transformers, raceway/feeder sizes and the like. Diagram shall utilize non-fading ink and paper and be mounted to the exterior of the main switchboard in a clear plastic front frame. Submit preliminary draft to project engineer for approval prior to final fabrication.

2.10 SHOP DRAWINGS

- A. A. Prepare and submit for review prior to manufacture. Include front view, dimensions, device sizes and layout, list of nameplates and all other information required to demonstrate conformance with contract documents.

PART 3 - EXECUTION

5.01 MOUNTING

- A. All switchboards shall be provided with concrete housekeeping pads that are 3-1/2 " high and 4" larger (length and width) than the "footprint" of the equipment.
- B. Secure switchboards, to prevent overturning from earthquakes, with 1/2" x 8" minimum black mild steel foundation anchor J-bolts. Bolts shall be set in the sub-base decking and extend through the housekeeping pad with sufficient threads to attach the equipment.

5.02 WIRING

- A. Shall conform to applicable sections of these specifications.
- B. Shall be secured to switchboard enclosure with cleats. Maximum spacing shall not exceed 24 inches.

5.03 SPACE

- A. Verify space available with equipment sizes and code required working clearances prior to submittal of shop drawings.

5.04 GROUNDING

- A. Provide per Section 26 05 26.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this section.

1.02 WORK INCLUDED

- A. Provide all panelboard equipment complete. All equipment shall be Nema 4X, gasketed, 316 stainless steel, dead front type construction, with padlock hasp and shall bear the U.L. label. Load centers will not be acceptable.
- B. All panels provided for service entrance locations as defined by the NEC shall be provided with a UL label as Suitable for Use as Service Entrance Equipment (SUSE).

1.03 SHOP DRAWINGS

- A. Prepare and submit for review prior to manufacture. Include front view, dimensions, device sizes and layout, list of nameplates and all other information required to demonstrate conformance with contract documents.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Siemens
- B. General Electric
- C. Square D
- D. Cutler Hammer
- E. Approved Equal

2.02 PANELBOARD DESCRIPTION

- A. Voltage, arrangement, and capacity of bus and overcurrent protective devices shall be as shown on the drawings. Bus shall extend behind all spaces ready for future overcurrent protective devices.
- B. Buss bars shall be plated aluminum or copper with ampere density not-to-exceed 1200/1000 amperes per square inch. Bussing will generally be 3 phase, 4 wire, 100 percent neutral, 200 percent for lighting and computer equipment panels, braced to match the interrupting rating of the breakers.
- C. Provide multiple lugs where parallel or "feed-through" connections are shown on drawings.
- D. Provide separate neutral and ground buses at the bottom of each panelboard.

2.03 OVERCURRENT PROTECTIVE DEVICES

- A. Provide circuit breakers in all panelboards.
- B. The AIC rating of the panel shall be as specified on the drawings.
- C. Mount breakers in all panelboards so breaker handle operates in a horizontal plane. Provide common trip on all multiple pole breakers.
- D. All circuit breakers rated 100 amps and above shall be solid state bolt-in type. Circuit breakers rated less than 100 amps may be molded case bolt in type.

- E. Circuit Breakers rated 15A through 30A shall be U.L. rated for 60/75 degree centigrade wire. Circuit breakers 35A and larger shall be rated for 75 degree centigrade.
- F. Circuit breakers intended for switching 120 volt loads shall be switching duty rated (SWD).
- G. Provide "Spare" overcurrent devices, where noted on the drawings, complete and ready for future circuit connections.
- H. Provide "Space" for future overcurrent devices, where noted on the drawings. Space shall include all bussing and device mounting hardware. Provide approved coverplates or overcurrent devices in all spaces. Open spaces in the panel are not permitted.

2.04 ENCLOSURE GENERAL CONSTRUCTION

- A. Provide cabinets of sufficient dimensions to allow future expansion and addition of overcurrent devices within the panelboards. All panelboards shall be provided with door-in-door construction. Provide increased enclosure width required for installation of conduits.
- B. Provide all panelboards Nema 4x, gasketed, 316 stainless steel, with padlock hasp and for use in a salt spray environment.
- C. All electrical distribution equipment locks shall be keyed identically.
- D. Fasten panelboard front with machine screws with oval counter-sunk heads, finish hardware quality, with escutcheons or approved trim clamps. Clamps accessible only when dead front door is open are acceptable.
- E. Surface mounted panelboards with fronts greater than 48 inches vertical dimension shall be hinged at right side in addition to hinged door over dead front. Provide three point latching mechanism with one T-handle operator.
- F. Provide matching trim of same height for adjacent panels or control devices in finished areas.
- G. Transient Voltage Surge Suppression (TVSS) equipment shall be provided by the panelboard manufacturer.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION

- A. Secure panelboards in place with top of cabinet at 6'-0", above finished grade unless otherwise noted. Top of cabinet and trim shall be level; trim and door shall fit neatly without gaps, openings or distortion.
- B. Top edges of adjacent panels shall be even.
- C. Securely anchor panelboards to structural framing with stainless approved fasteners and concealed bracing as required. Provide paint over galvanize or 316 stainless steel channel support framing with concrete pad or anchor base where panelboard(s) are free standing. Submit support rack shop drawings for approval prior to fabrication.

3.02 CIRCUIT INDEX

- A. Each panelboard shall be provided with a typewritten index listing each circuit in the panel by number, with its proper designation. Listing shall match circuit breaker arrangements, typically with odd numbers on the left and even numbers on the right. Mount index with a transparent protective cover inside the cabinet door.
- B. Contractor shall provide a typed duplicate index for each panel in the O & M manuals.

3.03 PANELBOARD NAMEPLATE

- A. Provide phenolic engraved nameplate for each panelboard. See Section 26 05 00

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this section

1.02 WORK INCLUDED:

- A. Provide all wiring devices and plates for a complete installation.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS:

- A. Hubbell
- B. G.E. Wiring Devices
- C. Leviton
- D. Pass & Seymour
- E. Approved Equal

2.02 MATERIALS:

- A. Wiring devices shall be specification grade, and the product of a nationally recognized manufacturer regularly engaged in their production.
- B. All wiring devices specified in this section shall be the product of one manufacturer. Each type shall have identical appearance and characteristics.

2.03 SWITCHES AND RECEPTACLES:

- A. White, toggle type, 20A, 277V.
- B. White duplex 20A, 125V, specification grade with GFCI with trip indicator light.
- C. All exterior switch and receptacle covers shall be Nema 3R "In Use".

PART 3 - EXECUTION

3.01 MOUNTING:

- A. Rigidly fasten each device to auxiliary pole, non-metallic strut or painted galvanized steel strut.

3.02 RECEPTACLE GROUNDING:

- A. Provide bare bonding wire between receptacle grounding terminal and box.

END OF SECTION

PART 1 - GENERAL

1.01 WORK INCLUDED:

- A. This specification contains the minimum requirements for the design, manufacture and testing of automatic, polyphase power factor correction capacitors rated 480 volts.
- B. Provide KVAR units per electrical drawings, with harmonic filters.
- C. The equipment covered by these specifications shall be designed and tested in accordance with NEMA, NEC, IEEE and ANSI standards.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS:

- A. Common Wealth Sprague Capacitor, Inc.
- B. General Electric
- C. Or equal

2.02 SHOP DRAWINGS:

- A. Contractor shall submit shop drawings for Engineers approval prior to start of equipment assembly.

2.03 EQUIPMENT RATINGS:

- A. Voltage rating of the power factor correction equipment shall be 480 volts. The nominal voltage rating of the capacitor cell shall be 1.08 times the voltage rating of the equipment.
- B. The total capacity of each unit shall be per electrical drawings. The total KVAR shall be automatically switched in steps of 50 KVAR.

2.04 CAPACITOR CELLS:

- A. Individual capacitors shall be self-healing utilizing polypropylene as a dielectric with vacuum deposited conductors on the polypropylene as electrodes.
- B. Each three phase capacitor shall be furnished with a U.L. listed pressure sensitive interrupter. The interrupter shall disconnect all three phases at the same time to maintain a balanced circuit.
- C. Capacitors shall be contained in hermetically sealed metal cans to prevent atmospheric contaminants from shortening the useful life.
- D. Dielectric material shall be low loss, less than 0.5 watts per KVAR.
- E. Dielectric fluid shall be non-PCB biodegradable with a flash point in excess of 415° F.
- F. Terminal bushings shall withstand 10KV AC to ground and be rated 30 KV BIL or greater.
- G. Normal design life of individual capacitor cells shall be 20 years.
- H. Individual capacitor cells shall be covered by a five(5) year warranty.
- I. All capacitor cells shall have threaded terminals for wire connection.
- J. To reduce line transients on system no stage shall switch more than 50 KVAR and no capacitor cell shall exceed 25.0 KVAR.
- K. Capacitor cells shall be designed to handle the increase in voltage from the reactor.

- L. All three phase capacitors shall be U.L. listed.

2.05 CONTROLS:

- A. All controls shall be mounted on enclosure door for easy inspection and service.
- B. A door interlock shall be provided to disconnect control power when enclosure door is opened.
- C. A personnel ground fault breaker shall be provided to disconnect control power upon accidental contact with control power and ground.

2.06 REACTIVE POWER CONTROLLER/POWER FACTOR METER:

- A. Controller shall measure the reactive current on every passage of the voltage through zero.
- B. A LED display shall be provided to indicate the stages that are on.
- C. To prevent leading power factor the controller shall be provided with programmable target cosine selector.
- D. The time delay between switching of filtered steps must be field programmable and have range of 10 seconds to 10 minutes to reduce hunting and allow voltage decay as required by NEC.
- E. All output contacts shall be disabled within 15 milliseconds of the main power interruption. The controller shall retain it's programming after the restoration of supply voltage. The controller shall bring the capacitor bank on line in step, phased, normal sequence.
- F. Controller shall be able to select 1:1:1, 1:1:2, and 1:2:2 switching sequence of filter steps.
- G. Controller shall be able to display power with indication for an inductive power factor.

2.07 ON - OFF SWITCH

- A. On/Off switch shall control power to all door mounted controls and contain pilot light to indicate "on" mode.

2.08 BLOWN FUSE LIGHTS:

- A. Provide three (3) "Push-to-Test" blown fuse pilot lights, one per phase door mounted, to indicate a blown fuse condition.
- B. Each fused phase, of each 50 KVAR step, shall have it's own blown fuse indicating light mounted in close proximity to the fuse for easy identification.

2.09 ENCLOSURE:

- A. The enclosure shall be fabricated from 12 gauge cold rolled steel, Nema 4X, gasketed and painted to withstand salt environment.
- B. An internal grounding lug shall be provided.
- C. Capacitor cells shall be accessible for visual inspection and replacement from the front of the cabinet.
- D. Removable lifting eyes shall be provided.
- E. The enclosure door shall have a three point latch with key locking handle.

2.10 EQUIPMENT PAINTING:

- A. All hardware and non-painted surfaces shall be 316 stainless steel to prevent corrosion.
- B. All items shall be hot dip galvanized after fabrication to meet G90 requirements.

- C. Sweep blast or chemically pickle surfaces to receive finishes.
- D. Prime all surfaces with Devron 201 universal epoxy primer to between 3 and 4 mils. Strip coat edges as recommended by manufacturer.
- E. Finish all surfaces with Devron 379 epoxy urethane (gloss) to between 3 and 4 mils. Strip coat edges as recommended by manufacturer.
- F. Final product shall be ANSI gray, 6 mils (dry film thickness) and pass 600 hour salt spray test.
- G. Finish method shall be included in shop drawings submittal. Exclusion will result in rejection of equipment.

2.11 GENERAL CONSTRUCTION:

- A. All power wiring shall have a thermoplastic insulation rated 105°C at 600 volts.
- B. System wiring connections shall be made to copper bus bars braced for 100,000 amps.
- C. Connectors shall be rated for switching of reactive current.
- D. The automatic power factor correction equipment shall be warranted by the manufacturer of the capacitor cells.
- E. Air core transient suppression coils shall be provided in series between the contactors and capacitor cells.
- F. All wiring connections shall be mechanically fixed with nut or screw.
- G. The automatic power factor correction equipment shall be an expandable modular design.

2.12 DISCHARGE RESISTORS:

- A. Capacitor "cells" shall be provided with discharge resistors to reduce residual voltage to less than 50 volts within one minute of de-energization. (NATIONAL ELECTRICAL CODE ARTICLE 460-6).
- B. Resistors provided shall insure a 20 year minimum life.

2.13 FUSES:

- A. To provide for major fault protection, line fuses shall be provided on all three phases of each switched stage and fixed bank.
- B. Line fuses shall be current limiting, U.L. recognized Class T-type. Minimum interrupting ratings shall be 200,000 amps for fuses 30 amps and above.
- C. Fuses shall be designed for filter applications and shall be rated not less than 150% filter current rating.

2.14 PERFORMANCE FEATURES:

- A. The capacitor shall be rated for continuous duty at 40°C ambient at 500 feet and below.
- B. Total Harmonic Distortion (THD) is 5% on either the voltage and current waveforms shall not effect the life of capacitors, contactors or controllers.

PART 3 - EXECUTION

3.01 SYSTEM COMPATIBILITY:

- A. A system compatibility analysis shall be under taken by the automatic capacitor bank manufacturer. It will be the responsibility of the contractor to provide the manufacturer the data covered by A.1 through A.11. This analysis shall be done to identify any potential harmonic current sources. The data shall be used by the manufacturer to determine the capacitor bank requirements for chokes or filters.
 - 1. Total KVAR to be added: 400 KVAR
 - 2. KVAR currently on system: 0 KVAR
 - 3. Automatic capacitor bank will be located approximately 50 feet from main transformer.
 - 4. Main transformer: Impedance: 5.75%; (1000)(2000) KVA
 - 5. Primary transformer voltage: 13.800 Volts
 - 6. Secondary Transformer voltage: 480 VOLTS
 - 7. A cable/bus/cable (contractor will provide sizes and distances) will be used between the automatic capacitor bank and transformer.
 - 8. Nominal load information: KW
 - a. KVA
 - b. POWER FACTOR
 - 9. Peak Load information: KW
 - a. KVA
 - b. POWER FACTOR
 - 10. Desired power factor: 98%. System shall be set for 100%.
 - 11. There are no D.C. drives on the electrical system.

3.02 TESTING

- A. All capacitor cells shall be traceable through construction and testing.
- B. The automatic capacitor bank shall be tested for proper operation prior to leaving the factory. The following checks, measurements, operations must be confirmed and recorded for each stage.
 - 1. Wire Connections
 - 2. Torque Connections
 - 3. Phase to Phase, Resistance Checks
 - 4. Phase to Phase, Capacitance Checks
 - 5. Controller Operation, Manual Operation
 - 6. Controller Operation, Automatic Operation
- C. The certified record of the tests (3.02 B) shall become part of the permanent documentation package that travels with the automatic capacitor bank.

- D. Contractor shall have an independent, NETA certified, testing agency perform a NETA acceptance test in the field on each unit.

3.03 MAINTENANCE:

- A. All maintenance and inspection on the capacitor assembly shall be done with the system disconnect device in the open position.
- B. Maintenance and inspection should be limited to 15 minutes or less so not to affect utility billing.
- C. At the one year mark the contractor shall provide inspection of the capacitor cells to identify failing capacitor cells. A bulged capacitor cover is the symptom to watch for and the capacitor cell replaced.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. A The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions and General Requirements, apply to this work as if specified in this section. Work related to this section is described in the following.
 - 1. Section 01 10 00 – Summary
 - 2. Section 01 35 43.19 – Export Soil Management
 - 3. Section 01 74 16 – Soil Characteristics and Waste Management
 - 4. Section 32 11 23 – Crushed Surfacing Base Course

1.02 DESCRIPTION OF WORK

- A. A Work herein generally covers trenching, backfilling and compaction required for installation of electrical conduit and vaults. Trench excavation and backfill shall include all excavation, backfilling, disposal of surplus and unsuitable material and all other work incidental to the construction of trenches.

1.03 QUALITY ASSURANCE

- A. On-Site Testing and Inspection: The Port will provide and pay for on-site testing and inspection services. Sampling and testing for compliance with the contract provisions will be in accordance with Section 01 45 00 – Quality Control. The Contractor shall assist in obtaining samples and may obtain copies of test results performed by the Port at no cost. Tests conducted for the sole benefit of the Contractor shall be at the Contractor's expense.
- B. Compaction Control Tests: The Port will provide and pay for laboratory and on-site field compaction control tests in accordance with the applicable provisions of these specifications.
 - 1. The compaction control density shall be the maximum density at optimum moisture content as determined by ASTM D 1557.
 - 2. Field tests to determine in-place compliance with required densities as specified, shall be performed in accordance with ASTM D 6938.
- C. Comply with applicable provisions of all pertinent local and state codes and regulations.
- D. Dewatering Work Plan: Describe methods to be employed in removing water from excavations and diverting surface water from other areas or structures. Describe the basic components of the dewatering system proposed and its planned method of operation. Dewatering shall be constructed and operated in such a manner as to avoid conflicts with ongoing activities.

1.04 SITE CONDITIONS

- A. There are existing utilities buried in the ground within the trenching locations of this project. Contractor shall hire a private utility locate company to scan the trench alignments and identify the presence and location of existing utilities. Locate company shall use traditional utility locate equipment and Ground Penetrating Radar (GPR). Those utilities which are to remain shall be protected from damage during construction and remain operational throughout the project. Damage to existing active utilities shall be repaired by the Contractor at no additional cost to the Port.

- B. There are existing ground wires present that likely will not be identified by utility locate. If Contractor discovers damages existing ground wires during excavation, Contractor shall stop work and coordinate with the Port to implement appropriate repairs.
- C. Ground water elevations fluctuate but shall be assumed to be approximately 3 feet below existing grade. Saturated soil material removed below ground water level shall not be reused for backfill material and shall be considered geotechnically unsuitable.

1.05 SUBMITTALS

- A. Before bringing to the site, perform, pay for, and submit test reports for all imported materials to determine the achievable in-place densities of off-site borrow source materials, in accordance with the requirements for compaction control tests referenced herein.
- B. Refer to Section 32 11 23 – Crushed Surfacing Base Course.

PART 2 - PRODUCTS

2.01 GRAVEL BACKFILL FOR FOUNDATIONS

- A. A Gravel backfill for foundations shall be used a leveling pad under electrical vaults and shall consist of imported clean, well graded crushed granular material meeting the requirements of Section 32 11 23 Crushed Surfacing Base Course.

2.02 TRENCH BACKFILL MATERIAL

- A. It is anticipated the quantity of geotechnically suitable excavated in-situ material resulting from construction activities will exceed the quantity of required backfill material for the project.
- B. Material used for backfill and trench backfill material shall be geotechnically suitable excavated in-situ material generated during site construction.
- C. Geotechnically suitable material shall be clean, free-draining, sandy gravel or gravelly sand that is free from deleterious coatings and shall contain no organic matter, soft friable particles, or other performance-reducing properties, as determined by the Engineer.
 - 1. The material shall not have excessive moisture content, excessive fine-grained fraction passing the U.S. No. 200 sieve, or other factors rendering the material unsuitable for placement, compaction, or supporting surface loads.
 - 2. 100% of material shall pass a 3-inch screen.
 - 3. The moisture content of fill material shall be within minus 2 percent to plus 1 percent of the optimum moisture content at the time of compaction.

2.03 RECYCLED MATERIALS

- A. Asphalt removed by demolition activities shall be taken to a Contractor selected and Port approved recycler but shall not be reused on-site. Refer to Section 01 74 16 – Soil Characteristics and Waste Management.

2.04 CONTROLLED DENSITY FILL (CDF)

- A. Controlled Density Fill (CDF), also may be referred to as lean concrete or controlled low strength material, shall be dyed red and meet the following requirements:

- B. CDF is a self-compacting, cementitious, flowable material requiring no subsequent vibration or tamping to achieve consolidation. The Contractor shall submit a mix design in writing to the Port for review and approval. Contractor shall utilize ACI 229 as a guide to develop the CDF mix design. No CDF shall be placed until the mix design has been approved. CDF shall be designed to have a minimum 28-day strength of 50 psi and a maximum 28-day strength not to exceed 300 psi. The CDF consistency shall be flowable (approximate slump 3 to 10 inches).
- C. The following testing methods shall be used by the Contractor to develop the CDF mix design:
 - 1. 28-day compressive strength – ASTM D4832
 - 2. Unit weight, yield, and air content – ASTM D6023
 - 3. Slump – FOP for AASHTO T 119
- D. The water/cement ratio shall be calculated on the total weight of cementitious material. Admixtures and foaming agents, if used, shall meet the requirements of ASTM C869. Admixtures shall be used in accordance with the manufacturer's recommendations and non-chloride accelerating admixtures may be used to accelerate the hardening of CDF.
- E. Mix design to have a minimum 28-day compressive strength of 50 psi and a maximum 28-day compressive strength not to exceed 300 psi. CDF consistency shall be flowable, approximately 3 to 10 inches.

2.05 UNDERGROUND MARKING TAPE

- A. Underground marking tape shall consist of inert polyethylene plastic, 4-mil thickness that is impervious to all known alkalis, acids, chemical reagents and solvents likely to be encountered in the soil, with a metallic foil core to provide the most positive detection and pipeline locators.
- B. The tape shall be color coded and shall be imprinted continuously over its entire length in permanent black ink. The message shall convey the type of line buried below and shall also have the word "Caution" prominently shown. Color for electrical shall be red.

PART 3 - EXECUTION

3.01 EXCAVATION

- A. The Contractor shall perform excavation of every type of material encountered within the limits of the project to the lines, grades, cross sections, details, and elevations indicated and as specified. Satisfactory excavated materials shall be put into temporary stock pile locations as required to be used later for backfill within the limits of the work. Geotechnically unsatisfactory materials encountered within the limits of the work shall be removed and replaced with satisfactory materials as directed by the Engineer. Geotechnically unsatisfactory material and surplus / excess satisfactory excavated material not required for backfill shall be hauled off site and disposed of by the Contractor. Unsatisfactory excavated material shall be stockpiled separately from satisfactory material. During construction, excavation and fill shall be performed in a manner and sequence that will provide sufficient quantities for material reuse at all times.
- B. All excavated material shall be stockpiled in the area shown on the drawings to allow time for the Port to test the material before Contractor hauls material to an approved off-site disposal facility. Approved plastic material shall be placed on the existing impervious surface prior to placing stockpiled materials. Refer to Division 1 specifications for material handling and disposal requirements.

3.02 EXCAVATIONS FOR ELECTRICAL STRUCTURES

- A. Excavation shall be of sufficient size to permit the placement of the full length and width of electrical structures. Base of excavation shall meet the requirements of 3.03 and 3.04. Electrical structures including bearing pads shall be placed on minimum of 6 inches of base- course aggregate compacted to 95% of the maximum density. If base of excavation is over saturated due to ground water refer to requirements of paragraph 3.04.

3.03 REMOVAL OF UNYIELDING MATERIAL

- A. Where over depth is not indicated and unyielding material such as rock or other hard material is encountered in the bottom of the excavation, such material shall be removed and replaced with compacted geotechnically satisfactory backfill materials.

3.04 REMOVAL OF UNSTABLE MATERIAL

- A. Where unstable or geotechnically unsatisfactory material is encountered in the bottom of the trench, such material shall be removed to the depth directed and replaced to the proper grade with compacted geotechnically satisfactory backfill materials. When removal of unstable material is required due to the Contractor's fault or neglect in performing the work, the resulting material shall be excavated and replaced by the Contractor without additional cost to the Government. If material is unstable due to ground water conditions, dewater excavation and remove unstable material to a minimum additional depth of 2 feet. Place 2 feet minimum depth of quarry spalls to stabilize base of excavation. Wrap / surround quarry spalls with geotextile fabric (bottom, top, and sides) to separate from existing soils and backfill material. All geotextile joints shall have minimum one foot overlap.

3.05 TRENCH EXCAVATION

- A. The Contractor shall maintain, at all times during the execution of this work, safe and stable excavations. The need for shoring is not anticipated, but if required, shoring shall be in accordance with paragraph 3.03.
- B. The Contractor shall conduct all operations with the least possible obstruction and inconvenience to the Port.
- C. The trench width and depth shall be as detailed on the drawings. All visible stones at base of electrical trench shall be removed. Placement of bedding material shall precede the installation of vaults.
- D. For trench excavation, unsuitable material at the base of the trench shall be removed. Excavation shall be continued to such additional depth and width as required by the Engineer. The trench shall be backfilled to conform with section shown on drawings with crushed surfacing base course, and compacted to form a uniformly dense, unyielding foundation.
- E. All material excavated from trenches shall be placed in trucks and hauled to temporary on- site stockpile area to allow Port to perform testing of the material prior to Contracting hauling to disposal site. Material shall not be placed adjacent to the trench and shall not be reused as backfill.
- F. The Contractor shall furnish, install, and operate all necessary equipment to keep excavations free from water during construction, and shall dewater and dispose of the water. Sufficient pumping equipment in good working condition shall be available at all times for all emergencies, including power outage, and shall have available at all times competent workers for the operation of the pumping equipment.

3.06 SHORING

- A. Where required, the Contractor shall provide all materials, labor, and equipment necessary to shore trenches to protect the Work, existing property, utilities, pavement, etc., and to provide safe working conditions in the trench. Shoring shall be in accordance with applicable local, State, or Federal safety codes, including WAC 296-155 part N.
- B. If workers enter any trench or other excavation 4 feet or more in depth, it shall be shored. To avoid excessive excavation area and resulting pavement demo and restoration, open trenches to avoid shoring for excavations greater than 4 feet are prohibited. The Contractor alone shall be responsible for worker safety, and the Port assumes no responsibility.
- C. Upon completing the Work, the Contractor shall remove all shoring. Damages resulting from improper shoring or failure to shore shall be the sole responsibility of the Contractor.

3.07 TEMPORARY TRENCH COVER

- A. Where required by the Port to maintain temporary vehicular access to opposite side of trench work area, the Contractor shall provide temporary steel plate trench covers of thickness necessary to support HS-25 truck traffic loads based on span dimension across trenches.

3.08 BEDDING AND BACKFILLING

- A. Electrical Trenches:
 - 1. Electrical trenches shall be as shown on electrical drawings. Extend placement of material above the conduit to the height shown in the details on the drawings in a manner to avoid damaging or disturbing the conduit.
 - 2. Trench backfill above CDF and/or sand material shall be clean earth or sand, free from clay, frozen lumps, roots, or moisture in excess of that permitting required compaction. Rocks or lumps larger than 3 inches maximum shall not be used. Trench backfill above CDF and/or sand material shall be placed in horizontal layers no more than 6 inches thick and compacted to 95 percent maximum density.
 - 3. Bedding and Trench backfill shall be accomplished in such a manner that the conduit will not be shifted out of position nor damaged by impact or overloading. All compaction shall be in accordance Paragraph 1.03.
 - 4. Backfilling of trenches against freshly placed concrete or CDF is not permitted until the concrete or CDF has cured a minimum of 7 days.
 - 5. The Contractor shall not operate heavy equipment over the top of the electrical trench until all work is complete.
- B. General Backfill:
 - 1. Backfill material shall be clean earth or sand, free from clay, frozen lumps, roots, or moisture in excess of that permitting required compaction. Rocks or lumps larger than 3 inches maximum shall not be used. Backfill shall be placed in horizontal layers no more than 6 inches thick and compacted to 95 percent maximum density.

3.09 COMPACTION

- A. Contractor shall properly place and compact all bedding and backfill material to at least 95% of dry density determined in accordance with ASTM D 1557.

- B. For trenches, successive horizontal layers shall not exceed 6 inches in loose thickness except that the layers in the top 2-feet shall not exceed 4-inches in loose thickness.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. A The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions and General Requirements, apply to the work as if specified in this section. Work related to this section is described in:
 - 1. Section 31 23 33 – Trenching and Backfilling
 - 2. Section 32 12 16 – Hot Mix Asphalt Paving

1.02 DESCRIPTION OF WORK

- A. A The extent of work is indicated on the drawings. The work includes the requirements for furnishing and installing imported aggregate base. Work includes transporting, placing, shaping and compacting base courses in conformance with these specifications and the dimensions and sections indicated on the drawings or within the lines and grades established by the Engineer.

1.03 QUALITY ASSURANCE

- A. Contractor shall submit material test results for review and approval prior to procurement.
- B. On-Site Testing and Inspection: The Port will provide and pay for on-site testing and inspection services to ensure compliance with the contract provisions. The Contractor shall assist in obtaining samples and may obtain copies of test results performed by the Port at no cost. Tests conducted for the sole benefit of the Contractor shall be at the Contractor's expense. In place density will be determined using Test Methods FOP for AASHTO T 310 and WSDOT SOP 615.

1.04 SUBMITTALS

- A. Submit test reports in accordance with Section 01 33 00 - Submittal Procedures, for Contractor furnished import aggregate base as follows:
 - 1. Sieve analyses
 - 2. Los Angeles Wear Percentage, 500 Rev
 - 3. Degradation Factor
 - 4. Number of fracture faces of the combined aggregate retained on the No. 4 sieve in accordance with FOP for AASHTO T 335
 - 5. Borrow Source Characterization
 - 6. Maximum Density and Optimum Moisture Content, determined by one of the following applicable methods as applicable:
 - a. Materials with less than 30 percent by weight retained on the No. 4 sieve shall be determined using FOP for AASHTO T 99 Method A.
 - b. Materials with 30 percent or more by weight retained on the No. 4 sieve and less than 30 percent retained on the 3/4-inch sieve shall be determined by WSDOT T 606 or FOP for AASHTO T 180 Method D.
 - c. Materials with 30 percent or more retained on the 3/4-inch sieve shall be determined by WSDOT T 606.

PART 2 - PRODUCTS

2.01 CRUSHED SURFACING AGGREGATE BASE COURSE

- A. Material used for crushed surfacing aggregate base course shall be imported aggregate complying with the following requirements and characterized in accordance with the requirements of Section 31 23 33 – Trenching and Backfilling.
- B. Crushed surfacing shall be manufactured from ledge rock, talus, or gravel. The materials shall be uniform in quality and free from wood, roots, bark, and other extraneous or objectionable material and shall meet the following quality test requirements:
 - 1. Los Angeles Wear, 500 Rev.: 35 percent max.
 - 2. Degradation Factor: 15 min.

- C. Crushed surfacing shall meet the following requirements for grading and quality:

Sieve Size	Percent Passing
1-1/4"	99-100
1"	80-100
5/8"	50-80
No. 4	25-45
No. 40	3-18
No. 200	7.5 max
% Fracture	75 min
Sand Equivalent	40 min

- 1. All percentages are by weight
- D. The fracture requirement shall be at least one fractured face and will apply to the combined aggregate retained on the No. 4 sieve in accordance with FOP for AASHTO T 335.
- E. The portion of crushed surfacing retained on a No. 4 sieve shall not contain more than 0.15 percent wood waste.

PART 3 - EXECUTION

3.01 EQUIPMENT

- A. All equipment necessary for the satisfactory installation of crushed stone surfacing base course shall be submitted to the Port for review and approval prior to beginning work.

3.02 PLACEMENT OF CRUSHED STONE SURFACING

- A. Mixing: The surfacing material and water shall be mixed in a central mixing plant. The completed mixture shall be a thoroughly mixed combination of proportioned materials and water, uniform in distribution of particle sizes and moisture content. A mixture containing water in excess of the proportion established by the Engineer will not be accepted.
- B. Placing and Spreading: Each layer of surfacing material shall be spread by equipment that is approved by the Engineer. Equipment that causes segregation of the surfacing material during the placing and spreading operation will not be allowed. Material shall be placed in layers not exceeding 4-inches.

- C. Shaping and Compacting: Immediately following spreading and final shaping, each layer of surfacing shall be compacted to at least 95 percent of maximum density before the next succeeding layer of surfacing or pavement is placed. The determination of field in-place density shall be made by the Nuclear gauge. When the thickness of surfacing is less than
 - 1. 0.15 foot, density testing will not be required and the Engineer will determine the number of coverages required for the particular compaction equipment available. A mist spray of water shall be applied as needed to replace moisture lost by evaporation. The completed layer shall
 - 2. have a smooth, tight, uniform surface true to the line, grade, and cross-section shown in the Plans.
- D. Weather Limitations: When, in the opinion of the Engineer, the weather is such that satisfactory results cannot be obtained, the Contractor shall suspend operations until the weather is favorable. No surfacing materials shall be placed during rainfall or snow, or placed on soft, muddy, or frozen Subgrade.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. A The extent of work is indicated on the Drawings. The work includes the requirements for producing, transporting, placing, shaping and compacting of one or more courses of materials in conformance with these Specifications and the dimensions and sections indicated on the Drawings.

1.02 QUALITY ASSURANCE

- A. The Port will provide necessary inspection services. Sampling and testing for compliance with the Contract provisions shall be in accordance with Section 01 33 00 - Submittal Procedures of these Specifications. The Contractor may obtain copies of results of tests performed by the Port from the office of the Port, at no cost. Tests conducted for the sole benefit of the Contractor, shall be at the Contractor's expense.
- B. Unless otherwise referenced or modified herein, quality control and quality standards for this section shall be as specified in the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction M41-10, 2024 edition (WSDOT Standard Specifications).
- C. Weather limitations shall be in accordance WSDOT Standard Specifications Section 5-04.3(1). Place HMA only during dry weather and on dry surfaces – no exception. Performance Grade HMA placed on wet surfaces and/or during rainfall are subject to removal and replacement at Contractor's expense. Rainfall shall not be in the forecast for the duration of the anticipated placement timeframe of HMA.
- D. Unless otherwise directed, asphalt courses shall not be constructed when the average surface temperatures are less than that specified in WSDOT Standard Specifications, Section 5-04.3(1), Table 5. Temperature of the HMA during placement shall be as required by Binder manufacturer.
- E. Truck tickets for HMA shall clearly state mix number that corresponds with submittal information. If mix number is not shown on truck ticket, asphalt will not be allowed to be placed and Contractor will return material at his own expense – no exceptions.
- F. Mixing Plant shall conform to the requirements of WSDOT Standard Specification Section 5-04.3(3)A.
- G. Hauling Equipment shall conform to the requirements of WSDOT Standard Specification Section 5-04.3(3)B.
- H. Pavers shall conform to the requirements of WSDOT Standard Specification Section 5-04.3(3)C.
- I. Material Transfer Device or Material Transfer Vehicle shall conform to the requirements of WSDOT Standard Specification Section 5-04.3(3)D.
- J. Rollers shall conform to the requirements of WSDOT Standard Specification Section 5-04.3(3)E.

1.03 SUBMITTALS

- A. The Contractor shall submit a mix design listed on the WSDOT Qualified Products List (QPL), or previously approved for use at a Port of Tacoma container terminal within the last 24 months. Contractor shall meet the requirements of paragraph 2.02 of this specification section. Submit WSDOT Forms 350-041 and 250-042 to the Engineer to request approval of a mix design from the WSDOT QPL. If mix design is from a past Port of Tacoma project, submit all test data demonstrating the mix design meets the requirements of WSDOT
 - 1. Standard Specification Sections 9-03.8(2) and 9-03.8(6). Contractor is responsible for identifying anti-strip requirements for the HMA. Submittal shall include binder manufacturer's recommendations for placement temperature of the HMA. Statistical evaluation shall have been used for mix design in accordance with WSDOT Standard Specification, Section 5- 04.3(9). Mix design shall ensure a target air void content of 4 percent is used. Asphalt content shall not be arbitrarily increased in construction to facilitate compaction, to minimize segregation, or for any other reason.
- B. Styrene Butadiene Styrene (SBS) Polymer Modified Performance Graded Asphalt Binder:
 - 1. Name of supplier.
 - 2. Certificate of Polymer Modified Binder Analysis
 - 3. Temperature – viscosity relationship
 - 4. Minimum / maximum mixing, placement and compaction temperature (degrees F) as recommended by polymer modified binder manufacturer.
- C. Joint Sealer: Submit manufacturer product data
- D. Tack Coat: Submit product data

1.04 TESTING REQUIREMENTS

- A. Testing shall comply with the WSDOT Standard Specifications Sections 9-03.8(2) and 9-
 - 1. 03.20. Aggregates for the HMA Class specified shall meet the requirements for pavements having greater than 10 million ESAL's in accordance with WSDOT Standard Specifications Section 9-03.8(2).

PART 2 - PRODUCTS

2.01 GENERAL

- A. A Materials shall be in accordance with WSDOT Section 5-04.2 and as referenced herein.

2.02 HOT MIX ASPHALT (HMA) MIX DESIGN

- A. Obtaining Project Approval: Mix designs shall be listed on the WSDOT QPL. Submit WSDOT Forms 350-041 and 250-042 to the Engineer to request approval of a mix design from the QPL on this project. Follow other requirements in WSDOT Standard Specifications, Section 5-04.2(2).
- B. Mix design shall have been originally developed in accordance with WSDOT SOP 732. Mix design shall comply with WSDOT Standard Specifications, Sections 9-03.8(2) and 9-03.8(6).
- C. HMA shall be Class 1/2". Minimum gyration level for mix preparation shall conform to Ndesign

1. = 100. Target air void percentage (Va) of mix design at the design number of gyrations shall be 4.0%. VMA and VFA shall meet the requirements of WSDOT Section 9-03.8(2). Mix design shall assume ESAL's > 10 million.
- D. Required Density at Ndesign: The HMA design when compacted in accordance with AASHTO T 312, shall have a required density that is a percent of theoretical maximum specific gravity (%Gmm) = 96.

2.03 ASPHALT MATERIALS

- A. Aggregate for asphalt concrete shall conform to the grading requirement of Section 9-03.8, and the following:
 - a. General requirements shall be in accordance with WSDOT Specification, Section 9-03.8(1).
 2. Test requirements shall be in accordance with WSDOT Specification, Section 9-03.8(2).
 - a. Grading requirements shall be in accordance with WSDOT Specification, Section 9-03.8(3).
 - b. Mineral filler, when used, shall be in accordance with WSDOT Specification, Section 9-03.8(5) and AASTHO M 17.
 - c. Proportions of materials shall be in accordance with WSDOT Specification, Section 9-03.8(6).
 3. Job mix tolerances and adjustments shall be in accordance with WSDOT Specification, Section 9-03.8(7).
 4. Test Methods for Aggregates shall be in accordance with test requirements in WSDOT Section 9-03.20.
- B. Asphalt Binder: Manufacturer shall be included on WSDOT QPL. Binder shall be a Styrene Butadiene Styrene (SBS) Polymer Modified Performance Graded Asphalt Binder (PGAB). Performance grade for all courses of paving shall be PG 58V-22. Asphalt shall conform to the requirements of WSDOT Section 9-02.1(4) for Performance Grade HMA PG 58V-22, including elastic recovery. SBS Polymer Modified PGAB shall have the following binder-enhancement characteristics:
 1. Higher stiffness at high-service temperatures, resulting in reduced levels of rutting and shoving
 2. Lower stiffness and faster relaxation properties at low service temperatures, resulting in reduced thermal cracking
 3. Increased adhesion between the asphalt binder and the aggregate in the presence of moisture, resulting in a reduced likelihood of stripping
 4. Improved aging characteristics, which help delay the deleterious impacts of oxidation and provide a more durable pavement
- C. Joint sealer: To be used at joints between existing asphalt and HMA placement areas. Hot applied PG 58H-22, elastically modified composition of asphalt cement and other modifiers. The sealant shall contain no solvent.

- D. Tack coat: Cationic emulsified asphalt CSS-1 or CSS-1h. The CSS-1 and CSS-1h may be diluted with water at a rate not to exceed one part water to one part emulsified asphalt. Do not allow the tack coat material to exceed the maximum temperature recommended by the asphalt supplier. CSS-1 and CSS-1h shall conform to WSDOT Standard Specifications, Section 5-04 and 9-02.1(6).

PART 3 - EXECUTION

3.01 GENERAL - PLACING HMA

- A. HMA shall be prepared from materials as previously described and by plants and methods conforming to the WSDOT Standard Specifications. Delivery of materials to the site shall meet the requirements of the WSDOT Standard Specifications.
- B. Minimum lift thickness for Class 1/2" PG HMA shall be 2 inches. Maximum lift thickness for final lift (wearing course) shall be 3.60 inches (0.30 feet) and 4.20 inches (0.35 feet) for other lifts in accordance with WSDOT Standard Specifications Section 5-04.3(7). Apply tack coat between all lifts of HMA.
- C. Construction shall be in accordance with the requirements of WSDOT Standard Specifications, Section 5-04.3.

3.02 SAW-CUTTING EXISTING ASPHALT PAVEMENT

- A. Saw-cut existing asphalt where indicated on the drawings so existing asphalt can be removed to perform required work. If clean vertical saw-cut edge is damaged by the Contractor during construction, Contractor shall saw-cut asphalt beyond damaged edge and remove asphalt prior to placing HMA at no additional cost to the Port.

3.03 TACK COAT

- A. Prior to applying tack coat, clean asphalt pavement surfaces in accordance with WSDOT Standard Specifications, Section 5-04.3(4). Areas to receive tack coat must be approved by the Engineer prior to application.

3.04 COMPACTION

- A. Immediately after the HMA has been spread and struck off, and after surface irregularities have been adjusted, thoroughly and uniformly compact the mix. The completed course shall be free from ridges, ruts, humps, depressions, objectionable marks, and irregularities and shall conform to the line, grade, and cross-section shown in the Plans.
- B. Compact the mix when it is in the proper condition so that no undue displacement, cracking, or shoving occurs. Compact areas inaccessible to large compaction equipment by mechanical or hand tampers. Remove HMA that becomes loose, broken, contaminated, shows an excess or deficiency of asphalt, or is in any way defective. Replace the removed material with new HMA, and compact it immediately to conform to the surrounding area.
- C. The type of rollers to be used and their relative position in the compaction sequence shall generally be the Contractor's option, provided the specified densities are attained. Exceptions are as follows:

1. 1 Pneumatic tired rollers shall be used for compaction of the wearing course beginning October 1st of any year through March 31st of the following year. Coverage with a steel wheel roller may precede pneumatic tired rolling. Unless otherwise approved by the Engineer, operate rollers in the static mode when the internal temperature of the mix is less than 175°F. Regardless of mix temperature, do not operate a roller in a mode that results in checking or cracking of the mat.
- D. HMA shall be compacted to a specified minimum level of relative density. After completion of the finish rolling, HMA compaction testing shall be performed with a nuclear density gauge in accordance with FOP for AASHTO T 355. Acceptable level of relative density shall be at least 93 percent of the theoretical maximum density determined using FOP for AASHTO T 209.

3.05 HMA PAVEMENT JOINTS

- A. Transverse and longitudinal joints in HMA shall be in accordance with WSDOT Standard Specifications, Section 5-04.3(12)A.

3.06 JOINT SEALER PLACEMENT

- A. Apply joint sealer to the interface between existing asphalt or concrete and where HMA is being placed.

3.07 SURFACE SMOOTHNESS

- A. Surface smoothness of completed pavement shall conform to the specific requirements of WSDOT Standard Specifications, Section 5-04.3(13).

3.08 PROTECTION OF PAVED SURFACES

- A. Do not permit vehicular traffic, including heavy equipment, on pavement until surface temperature has cooled to at least 120 degrees F. Measure surface temperature by approved thermometers or other satisfactory methods.

3.09 TESTING

- A. Testing shall comply with the WSDOT Standard Specifications, Section 5-04.3(10).
- B. Finish Surface Texture of Wearing Course: Visually check final surface texture for uniformity and reasonable compactness and tightness. Final wearing course with a surface texture having undesirable irregularities such as segregation, cavities, pulls or streaks, indentations, ripples, or lack of uniformity shall be removed and replaced at the Contractor's expense.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. A The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Work related to this section is described in:
 - 1. Section 03 30 00 – Cast-in-Place Concrete
 - 2. Section 05 50 00 – Metal Fabrication
 - 3. Section 31 23 33 – Trenching and Backfilling
 - 4. Section 32 12 16 – Asphalt Paving

1.02 DESCRIPTION OF WORK

- A. A The extent and location of the chain link fence and gate work is indicated on the drawings. The work includes the requirements for furnishing and installing all items and components of a completed fence system in conformance with these specifications and the dimensions and sections indicated on the drawings.

1.03 QUALITY ASSURANCE

- A. Engage an experienced installer having at least five (5) years' experience with similar projects and having completed at least five chain link fencing projects with the same materials, similar security requirements, and of similar scope.
- B. The Port will provide inspection service. The Contractor shall provide all necessary assistance in carrying out such inspections and tests, at no additional cost to the Port.
- C. This section references quality and specification standards by the American Society for Testing Materials (ASTM), Standard Specifications and Standard Test Methods, designated by basic reference (use the most current edition at the time of bid unless otherwise indicated).

1.04 SUBMITTALS

- A. Documentation demonstrating the qualifications and experience of the installer as described above.
- B. Shop drawings, catalog cuts, and fabrication methods for fencing fabric, fabric coating, framework, posts, rails, fittings, barbed wire, cantilever sliding gate, lock mechanism details, and other fencing elements.
 - 1. Provide plans, sections, and elevation drawings for all elements.
 - 2. Indicate all material types and show compliance with the drawings and specifications.
 - 3. Include details of the relationship of the gate and gate clearances to finish grades at various stages of opening and closing. Ensure adequate clearance between gate panels and finish grades.
- C. Submit the manufacturer's written specifications detailing the polymer/vinyl coating product components and the methods of application or fabrication.

PART 2 - PRODUCTS

2.01 2.01 CHAIN LINK FENCE

- A. A General:

1. Supply chain link fences and gates including accessories, fittings, and fastening from a single manufacturer.
2. The fence shall be chain link fabric supported on a steel frame, the posts of which are embedded in concrete foundations. Barbed wire supported on brackets above the fabric portion shall be installed as indicated on the drawings.
 - a. All steel fabric, framework, and fittings shall be hot-dipped galvanized after fabrication.
B Fabric:
3. Zinc-coated before weaving in accordance with ASTM A 392, Class 1 coating, and according to ASTM A 817 for Type II, Class 4 coating. The wire shall be 2-inch by 2-inch No. 9 gauge with 70,000 psi strength woven into steel chain link fabric and the fabric shall be twisted and barbed on both selvages.
4. Polymer coat in accordance with ASTM F 668, Class 2a coating. Color gray in accordance with ASTM F 934. Submit the manufacturer's written specifications detailing the coating product and method of fabrication.
5. Supply 5 aerosol spray cans each containing a minimum of 14 ounces of touch-up paint in the color specified. The touch-up paint shall be compatible with the polymer coating system used.

B. Framework:

1. Posts, rails, and braces shall be ASTM A 53 material and in accordance with ASTM F 1083.
2. Line posts: 2.375-inch outside diameter, schedule 40 pipe weighing 3.65 pounds per foot.
3. End, corner, or pull posts: 2.875-inch outside diameter, schedule 40 pipe weighing
 - a. 5.80 pounds per foot.
4. Top rails and post braces: 1.66-inch outside diameter, schedule 40 pipe weighing
 - a. 2.27 pounds per foot.
5. Swing gate posts: 2.875-inch outside diameter, schedule 40 pipe weighing 5.80 pounds per foot, for single gate up to 6-ft or double gate up to 12-ft. 4.0-inch outside diameter, schedule 40 pipe weighing 9.12 pounds per foot, for single gate up to 13-ft or double gate up to 20-ft. 6.625-inch outside diameter, schedule 40 pipe weighing 18.99 pounds per foot, for single gate up to 18-ft or double gate up to 36-ft.
6. Cantilever sliding gate posts: 6.625-inch outside diameter, schedule 40 pipe weighing 18.99 pounds per foot, for single gate up to 20-ft or double gate up to 38-ft
7. Tubular framework shall exhibit no red rust on the exterior coated surface after 950 hours, and no red rust on the interior coated surface after 300 hours, exposure to salt spray according to ASTM B 117.
8. Tension wire: No. 7 gage (0.177-inch diameter) marcelled tension wire according to ASTM A 824, Type II, coated with not less than 0.80 ounce of zinc per square foot of uncoated wire surface. Polymer coat in accordance with ASTM F 1664, Class 2a coating. Color gray in accordance with ASTM F 934.

9. All fittings, accessories, and hardware for chain link fence shall conform to the requirements of ASTM F 626 and match other framework material types. Polymer coat metallic-coated tie wires, clips, and hog rigs according to ASTM F 668 and match the color of the chain-link fabric in accordance with ASTM F 934. Barbed wire arm types as shown on the drawings.

C. Gates:

1. Design and fabricate gates to withstand wind and swing loads. Include allowances for future installation of slats, windscreens, inserts, signage, etc.
2. Construct swing gates and frames in accordance with ASTM F 900, unless noted otherwise, and to the dimensions shown on the drawings. Apply two coats of "GALVACON", or approved equal, in accordance with ASTM A 780 to welded corners of the gate frames, or use manufacturer's pre-fabricated galvanized corner connections.
3. Construct gates with chain-link fabric fastened to the ends of gate frame bars by tension bars and fabric bands, and to the top and bottom rails by tie wires in the same manner as the chain link fence fabric.
4. Cross-trussing shall be minimum 3/8-inch galvanized steel adjustable rods of the same material as the gate frame.
5. Install complete with hinges, latches, and drop-bar locking devices designed for the type of gate, posts, and lock used.
6. Provide positive-type latching devices with provisions for padlocking. Supply of padlocks is not required.

D. Cantilever Sliding Gates:

1. Design and fabricate gates to withstand wind and other site-specific environmental and operational loads. Include allowances for future installation of slats, windscreens, inserts, signage, etc.
2. Construct gates with chain-link fabric fastened to the ends of gate frame bars by tension bars and fabric bands. Fasten fabric to the top and bottom rails by tie wires in the same manner as the chain link fence fabric.
3. Fabric: As specified for chain link fence above.
4. Construct gates and frames in accordance with ASTM F 900, unless noted otherwise, and to the dimensions shown on the drawings.
5. Apply two coats of "GALVACON", or approved equal, in accordance with ASTM A 780 to welded corners of the gate frames, or use manufacturer's pre-fabricated galvanized corner connections.
6. Gate frames shall be designed to interlock at the top and bottom horizontal members with the gate track. The gate track shall have semi-enclosed sections securely fastened to the fence framework to ensure smooth and stable back and forth manual operation.
7. Cross-trussing shall be minimum 3/8-inch galvanized steel adjustable rods of the same material as the gate frame.
8. Support gate frame by, self-aligning, 4-wheeled, sealed lubricant, ball-bearing truck assemblies.

9. Provide positive-type latching devices and drop-bar with provisions for padlocking. Supply of padlocks is not required.
 - a. Protect dissimilar metals from galvanic action using coatings and isolators F Other Materials:
10. 1 Post anchorages shall be minimum 4,000 psi 28-day compressive strength concrete, standard ready-mixed concrete from a City of Tacoma approved plant. Air entrainment is not required.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Supply and install fences and gates in accordance with ASTM F 567 by an organization demonstrating at least five (5) years' experience regularly engaging in construction of complete security fencing systems.
- B. Install gates and other components in accordance with the manufacturer's instructions. Install locking bars to seat into keepers that are set into concrete ground anchors, which hold the gate rigidly in position when closed. Provide concrete ground anchors which hold the gate open to the specified arc.
- C. The locations and alignment of fence corners and gates are indicated on the drawings. The Contractor shall locate all intermediate line posts.
- D. Fasten fabric to posts, top rails, and the bottom tension wire with wire tie spacing as indicated on the drawings.
- E. Install top rails continuous. Provide for expansion or contraction of the continuous rail at regular intervals of maximum 100 feet.
- F. Install posts vertically with minimum depth of embedment as indicated on the drawings and at the spacing specified for the type of posts specified. In unpaved areas, strike off the post concrete 2 inches above the surrounding grade. In paved areas, leave the top of post concrete flush with the surrounding paving. Trowel the top of the concrete smooth with a slight slope away from the posts.
- G. Repair minor damage to galvanizing of fabric and fence appurtenances by thoroughly cleaning the damaged surfaces and the applying "GALVACON," or approved equal, in accordance with the manufacturer's recommendations and Section 05 50 00 of these specifications.
- H. Upon completion of the fence, clean the fence of all debris and repair marred or abraded areas as directed by the Engineer.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this section.
- B. Specification Section 31 23 33

1.02 REFERENCES

- A. ASTM (American Society for Testing and Materials).
- B. NFPA 70 (National Fire Protection Association) – National Electrical Code.
- C. WSDOT/APWA Specifications, Section 6-02.3.

1.03 QUALITY ASSURANCE

- A. Listing and Labeling: Provide products Listed and Labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to the Authority Having Jurisdiction and marked for intended use for the location and environment in which they are installed.
- B. Comply with NFPA 70, as adopted and administered by the Authority Having Jurisdiction.
- C. ANSI C2 “National Electrical Safety Code” for components and installation.

1.04 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections:
 - 1. Product data for metal accessories for manholes and handholes, conduit and duct, duct bank materials, and miscellaneous components.
 - 2. Shop drawings showing lids, covers, risers details/design calculations for precast vaults, manholes and handholes, including reinforcing steel. All loading shall be Type 1 container equipment loading unless otherwise indicated. Provide stamped drawings and calculations with State of Washington seal of registered professional structural engineer.
 - 3. Certificate for concrete and steel used in underground precast concrete utility structures, according to ASTM C 858.
 - 4. Inspection report for factory inspections, according to ASTM C 1037.
 - 5. Record Documents: Show dimensioned locations of underground ducts, handholes, manholes and vaults from nearest building or permanent structure.

1.05 DEFINITIONS

- A. Duct: Electrical conduit and other raceway, either metallic or nonmetallic, used underground, embedded in earth or concrete.
- B. Ductbank: Two (2) or more conduits or other raceway installed underground in the same trench.
- C. Handhole: An underground junction or pullbox in a duct or duct bank.
- D. Manhole: An underground utility structure, large enough for pulling cables, splicing, installing load break junctions, with facilities for installing and maintaining cables.
- E. Vault: An underground utility structure, large enough for a person to enter, with facilities for installing, operating, and maintaining equipment and wiring.

- F. Cable Rack: Heavy Duty Non-metallic wall mounted cable support racks, with stanchions, arms and cable ties to support cables.

1.06 COORDINATION

- A. Coordinate layout and installation of ducts, vaults, manholes, and handholes with final arrangement of other utilities as determined by field verification. Revise locations and elevations from those indicated when required to suit field conditions and ensure duct runs drain to vaults, manholes and handholes.

1.07 SAFETY REQUIREMENTS

- A. Perform work in accordance with the safety requirements of the Department of Labor Occupational Safety and Health Administration, Volume 36, Number 75, Part II, Subpart P, "Excavations, Trenching, and Shoring," and with Section 7 of the Manual of Accident Prevention in Construction as published by the Association General Contractors of America, Inc.
- B. Educate supervisors and employees on safety requirements and practices to be followed during the course of the work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Store precast concrete units at site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible.
- B. Lift and support precast concrete units only at designated lifting or supporting points.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manholes, Handholes and Vaults: Subject to compliance with requirements, provide custom products by one of the following:
 - 1. Utility Vault Company - Custom
 - 2. H2 Precast - Custom
 - 3. Approved Equal

2.02 CONDUIT AND DUCTS

- A. Metallic Conduit: PVC Coated Rigid Steel Conduit (PVRSC): Nema 1 – RN 1 – 2008.
 - 1. Use for below grade transition of PVC Schedule 80 to above grade exposed conduit.
- B. Nonmetallic conduit:
 - 1. Rigid Plastic Conduit: NEMA TC 2, UL 651A, Schedule 80 PVC, rated for use with 90°C conductors under all installation conditions and labeled for underground use.

2.03 CONDUIT FITTINGS

- A. Steel Fittings: PVC-coated, cast malleable, ferrous metal, threaded fittings, with neoprene cover gasket on each fitting installed outdoors.
- B. PVC Conduit and Tubing Fittings: NEMA TC 3.
 - 1. "Mogul Fittings": Provide "Mogul" size fittings for all conduit.

- C. Seal Bushings: O.Z. compound bushing on each conduit entering a building from outside underground and on each conduit passing from one space into another, which is normally at a lower temperature.
- D. Hubs: Appleton "Hub" or "Hub-U" series or Thomas & Betts "370" series hub on each conduit terminating in a metal box.
- E. Unions: Appleton Type "EC" or Thomas & Betts "Erickson Coupling" conduit unions where necessary.

2.04 DUCT SUPPORTS

- A. Rigid PVC spacers selected to provide minimum NEC duct spacings. All horizontal spacers shall be staggered a minimum of 12 inches.

2.05 HANDHOLES

- A. General: Precast concrete or structural plastic, as indicated on Drawings, with the following standard features:
 - 1. Cover with insert or other device to facilitate lifting.
 - 2. Cover with locking devices similar to REA or FARGO.
 - 3. Drain hole in base, 2-inch minimum diameter.
- B. Handhole Covers: Cast iron, capable of supporting traffic loads. Cast iron cover with cast-in legend "ELECTRIC" or "COMMUNICATION" as appropriate. Machine cover-to-frame bearing surfaces.

2.06 MANHOLES AND VAULTS

- A. Precast Concrete Units: Rated minimum 125 KIP, Interlocking, mating sections, complete with accessory items, hardware, and features as indicated on Drawings. Include term-a-ducts for conduit entrances and sleeves for ground rods.
- B. Design structure according to ASTM C 858.
- C. Joint Sealant: Continuous extrusion of asphaltic butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand the maximum hydrostatic pressures at the installation location with the ground water level at grade.
- D. Source Quality Control: Inspect structures according to ASTM C 1037. Units shall be capable of supporting designed loads.
- E. Manhole Covers: Cast iron, capable of supporting minimum 125 KIP designed loads. Cast iron cover with cast-in legend "ELECTRIC" or "COMMUNICATION" as appropriate. Machine
 - 1. cover-to-frame bearing surfaces.
- F. Vault Covers: Diamond plate, capable of supporting minimum 125 KIP designed loads. Diamond plate cover with field welded bead label "ELECTRIC" or "COMMUNICATION" as appropriate minimum 1" high lettering. Machine cover-to-frame bearing surfaces.

- G. All vaults shall be set level on 12 inches of pea gravel except where otherwise specifically directed by the Engineer. Tops of vaults shall be 1 inch above adjacent final asphalt grade and paving shall be sloped up evenly to vault with the slope beginning a minimum of 10 feet from the vault. Contractor shall be responsible for measuring and calculating elevations which will result in top of vault flush with final asphalt paving grade. In the event the vault installation does not conform to the foregoing criteria, the contractor shall remove and re-install the vault. The surrounding area shall be repaved in accordance with the foregoing criteria and the paving specifications, all at no additional cost to the Port of Tacoma. Raising the vaults top section and blocking with brick and/or grout will not be accepted. The contractor shall perform the above at no additional cost to the owner. See Civil/Structural drawings and specifications for all wheel load requirements for electrical and communications vaults.
- H. All manholes and vault lids over frames shall be field stamped with drawing ID.

2.07 ACCESSORIES

- A. Duct Supports: Rigid PVC stackable manufactured spacers selected to provide 3 1/2" minimum duct spacings.
- B. Manhole and Vault Lifting Means
1. Pulling Eyes in Walls: Eyebolt with reinforcing bar fastening insert. 2-inch diameter eye, 1-inch by 4-inch bolt. Working load with 6 inch embedment in 4000 psi concrete: 13,000 pounds minimum tension.
 2. Pulling and Lifting Irons in Floor: 7/8-inch-diameter, hot-dipped galvanized, bent steel rod, stress relieved after forming, and fastened to reinforced rod. Exposed triangular opening. Ultimate yield strength: 40,000 pounds shear and 60,000 pounds tension.
- C. Sump Frame and Grate: Comply with FS RR-F-621, Type VII for frame and Type I for cover. Provide ground stud on frame and cover.
- D. Bolting Inserts for Cable Racks: Flared, threaded inserts of noncorrosive, chemical resistant, nonconductive thermoplastic material 3'-0" on center; 1/2-inch internal diameter by 2-3/4 inches deep, flared to 1-1/4 inch minimum at base. Tested ultimate pull-out strength: 12,000 pounds minimum.
- E. Expansion Anchors for Installation After Concrete is Cast: Zinc-plated carbon steel wedge type with stainless-steel expander clip, 1/2-inch bolt size, 5300-pound rated pull-out strength, and 6800-pound rated shear strength minimum.
- F. Manhole, Vault Hardware: Cables shall be well supported on walls by imbedded cable racks. The cable racks shall consist of a stanchion that attaches to the manhole/vault wall in accordance with the manufacturer's recommendations and adjustable arms that lock into the stanchion.
1. At least three (3) stanchions shall be installed on each eight foot manhole/vault wall and two (2) stanchions on each six foot manhole/vault wall.
 2. Minimum cable arm length shall be eleven inches. Cable rack arm lengths shall be appropriate for the manhole/vault size and amount of cable being installed.
 3. At least two spare arms shall be installed at each stanchion position.
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- G. Cable Rack: Stanchions and arms shall be painted steel. The Stanchion shall be 36 inches long, shall incorporate multiple arm mounting holes that are 4 inches apart and recessed bolt mounting holes. Slots shall be provided in the arms for cable wire ties. The cable racks shall meet or exceed the 350 lb working load rating and shall be marked with the manufacturer's name, plant location and date manufactured. Cable rack components and accessories shall be Underground Devices Incorporated or equal.
- H. Ground Rods: Solid copper clad steel, 3/4-inch diameter by 10-feet length.
- I. Ground Wire: Stranded bare copper, #2 AWG minimum.
- J. Duct Sealing Compound: Nonhardening, safe for human skin contact, not deleterious to cable insulation, workable at temperatures as low as 35°F withstands temperature of 300°F without slump, and adheres to clean surfaces of plastic ducts, metallic conduits, conduit coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and the common metals.

2.08 BACKFILL MATERIAL

A. Direct-Burial Conduit 600V and Communications

- 1. Initial Bedding: 3" of sand below conduits.
- 2. Secondary Bedding: Unsaturated excavated earth free of rocks, broken concrete and debris 2" and larger, and compacted to 6" minimum above conduits.
- 3. Upper Trench:
 - a. Areas Under Pavement:
 - 1) See Civil requirements.
 - 2) Provide plastic warning tape, 4-mil thickness reading "Caution – Buried Electrical Line Below" in trench at 12" below base course ACP.
 - b. Areas Not Under Pavement: Select Native Fill.
 - 1) Unsaturated excavated earth free of rocks, broken concrete and debris 2" and larger, and compacted in 12" lifts to prevent settlement.
 - c. Warning Tape: Provide plastic warning tape, 4-mil thickness reading "Caution – Buried Electrical Line Below" in trench at 12" below base course ACP.

B. Direct-Burial Conduit Above 600V

- 1. Initial bedding: 3" of sand below conduit supports.
- 2. Secondary bedding: Controlled Density Fill (CDF) concrete with red dye at five pounds per cubic yard for 3" below , above and sides of all conduits.
- 3. Upper Trench:
 - a. Areas Under Pavement:
 - 1) See Civil requirements.
 - 2) Provide plastic warning tape, 4-mil thickness reading "Caution – Buried Electrical Line Below" in trench at 12" below base course ACP.
 - b. Areas Not Under Pavement: Select Native Fill.

- 1) Unsaturated excavated earth free of rocks, broken concrete and debris 2" and larger, and compacted in 12" lifts to prevent settlement.
- c. Areas for Tacoma Power Conduits.
 - 1) Follow TPU approved construction drawings and have inspected by TPU utility inspector not NEC electrical permit inspector.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine site to receive ducts, vaults and manholes for compliance with installation tolerances and other conditions affecting performance of the underground ducts, vaults and manholes. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Existing Utilities: Locate all existing utilities in the area prior to performing any excavation.

3.02 EARTHWORK

- A. Comply with Division 31, Section "Earthwork."
- B. Trenching:
 1. Comply with OSHA/WISHA safety standards for trenching, including stable slope and shoring requirements.
 2. Depth: Correct points of over excavation using mechanically-compacted backfill to form a smooth trench bottom.
 3. Width: Excavate to minimum width consistent with stability of sides.
 4. Slope: Slope trenches so that conduit and ducts drain toward manholes and handholes and away from buildings and equipment.
 5. Muck Excavation: Where muck or unstable material is encountered, overexcavate and backfill to attain proper grade with coarse sand, gravel, or Controlled Density Fill.
 6. Pile backfill material in an orderly manner; a sufficient distance from the trench to avoid overloading trench banks.
 7. Bedding: The entire bottom of the excavation is to be firm, stable, and at uniform density.
 8. Contractor shall not trench more than can be backfilled same day.
- C. Excavating for Handholes, Manholes and Vaults: Provide 12" minimum clearance between outer surfaces of unit and embankment or timber used for shoring or width of equipment used for compacting during backfilling operation.

3.03 RACEWAY APPLICATIONS

- A. Refer to Specifications and Drawings for raceway materials. Where not specified otherwise, use PVC coated rigid steel conduit above and underground.
- B. Nonmetallic conduit: PVC Schedule 80, use underground only.
 1. Underground Direct Burial: For medium-voltage and low-voltage applications. Use Schedule 80 Rigid Plastic Conduit as standard. Use PVC coated rigid steel conduit on turns 40° or greater.
- C. Use PVC fittings for PVC conduit and suitable water-tight connections where PVC conduit connects to galvanized steel conduit.

3.04 CONDUIT AND DUCT INSTALLATION

- A. Install conduit and ducts as indicated on Drawings and according to manufacturer's written instructions.
- B. Slope: Pitch ducts minimum of two inches per 100 feet to drain toward manholes, vaults and handholes and away from buildings and equipment. Slope ducts from a high point in runs between manholes/vaults to drain in both directions.
- C. Curves and Bends: Use manufactured PVC coated rigid steel elbows for stub-ups at equipment and at building entrances with a minimum radius of 36 inches for communications and 24 inches for electrical conduits. Do not exceed 22 degrees for field bends with out field review and approval by engineer. Contractor shall field stake bend radius for field review prior to conduit installation for bends greater than 22 degrees.
- D. Make joints in ducts and fittings watertight according to manufacturer's instructions. Stagger couplings so those of adjacent ducts do not lie in the same plane.
- E. Duct Entrances to Vaults and Manholes: Space end bells approximately 10 inches on center for 5-inch ducts and varied proportionately for other duct sizes. Change from regular spacing to end-bell spacing 10 feet from the end bell without reducing duct line slope and without forming a trap in the line.
- F. Separation Between Direct-Buried, Non-Encased Ducts: Provide 3 inches minimum separation for like services, and 12 inches minimum between power and signal ducts.
- G. Stub-Ups: Use PVC coated rigid steel conduit for stub-ups through concrete to equipment. Install insulated grounding bushings at the conduit terminations.
- H. Use PVC coated rigid steel for all exposed conduit for equipment mounted on outdoor concrete pads.
- I. Pulling Cord: Install 150-pound- test nylon cord with distance markings in installed conduits, including spares and conduits that have conductors installed

3.05 BACKFILLING

- A. Backfill trenches only after all necessary inspections and tests have been performed.
- B. Remove all debris, rocks, broken concrete, and formwork before backfilling trenches.
- C. Use Controlled Density Fill (CDF) with red dye for all 13.8kV conduits. CDF shall extend beyond conduits a minimum of 3" below, sides and above conduits in trenches. Provide utility red dye at five pounds per cubic yard of CDF..
- D. Follow Division 31 requirements and deposit backfill in layers. Uniformly spread and compact backfill with suitable power tampers to the density of the adjacent soil and in such a manner so as not to disturb the alignment of the conduit. If settlement occurs, refill, compact and smooth off to conform to the surface of the ground. See Division 31 for trench compaction requirements.
- E. Restore surface features at areas disturbed by excavation, and reestablish original grades.
 - 1. Restore all areas disturbed by trenching, storing of dirt, cable laying, and other work.

3.06 VAULT, MANHOLE AND HANDHOLE INSTALLATION

- A. Install as indicated on Drawings, according to manufacturer's written instructions and ASTM C 891.

1. Install units plumb and level and with orientation and depth coordinated with arrangement of connecting ducts to minimize bends and deflections required for proper entrances.
2. Support units on a level bed of pea gravel, graded from the 1-inch sieve to the No. 4 sieve and compacted to the same density as the adjacent undisturbed earth.
3. Drainage: Where manholes/vaults have drain holes in the bottom, provide sixteen inches minimum of pea gravel below the manhole/vault.

B. Grounding:

1. Provide two ground rods through floor in vaults and manholes with the top of ground rods protruding 6 inches above the floor. Provide four ground rods in manholes and vaults with larger than 8-feet by 10-feet clear interiors.
2. Ground all exposed metal components and metal hardware within the manhole or vault with #2 AWG bare copper ground conductor. This requirement includes the cover and frame.

C. Hardware: Install removable hardware, including pulling eyes, cable racks stanchions, cable arms, and insulators, as required for installation and support of cable and conductors and as indicated on Drawings.

1. Field-Installed Bolting Anchors: Do not drill deeper than 3-7/8 inches for field-installed anchor bolts. Use a minimum of 4 anchors for each cable stanchion.

D. Train cables neatly around corners and secure to cable racks using nylon wire ties.

3.07 IDENTIFICATION

- A. Identify raceways, cables and equipment as specified in Division 26, Section 26 05 53 "Identification for Electrical Systems."
- B. Provide warning and caution signs as required by the Authority Having Jurisdiction and these specifications.
- C. Label raceways entering concealed locations from exposed locations as to the destination via the concealed area.
- D. Manhole, vault cast iron lids and frames provide field stamped identification corresponding to Drawing ID as indicated on final field and clean As-Built Drawings.

3.08 TESTING AND CLEANING

- A. Pull brush through full length of ducts. Use round bristle brush with a diameter 1/2-inch greater than internal diameter of duct. Clean internal surfaces of vaults, manholes and handholes, including sump.
- B. Duct Integrity: Swab out ducts with a mandrel 1/4 inch smaller in diameter than internal diameter of ducts.
- C. Grounding: Test manhole grounding to ensure electrical continuity of bonding and grounding connections. Measure ground resistance at each ground rod and document results. Use an instrument specifically designed for ground-resistance measurements.

END OF SECTION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. The provisions and intent of the Contract, the General and Supplementary Conditions, and Division 1 Specification Sections, apply to the Work as if specified in this section.

1.02 WORK INCLUDED

- A. This Section includes grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.

1.03 REFERENCES

- A. ASTM B8.
- B. NFPA 70 (National Fire Protection Association) – National Electrical Code.
- C. ANSI/UL 467 - (Underwriter's Laboratory) - Grounding and Bonding Equipment.

1.04 QUALITY ASSURANCE

- A. Listing and Labeling: Provide electrical components, devices, and accessories that are Listed and Labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to the Authority Having Jurisdiction, and marked for specific types, sizes, and combinations of conductors and connected items.
- B. Comply with IEEE 837 and UL 467.
- C. Comply with IEEE Std. 142 (Green Book).
- D. Comply with NFPA 70.
- E. Comply with IEEE C2 for overhead-line construction and medium-voltage underground construction.

1.05 SUBMITTALS

- A. Submit product data for the following:
 - 1. Grounding conductors and cables.
 - 2. Grounding connectors.
 - 3. Grounding electrodes.
 - 4. Ground bus.
- B. Field Test Reports: Submit written test reports to include the following:
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Grounding Conductor Fittings:
 - a. Erico Inc.
 - b. Chance/Hubbell.
 - c. Copperweld Corp.
 - d. Erico Inc.; Electrical Products Group.
 - e. Framatome Connectors/Burndy Electrical.
 - f. Ideal Industries, Inc.
 - g. ILSCO.
 - h. Kearney/Cooper Power Systems.
 - i. Lyncole XIT Grounding.
 - j. O-Z/Gedney Co.
 - k. Racor, Inc.; Division of Hubbell.
 - l. Thomas & Betts, Electrical.
 - m. Approved Equal
 - 2. Grounding Connectors and Rods:
 - a. Erico.
 - b. ILSCO.
 - c. Lyncole XIT Grounding.
 - d. O-Z/Gedney.
 - e. Racor, Inc.; Division of Hubbell.
 - f. Thomas & Betts
 - g. Approved Equal

2.02 GROUNDING CONDUCTORS

- A. For insulated conductors, comply with Division 26, Section “Low Voltage Electrical Power Conductors and Cables.”
- B. Material: Copper.
- C. Equipment Grounding Conductors: Insulated with green-colored insulation.
- D. Grounding Electrode Conductors: Stranded cable.
- E. Underground Conductors: Bare, tinned, stranded.
- F. Bare Copper Conductors: Assembly of stranded conductors, ASTM B 8.

G. Copper Bonding Conductors:

1. Bonding Conductor: #4 or #6 AWG, stranded copper conductor.
2. Bonding Jumper: Bare copper tape, braided bare copper conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

H. Bonding Straps: Soft copper.

I. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.

2.03 CONNECTORS

A. Pressure Connectors: High-conductivity-plated units.

B. Bolted Connectors: Heavy-duty, bolted-pressure-type.

C. Welded Connectors: Exothermic-welded type, in kit form, and selected per manufacturer's written instructions.

2.04 GROUNDING ELECTRODES

A. Ground Rods: Solid copper clad steel, 3/4-inch diameter by 10-feet length.

2.05 GROUND BUS

A. Ground bus: 1/4 inch x 2 inch copper mounted on stand-off insulators. Size and location as shown on drawings.

PART 3 – EXECUTION

3.01 APPLICATION

A. Copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.

B. In raceways, use insulated equipment grounding conductors.

C. Exothermic-Welded Connections: Use for connections to structural steel, rail, rebar and for underground connections.

D. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.

E. Ground Rod Clamps at Manholes: Use bolted pressure clamps with at least two bolts.

F. Grounding Bus: Install in electrical and communications equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Use insulated spacer; space 1 inch from wall and support from wall 18 inches above finished floor, unless otherwise indicated.

3.02 EQUIPMENT GROUNDING CONDUCTORS

A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.

B. Install equipment grounding conductors in all feeders and branch circuits unless otherwise noted.

C. Busway Supply Circuits: Install insulated equipment grounding conductor from the grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.

- D. Nonmetallic Raceways: Install an equipment grounding conductor in all nonmetallic raceways unless they are designated for telephone or data cables.
- E. Heat-Tracing, and Antifrost Heating Cables: Install a separate equipment grounding conductor to each electric heat-tracing, and antifrost heating cable. Bond conductor to heater units, piping, connected equipment, and components.

3.03 INSTALLATION

- A. Ground Rods: Install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes. Install ground grids were shown on drawings.
 - 1. Drive ground rods until tops are 2 inches below finished floor or final grade.
 - 2. Interconnect ground rods with grounding electrode conductors. Use exothermic welds. Make connections without exposing steel or damaging copper coating.
- B. Grounding Conductors: Route along shortest and straightest paths possible. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- C. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment.
 - 1. Use exothermic-welded connectors for outdoor locations, unless a disconnect-type connection is required; then, use a bolted clamp.
 - 2. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts.
 - 3. Install straps only in locations accessible for maintenance.
- D. Metal Water Service Pipe: Provide insulated copper grounding conductors, in conduit, from main service equipment, or grounding bus, to all metal water service locations on the wharf.
 - 1. Connect grounding conductors to main metal water service pipes by grounding clamp connectors.
 - 2. Where a dielectric main water fitting is installed, connect grounding conductor to street side of fitting.
 - 3. Bond metal grounding conductor conduit or sleeve to conductor at each end.
- E. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with grounding clamp connectors.
- F. Gas Piping: Bond each aboveground portion of gas piping system upstream from equipment shutoff valve.
- G. Install one ground test well for each service at the ground rod electrically closest to the service entrance. Set top of well flush with finished grade or floor.

3.04 CONNECTIONS

- A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
 - 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.
 - 2. Make connections with clean, bare metal at points of contact.

3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
 4. Make aluminum-to-galvanized steel connections with tin-plated copper jumpers and mechanical clamps.
 5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
- B. Exothermic-Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.
- C. Equipment Grounding Conductor Terminations: For #8 AWG and larger, use pressure-type grounding lugs. #10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.
- D. Noncontact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing.
1. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing.
 2. Bond electrically noncontinuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.
- E. Connections at Test Wells: Use compression-type connectors on conductors and make bolted-and clamped-type connections between conductors and ground rods.
- F. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values.
- G. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on the grounding conductor.
- H. Moisture Protection: If insulated grounding conductors are connected to ground rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

3.05 UNDERGROUND DISTRIBUTION SYSTEM GROUNDING

- A. Vaults, Manholes and Handholes: Install 2 driven ground rods at corners of each manhole. Set rod depth so 6 inches will extend above finished floor. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, non-shrink grout. Provide continuous #2 AWG bare copper ground loop conductor all around vault, manhole and attached to all ground rods. Locate loop at plus 6 inches above manhole floor.
- B. Connections to Vault/Manhole/Handhole Components: Connect all exposed-metal parts, such as inserts, cable racks, pulling irons, cover frame, cover, sump ladders, and cable shields within each manhole to ground loop conductor.
1. Make connections with #2 AWG minimum, stranded, hard-drawn copper conductor.

2. Train conductors level or plumb around corners and fasten to walls.
3. Make connection to cable shield as recommended by manufacturer of splicing and termination kits.
4. Connect equipment grounding conductor in each conduit to ground loop.

3.06 IDENTIFICATION

- A. Identify grounding system components as required by the Authority Having Jurisdiction and as specified in Division 26, Section "Identification for Electrical Systems."

3.07 FIELD QUALITY CONTROL

- A. Testing: Perform the following field quality-control testing:
 1. After installing grounding system but before permanent electrical circuitry has been energized, test for compliance with requirements.
 - a. Measure ground resistance without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Test by one of the following methods for resistance measurement:
 - 1) Perform fall of potential test per IEEE Standard No. 81, Section 9.04 on the main grounding electrode or system for each substation and building.
 - 2) Perform the two-point method test per IEEE No.81 Section 9.03 to determine the ground resistance between the main grounding system and all major electrical equipment frames, system neutral and/or derived neutral points.
 - 3) Alternate Method: Perform ground continuity test between main ground system and equipment frame, system neutral and/or derived neutral point. Conduct test by passing a minimum of ten amperes dc current between ground reference system and the ground point to be tested. Measure voltage drop and calculate resistance by voltage drop method.
 - c. Test Requirements:
 - 1) Equipment Rated and manhole/handhole grounds: 10 ohms.
 - d. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Engineer promptly and include recommendations to reduce ground resistance.
 2. Record test results on a Ground Resistance Test Report form for inclusion with O & M Manuals.
- B. Provide drawings locating each ground rod and ground rod assembly and other grounding electrodes.
 1. Identify each ground rod by letter in alphabetical order, and key to the record of tests and observations.
 2. Include the number of rods driven and their depth at each location and include observations of weather and other phenomena that may affect test results.

END OF SECTION

Appendix A

Port of Tacoma Construction SWPPP Short Form

CONSTRUCTION SWPPP SHORT FORM

The threshold for using the Port of Tacoma's (Port) short form is a project that proposes to clear or disturb less than one acre of land. Projects falling within this threshold may use this short form instead of preparing a professionally designed Construction Stormwater Pollution Prevention Plan (SWPPP). If project disturbance quantities exceed this threshold, you must prepare of formal Construction SWPPP as part of your submittal package. If your project is within the threshold and includes—or may affect—a critical area, please contact the Port to determine if the SWPPP short form may be used.

CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN SHORT FORM

Project Name:

Address:

Contact/Owner:

Phone:

Erosion Control Supervisor:

Phone:

Cell:

Pager:

Emergency (After hours) Contact:

Phone:

Permit No.:

Parcel No.:

Required Submittals

A Construction SWPPP consists of both a project narrative and a site plan. The project narrative describes existing conditions on the site, the proposed conditions, and how construction site runoff will be managed until final site stabilization is achieved. Any additional relevant information should be included in the project narrative. All Best Management Practices (BMPs) that will be utilized onsite must be included as part of the project narrative and provided (electronically or hard copy) as part of the submittal package. If additional BMPs beyond those included in the Washington Department of Ecology's (Ecology) Western Washington Stormwater Management Manual (Ecology SWMM) or the City of Tacoma's (City) Stormwater Management Manual (City SWMM) are proposed to be used, a narrative and appropriate details describing the BMP (its function, installation method, and maintenance activities) will be required.

The site plan is a drawing which shows the location of the proposed BMPs to control erosion and sedimentation during and after construction activities.

The City's govMe site (<http://www.govme.org>) may be used to find much of the information needed to complete this form, such as adjacent areas, topography, critical areas, the downstream drainage path, and information concerning onsite features.

PROJECT NARRATIVE

The Construction SWPPP Short Form narrative must be completed at part of the submittal package. Any information described, as part of the narrative, should also be shown on the site plan.

Note: From October 1 through April 30, clearing, grading, and other soil disturbing activities shall only be permitted by special authorization from the Port.

A. Project Description (Check all that apply)

- ☐ New Structure ☐ Building Addition ☐ Grading/Excavation
☐ Paving ☐ Utilities ☐ Other:

1. Total project area _____ (square feet)
 2. Total proposed impervious area _____ (square feet)
 3. Total existing impervious area _____ (square feet)
 4. Total proposed area to be disturbed _____ (square feet)
 5. Total volume of cut/fill _____ (cubic yards)

Additional Project Information:

B. Existing Site Conditions (Check all that apply)

1. Describe the existing vegetation on the site. (Check all that apply)
☐ Forest ☐ Pasture/field grass ☐ Pavement ☐ Landscaping ☐ Brush
☐ Trees ☐ Other:
2. Describe how surface water (stormwater) drainage flows across/from the site. (Check all that apply)
☐ Sheet Flow ☐ Gutter ☐ Catch Basin ☐ Ditch/Swale ☐ Storm Sewer
☐ Stream ☐ Other:
3. Describe any unusual site condition(s) or other features of note.
☐ Steep Grades ☐ Large depression ☐ Underground tanks ☐ Springs
☐ Easements ☐ Existing structures ☐ Existing utilities ☐ Other:

C. Adjacent Areas (Check all that apply)

1. Check any/all adjacent areas that may be affected by site disturbance and fully describe below in item 2:
- ☐ Streams* ☐ Lakes* ☐ Wetlands* ☐ Steep slopes*
☐ Residential Areas ☐ Roads ☐ Ditches, pipes, culverts ☐ Other:

** If the site is on or adjacent to a critical area (e.g., waterbody), the Port may require additional information, engineering, and other permits to be submitted with this short form.*

2. Describe how and where surface water enters the site from properties located upstream:

3. Describe the downstream drainage path from the site to the receiving body of water (minimum distance of 0.25 mile [1320 feet]). (E.g., water flows from the site into a curb-line, then to a catch basin at the intersection of X and Y streets. A 10-inch pipe system conveys water another 1000 feet to a wetland.) Include information on the condition of the drainage structures.

D. Soils (Check all that apply)

The intent of this section is to identify when additional soils information may be required for applicants using this short form. There are other site-specific issues that may necessitate a soils investigation or more extensive erosion control practices. The Port will determine these situations on a case-by-case basis as part of their review.

1. Does the project propose infiltration? Infiltration systems require prior Port approval.

☐ Yes ☐ No

2. Does the project propose construction on or near steep slopes (15% or greater)?

☐ Yes ☐ No

If infiltration is proposed for the site or steep slopes (15% or greater) have been identified, the Port will require soils information as part of project design. The applicant must contact a soil professional or civil engineer that specializes in soil analysis and perform an in-depth soils investigation. If the Yes box is checked for either question, the Port may not permit the use of this short form.

E. Construction Sequencing/Phasing

1. Construction sequence: the standard construction sequence is as follows:
 - Mark clearing/grading limits.
 - Install initial erosion control Best Management Practices (BMPs) (e.g., construction entrance, silt fence, catch basin inserts, etc.).
 - Clear, grade, and fill project site as outlined in the site plan while implementing and maintaining proper temporary erosion and sediment control BMPs simultaneously.
 - Install permanent erosion protection as described in the specifications (e.g., impervious surfaces, landscaping, etc.).
 - Remove temporary erosion control methods as permitted. Do not remove temporary erosion control until permanent erosion protection is fully established.

List any changes from the standard construction sequence outlined above:

2. Construction phasing: if construction is going to occur in separate phases, please describe:

F. Construction Schedule

1. Provide a proposed construction schedule (dates construction starts and ends, and dates for any construction phasing.)

Start Date:

End Date:

Interim Phasing Dates:

Wet Season Construction Activities: Wet season occurs from October 1 to April 30. Please describe construction activities that will occur during this time period.

Note: Additional erosion control methods may be required during periods of increased surface water runoff.

2. Site plan

A site plan, to scale, must be included with this checklist that shows the following items:

- ☐ a. Address, Parcel Number, Permit Number, and Street Names
- ☐ b. North Arrow
- ☐ c. Indicate boundaries of existing vegetation (e.g., tree lines, grassy areas, pasture areas, fields, etc.)
- ☐ d. Identify any onsite or adjacent critical areas and associated buffers (e.g., wetlands, steep slopes, streams, etc.).
- ☐ e. Identify any FEMA base flood boundaries and Shoreline Management boundaries.
- ☐ f. Show existing and proposed contours.
- ☐ g. Delineate areas that are to be cleared and/or graded.
- ☐ h. Show all cut and fill slopes, indicating top and bottom of slope catch lines.
- ☐ i. Show locations where upstream run-on enters the site and locations where runoff leaves the site.
- ☐ j. Indicate existing surface water flow direction(s).
- ☐ k. Label final grade contour and indicate proposed surface water flow direction and surface water conveyance systems (e.g., pipes, catch basins, ditches, etc.).
- ☐ l. Show grades, dimensions, and direction of flow in all (existing and proposed) ditches, swales, culverts, and pipes.
- ☐ m. Indicate locations and outlets of any dewatering systems (usually to sediment trap).
- ☐ n. Identify and locate all erosion control methods to be used during and after construction.

ONSITE FIELD VERIFICATION OF ACTUAL CONDITIONS IS REQUIRED.

Figure 1. (see page 5 for Site Plan requirements)

GUIDELINES FOR EROSION CONTROL ELEMENTS

This SWPPP must contain the 12 required elements, as required by Ecology. Check off each element as it is addressed in the SWPPP short form and/or on your site plan.

- ☐ 1. Mark Clearing Limits
- ☐ 2. Establish Construction Access
- ☐ 3. Control Flow Rates
- ☐ 4. Install Sediment Controls
- ☐ 5. Stabilize Soils
- ☐ 6. Protect Slopes
- ☐ 7. Protect Drain Inlets
- ☐ 8. Stabilize Channels and Outlets
- ☐ 9. Control Pollutants
- ☐ 10. Control Dewatering
- ☐ 11. Maintain BMPs
- ☐ 12. Manage the Project

The following is a brief description of each of the 12 required elements of a SWPPP. If an element does not apply to the proposed project site, please describe why the element does not apply. Applicable BMPs are listed with each element and in Table 1. Please note that this list is not a comprehensive list of BMPs available for small construction projects, but erosion and sediment control techniques most pertinent to small construction sites are included here. More detailed information on construction BMPs can be found in Ecology's SWMM Volume II and the City's SWMM Volume II (Ecology 2019; City of Tacoma 2016). Please provide hard copies of the BMPs that will be used for the project and include as part of this Construction SWPPP. BMPs that may be used if needed can be noted as being contingent in the event additional erosion control is needed. Describe any additional BMPs that will be utilized onsite and add them to the SWPPP short form.

For phased construction projects, clearly indicate erosion control methods to be used for each phase of construction.

Element #1 – Mark Clearing Limits

All construction projects must clearly mark any clearing limits, sensitive areas and their buffers prior to beginning any land disturbing activities, including clearing and grading. Clearly mark the limits both in the field and on the site plans. Limits shall be marked in such a way that any trees or vegetation that is to remain will not be harmed.

Applicable BMPs include:

- BMP C101: Preserving Natural Vegetation
- BMP C102: Buffer Zones
- BMP C103: High Visibility Plastic or Metal Fence
- BMP C104: Stake and Wire Fence

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #2 – Establish Construction Access

All construction projects subject to vehicular traffic shall provide a means of preventing vehicle “tracking” soil from the site onto streets or neighboring properties. Limit vehicle traffic on- and off-site to one route if possible. All access points shall be stabilized with a rock pad construction entrance or other Port-approved BMP. The applicant should consider placing the entrance in the area for future driveway(s), as it may be possible to use the rock as a driveway base material. The entrance(s) must be inspected weekly, at a minimum, to ensure no excess sediment buildup or missing rock.

Applicable BMPs include:

- BMP C105: Stabilized Construction Entrance
- BMP C106: Wheel Wash
- BMP C107: Construction Road/Parking Area Stabilization

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #3 – Control Flow Rates

Protect properties and waterways downstream of the project site from erosion due to increases in volume, velocity, and peak flow of stormwater runoff from the project site.

Permanent infiltration facilities shall not be used for flow control during construction unless specifically approved by the Environmental Department. Sediment traps can provide flow control for small sites by allowing water to pool and allowing sediment to settle out of the water.

Applicable BMPs include:

- BMP C207: Check Dams
- BMP C240: Sediment Trap

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element 4 – Install Sediment Controls

Surface water runoff from disturbed areas must pass through an appropriate sediment removal device prior to leaving a construction site or discharging into a waterbody. Sediment barriers are typically used to slow stormwater sheet flow and allow the sediment to settle out behind the barrier.

Sediment controls must be installed/constructed prior to site grading.

Applicable BMPs include:

- BMP C208: Triangular Silt Dike
- BMP C232: Gravel Filter Berm
- BMP C233: Silt Fence
- BMP C235: Straw Wattles

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #5 – Stabilize Soils

Stabilize exposed and unworked soils by applying BMPs that protect the soils from raindrop impact, flowing water, and wind.

From October 1 through April 30, no soils shall remain exposed or unworked for more than 2 days. From May 1 to September 30, no soils shall remain exposed or unworked for more than 7 days. This applies to all soils whether at final grade or not.

Applicable BMPs include:

- BMP C120: Temporary and Permanent Seeding
- BMP C121: Mulching
- BMP C122: Nets and Blankets
- BMP C123: Plastic Covering
- BMP C140: Dust Control

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #6 – Protect Slopes

Protect slopes by diverting water at the top of the slope. Reduce slope velocities by minimizing the continuous length of the slope.

Applicable BMPs include:

- BMP C200: Interceptor Dike and Swale
- BMP C204: Pipe Slope Drains
- BMP C207: Check Dams

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #7 – Protect Drain Inlets

All operable storm drain inlets must be protected during construction so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment. Install catch basin protection on all catch basins within 500 feet downstream of the project.

Applicable BMPs include:

- BMP C220: Storm Drain Inlet Protection

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #8 – Stabilize Channels and Outlets

Stabilize all temporary onsite conveyance channels. Provide stabilization to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches at the conveyance system outlets.

Applicable BMPs include:

- BMP C202: Channel Lining
- BMP C209: Outlet Protection

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #9 – Control Pollutants

Handle and dispose of all pollutants, including demolition debris and other solid wastes in a manner that does not cause stormwater contamination. Provide cover and containment for all chemicals, liquid products (including paint), petroleum products, and other materials. Handle all concrete and concrete waste appropriately.

Applicable BMPs include:

- BMP C150: Materials on Hand
- BMP C151: Concrete Handling
- BMP C152: Sawcutting and Surface Pollution Prevention
- BMP C153: Material Delivery, Storage and Containment

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #10 – Control Dewatering

Clean, non-turbid dewatering water, such as groundwater, can be discharged to the stormwater system provided the dewatering flow does not cause erosion or flooding of receiving waters. All other dewatering water shall be pumped to a settling container and taken offsite or discharged to the City sewer system. All discharges to the City sewer system require City approval, which may include a Special Approved Discharge (SAD) permit.

Applicable BMPs include:

- BMP C150: Materials on Hand

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #11 – Maintain BMPs

Maintain and repair temporary erosion and sediment control BMPs as needed. Inspect all BMPs at least weekly and after every storm event.

Remove all temporary erosion and sediment control BMPs within 30 days after final site stabilization or if the BMP is no longer needed. Any sediment trapped during construction activities should be removed or stabilized onsite. No sediment shall be discharged into the stormwater drainage system or any natural conveyance system (e.g., streams).

Applicable BMPs include:

- BMP C160: Certified Erosion and Sediment Control Lead

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #12 – Manage the Project

Phase development projects to prevent soil erosion and the transport of sediment from the project site during construction. Coordinate all work prior initial construction with subcontractors and other utilities to ensure no areas are worked prematurely.\

A designated erosion and sediment control person is required for all construction projects. This person is responsible for ensuring that the project's erosion and sediment control BMPs are appropriate for the site and are functioning properly. They are also responsible for updating the

SWPPP as necessary as site conditions warrant. They must be available 24 hours a day to ensure compliance.

Applicable BMPs include:

- BMP C160: Certified Erosion and Sediment Control Lead
- BMP C162: Scheduling
- BMP C180: Small Project Construction Stormwater Pollution Prevention

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Table 1. Applicable BMPs for the 12 Elements of a SWPPP

Element #1 – Mark Clearing Limits		
BMP C101	Preserving Natural Vegetation	
BMP C102	Buffer Zones	
BMP C103	High Visibility Plastic and Wire Fence	
BMP C104	Stake and Wire Fence	
Element #2 – Establish Construction Entrance		
BMP C105	Stabilized Construction Entrance	
BMP C106	Wheel Wash	
BMP C107	Construction Road/Parking Area Stabilization	
Element #3 – Control Flow Rates		
BMP C207	Check Dams	
BMP C240	Sediment Trap	
Element #4 – Install Sediment Controls		
BMP C208	Triangular Silt Trap	
BMP C232	Gravel Filter Berm	
BMP C233	Silt Fence	
BMP C235	Straw Wattles	
Element #5 – Stabilize Soils		
BMP C120	Temporary and Permanent Seeding	
BMP C121	Mulching	
BMP C122	Nets and Blankets	
BMP C123	Plastic Covering	
BMP C140	Dust Control	
Element #6 – Protect Slopes		
BMP C200	Interceptor Dike and Swale	
BMP C204	Pipe Slope Drains	
BMP C207	Check Dams	
Element #7 – Protect Drain Inlets		
BMP C220	Storm Drain Inlet Protection	
Element #8 – Stabilize Channels and Outlets		
BMP C202	Channel Lining	
BMP C209	Outlet Protection	
Element #9 – Control Pollutants		
BMP C150	Materials on Hand	

Element #9 – Control Pollutants, cont.		
BMP C151	Concrete Handling	
BMP C152	Sawcutting and Surfacing Pollution Prevention	
BMP C153	Materials, Delivery, Storage and Containment	
Element #10 – Control Dewatering		
BMP C150	Materials on Hand	
Element #11 – Maintain BMPs		
BMP C160	Certified Erosion and Sediment Control Lead	
Element #12 – Manage the Project		
BMP C160	Certified Erosion and Sediment Control Lead	
BMP C162	Scheduling	
BMP C180	Small Project Construction Stormwater Pollution Prevention	

REFERENCES

City of Tacoma. 2016. Stormwater Management Manual 2016 Edition. Public Works/ Environmental Services, Maintenance Division, Tacoma, Washington.

Washington State Department of Ecology (Ecology). 2019. Stormwater Management Manual for Western Washington. Water Quality Program, Lacey, Washington.

Appendix B

Shoreline Substantial Development Permit Exemption



City of Tacoma
Planning and Development Services

February 25, 2025

Port of Tacoma
Attn: Kristin Evered
P.O. Box 1837
Tacoma, WA 98401

via email: kevered@portoftacoma.com

RE: Shoreline Substantial Development Permit Exemption File
No. LU24-0108 – Port of Tacoma Programmatic Project

Dear Ms. Evered,

You have requested a Shoreline Substantial Development Permit (SSDP) Exemption for a programmatic routine maintenance and repair and replacement of existing structures, surfaces, and utilities located on terminal facilities and along the shoreline of Commencement Bay. The Port's maintenance activities will consist of repair of aging structures (e.g., piles, fenders, marine safety equipment, outfalls, overwater structures and associated equipment, etc.) along with utilities, and other routine tasks such as sediment sampling. The work will be conducted at various locations located within Commencement Bay over a five-year period. The request is similar to previous City of Tacoma SSDP exemptions issued for programmatic repair and maintenance and replacement and the purpose of the project is to maintain the integrity of the existing structures in a state comparable to their original condition.

The application materials initially included maintenance dredging and the repair and replacement of boat launch/ramps and shoreline armoring in the activities requesting review under this programmatic SSDP exemption. However, because of the complexities of these project types, review is needed on a site-by-site basis. Therefore, the City has found that these activities require individual applications for SSDP exemptions, and these activities are not included in this SSDP exemption.

Sediment Sampling

Periodic sediment sampling and characterization is required for the Port to meet berth maintenance and cleanup obligations and to inform stability and constructability concerns relating to safety. All sampling would be within the "S-13" Shoreline District - Waters of the State, within the Hylebos, Blair, Sitcum, Middle and Thea Foss Waterways; the Puyallup River; and Commencement Bay. The sampling activities include the following, in various combinations at the various sites:

- Surface sediment sampling – consisting of the collection of surface materials using hand tools, coring devices, or "grab sampling" devices. Surface sampling may be done at low tide or it may be done from a vessel.
- Subsurface sampling – consisting of collecting sediment cores of varying length, using a mechanized coring device.

In all cases sampling is done so as to avoid sediments entering the water, and work will comply with all Best Management Practices for the use of scientific measurement devices.

The Tacoma Shoreline Master Program (TSMP) allows for maintenance of a lawfully existing condition and for exploration and investigation activities that are prerequisite for development in Tacoma Municipal Code (TMC) 19.02.030.C.11. The sampling is not prerequisite for development but is necessary to maintain the lawful cargo operations and characterize sediment for the protection of human and ecological health.

The proposed sampling is consistent with the policies of the TSMP and the applicant will meet all requirements of the TSMP and will pursue all required permits prior to starting work.

Navigational Aids

The Port proposes to maintain the above-water components of four “goal-post” style Private Aids to Navigation (PATONs) in the Blair waterway. The PATONs are mounted on four pilings each and include a wind sock for informing vessel pilots of wind speed and direction, a red or green light for navigation purposes, and batteries and solar panels. The Port maintains the wind sock, solar panels, and battery; the Port does not propose to maintain the structural components (piling or bracing) as a part of this project.

The PATONs are located within the Blair Waterway in the “S-13” Waters of the State Shoreline District.

The proposed project has been reviewed and determined to be consistent with the City’s SMP exemption criteria in TMC 19.02.030.C.5. for construction or modification of navigational aids such as channel markers and anchor buoys.

Outfall Maintenance

Stormwater outfall structures, associated tide gates, and in-line check valves must be maintained, repaired, and if necessary, new tide gates or in-line check valves installed on existing stormwater pipes, as part of the Port’s MS4 program. The tide gates and check valves are bolt-on or install-in-place structures, and do not require excavation or fill. A site plan and detail sheets included as an attachment shows the location of the proposed work and typical outfall structures. Up to 15 outfall check valves and tide gates are proposed for repair or replacement per year, and an unlimited number may be cleaned. Repairs to outfall structures will be local in nature and will not increase the rate or quantity of stormwater discharge, nor change the outfall pipe diameter. A full list of BMPs is included in the Biological Evaluation.

The following is a summary of the work proposed:

1. Maintenance includes the routine hand removal of growth and debris.
2. Repair includes the hand replacement of hinges, tidegate parts or other physical structure repairs.
3. Replacement of tidegates includes the replacement of existing tidegates using hand tools and potentially a mobile crane to lift the gate into place.
4. Installation of tidegates includes the hand or mobile crane placement of a tidegate where one currently does not exist but is required for the proper function of the conveyance system.

The structures are located in the shoreline and marine waters of Commencement Bay, within the “S-10” Port Industrial and “S-13” Waters of the State Shoreline Districts. State waters and lands extending 200-feet from the Ordinary High Water Mark (OHWM) are regulated under the TSMP.

The repair and maintenance will prevent a decline, lapse, or cessation of a lawfully established structure. Replacement as a method of repair is allowed when the replacement is the normal method of repair. Based on the above findings, the requested exemption to the City's SSDP requirement is consistent with the exemption criteria in TMC 19.02.030.C.2 and with the criteria set forth in the Washington Administration Code (WAC) and Revised Code of Washington (RCW) for the authorization of such permits.

Overwater Structure Maintenance

The Port proposes to conduct repair and maintenance of legally established Port facilities at multiple sites located in the Port of Tacoma, within the "S-10" Port Industrial and "S-13" Waters of the State Shoreline Districts. The maintenance activities received prior approval under a previously issued exemption which has expired (LU20-0052) and include the following:

- ☐ Hanging and bolt-on fender systems and rub strip repair
- ☐ Bull rail repairs/maintenance/replacement
- ☐ Bollard installation/relocation (includes mooring hardware)
- ☐ Utility maintenance (excluding stormwater), including the repair and replacement of electric, domestic water, fire water, communications and warning systems
- ☐ Power/Switch gear maintenance, including upgrades and increasing capacity allowed per code
- ☐ Crane rail repairs
- ☐ Repair and replacement of up to 5,000 square feet (SF) of overwater structures is proposed per year. This includes maintenance and repair of solid dock surfaces, and repair, maintenance, and replacement or reconfiguration of pier, ramp, and float (PRF) assemblages.
- ☐ Re-surfacing existing impervious areas (paved areas and gravel areas)
- ☐ Exterior building repairs and maintenance, including windows, doors, siding, landscaping, roofing, and associated equipment (e.g., heating ventilation and air conditioning (HVAC), etc.).
- ☐ Containment berm installation and maintenance
- ☐ Light pole maintenance
- ☐ Safety equipment maintenance, including safety ladders, life rings, and floatation devices and navigation lights
- ☐ Safety platform maintenance
- ☐ Cathodic protection system repair/maintenance

Most of the work is anticipated to take place on or from the surface of existing piers and wharves, which are above or adjacent to the waterway and within the floodplain. Work on existing buildings and paved areas will be landward of the OHWM. Exceptions to this include replacement of navigation lights, done from boats, and in-water work such as the installation of cathodic protection systems.

For each maintenance project, best management practices (BMPs) will be used to ensure no deleterious material enters the waters of the state and will comply with water quality standards and habitat protection standards per the State of Washington. Port of Tacoma employees and/or its contractors will prepare spill prevention plans. Further, following work, each site will be returned to its current state.

An exemption from the Substantial Development Permit requirements does not constitute an exemption from the policies and use regulations of the Shoreline Management Act (SMA), the provisions of this Master Program, and other applicable City, state, or federal permit

requirements. The proposed repairs are consistent with the policies of the TSMP and the maintenance exemption in TMC 19.02.030.C.2., as they are intended to prevent the cessation of lawfully-established uses.

The sites are located in or adjacent to marine waters and shorelines (within the “S-10” Port Industrial and “S-13” Waters of the State Shoreline Districts) that are regulated critical areas. The sites have been reviewed in consideration of the critical area policies and regulations of the TSMP and provided the maintenance work adheres to the many BMPs provided, the activities are unlikely to cause substantial adverse impacts to the shoreline environment.

Piling Maintenance

The project proposes the replacement and repair of damaged pile and associated pile caps, chokes, and whalers as needed. Creosote piling will be replaced with ACZA-treated timber that complies with the Western Wood Preservers Institute BMPs and concrete piling will be replaced with concrete piling. Replacement piles will be of similar diameter to the damaged piles. No more than 200 piling will be replaced in a single year. No new structures or expansion of existing structures is proposed. The project includes many BMPs to reduce impacts that may occur. A full list of BMPs can be found in the Biological Evaluation.

The Port of Tacoma structures included with this proposal are lawfully established structures located in the S-13 Marine Waters of the State Shoreline District.

The proposed maintenance has been reviewed and determined to be consistent with the City’s TSMP exemption criteria in TMC 19.02.030.C.2. to prevent a decline, lapse, or cessation from a lawfully established condition. The proposed BMPs as well as conditions required under state and federal approvals have been reviewed and are comprehensive. Adverse impacts will be temporary and limited during active construction. No permanent adverse impacts are anticipated.

Conclusions, Conditions, and Advisory Comments

Pursuant to WAC 197-11-800, subsection (3) and the City of Tacoma’s State Environmental Policy Act (SEPA) Procedures, these proposed actions are categorically exempt from the Threshold Determination and Environmental Impact Statement requirements of SEPA.

Based on the above findings, the requested exemption to the City’s SSDP requirement is consistent with the policies of the SMA, the policies and implementing regulations of the TSMP and with the criteria set forth in the WAC and RCW for the authorization of such exemptions.

Therefore, the Shoreline Exemption request is **Approved**, subject to the following conditions:

1. The applicant shall follow all proposed installation and construction methods and best management practices for minimizing unintended impacts during the repair and maintenance.
2. Appropriate best management practices will be used to prevent any runoff or deleterious material from entering Commencement Bay.
3. Construction material or debris shall be promptly removed and dispose of in an appropriate upland location.
4. The applicant shall notify the City of Tacoma and pertinent state or federal agencies in the event of an unexpected spill of fuel or other chemical into the waterway.
5. The repair work must conform to state and federal in-water work windows and accompanying conditions.

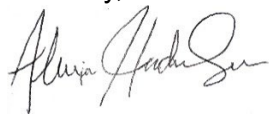
6. Replacement pilings shall be replaced at a one-to-one ratio. A copy of the USACE compliance form documenting the number and location of replacement pile installed shall be provided to the City annually.
7. Vegetation shall not be removed along the shoreline except when located within the outfall structures or when impeding the functionality of these structures; the city shall be contacted prior to any removal not specifically approved through this exemption letter.
8. A copy of all permits required by or approvals provided by Washington State Department of Fish and Wildlife (WDFW), Department of Ecology (ECY), and U.S. Army Corps of Engineers (USACE) shall be provided to the City.
9. This exemption shall be valid for a period not to exceed five years from the date of issuance. Should the TSMP be revised prior to the completion of this project, additional review may be required.
10. Any activities permitted under this SSDP exemption must ensure no net loss and should not necessitate mitigation to counterbalance impacts. If mitigation is required, a plan must be submitted to the City for approval before any work commences.

The applicant is also advised of the following:

- This permit is only applicable to the proposed project as described above and based upon the information submitted by the applicant. Future activities or development within regulated state waters or the 200-foot shoreline jurisdiction may be subject to further review and additional permits or exemptions as required in accordance with TMC 19.
- The City of Tacoma is not the only agency with jurisdiction over the project area. The applicant is responsible for coordinating any required reviews and/or approvals with the WDFW, ECY, and USACE and shall provide documentation to the City of Tacoma.
- All proposed locations for replacement must be lawfully established development.
- The applicant shall apply for and receive approval of any required building or site development permit from the City of Tacoma prior to any work.

We are issuing this letter of exemption per the provisions of TSMP and TMC Title 19 to comply with the requirements of WAC 173-27-050 and WAC 173-27-040. Should you have any further questions or requests please do not hesitate to contact me at 253-345-1367.

Sincerely,



Alexia Henderson
Senior Natural Resources Biologist

cc via electronic mail:

- Puyallup Tribe, (Jennifer.m.keating@puyalluptribe-nsn.gov, Brandon.Reynon@puyallupTribe-nsn.gov)
- Port of Tacoma, (info@portoftacoma.com)
- Washington Department of Ecology, Shorelands & Environmental Assistance Program, Zach Meyer, SWRO, P.O. Box 47775, Olympia, WA 98504-7775 (zmey461@ecy.wa.gov)
- Washington Department of Natural Resources, Elyse Weaver (elyse.weaver@dnr.wa.gov)

- Washington Department of Fish and Wildlife, 600 Capitol Way N., Olympia, WA 98501-1091(R6SSplanning@dfw.wa.gov)
- U.S. Army Corps of Engineers, Attn: Regulatory Branch, CENWS-OD-RG Attn: Halie Endicott, P.O. Box C-3755, Seattle, WA 98124 (halie.endicott@usace.army.mil, Lydia.baldwin@usace.army.mil, Jennifer.p.casper@usace.army.mil)
- U.S. Fish & Wildlife Service, Attn: Judy Lantor, 510 Desmond Drive SE #102, Lacey, WA 98503 (judy_lantor@fws.gov)

Appendix C

Inadvertent Discovery Plan

Port of Tacoma

Inadvertent Discovery Plan



The following Inadvertent Discovery Plan (IDP) outlines the procedures to be implemented if cultural resource materials are inadvertently discovered during construction, in accordance with state and federal laws. The separate protocol for discovery of human skeletal remains is also described below. The IDP shall be kept at the project site during all project activities. **All staff, contractors, and consultants should be familiar with its contents and know where to find it.**

1. RECOGNIZING CULTURAL RESOURCES

A cultural resource is an item of historical, traditional, or cultural importance. The item could be prehistoric or historic (older than 50 years). Examples might include, but are not limited to:

- An accumulation of shell (shell-midden) with associated bone, stone, antler or wood artifacts, burned rocks or charcoal.
- Animal bones that have been modified or associated with other artifacts.
- An area of charcoal or very dark stained soil with associated artifacts.
- Artifacts made of chipped or ground stone (i.e. an arrowhead, adze or maul) or an accumulation (more than one) of stone flakes (lithic debitage).
- Basketry, cedar garments, fish weir stakes or items made of plant materials.
- Clusters of tin cans or bottles, logging or agricultural equipment that appear to be older than 50 years.
- Buried railroad tracks, decking, or other industrial materials.

NRHP Eligibility

To be eligible for the National Register of Historic Places (NRHP) cultural resources identified during construction must be 50 years of age or older, meet one or more of the four criteria listed below, and retain sufficient physical integrity to convey historical significance (36 CFR 60.4), and/or meet the fifth criterion established by the PTOI (Brandon Reynon, Personal; communication 2025). A building, site, object, or structure may be considered for inclusion in the NRHP if it meets at least one of the following criteria:

1. The property is associated with events that have made a significant contribution to the broad patterns of our history.
2. The property is associated with the lives of persons significant in our past.
3. The property embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components might lack individual distinction.

4. The property has yielded, or might be likely to yield, information important in prehistory or history.
5. The property is of significance to the PTOI.

The following archaeological resources will indicate potentially NRHP-eligible deposits and will be assumed NRHP-eligible until determined otherwise by the State Historic Preservation Officer (SHPO):

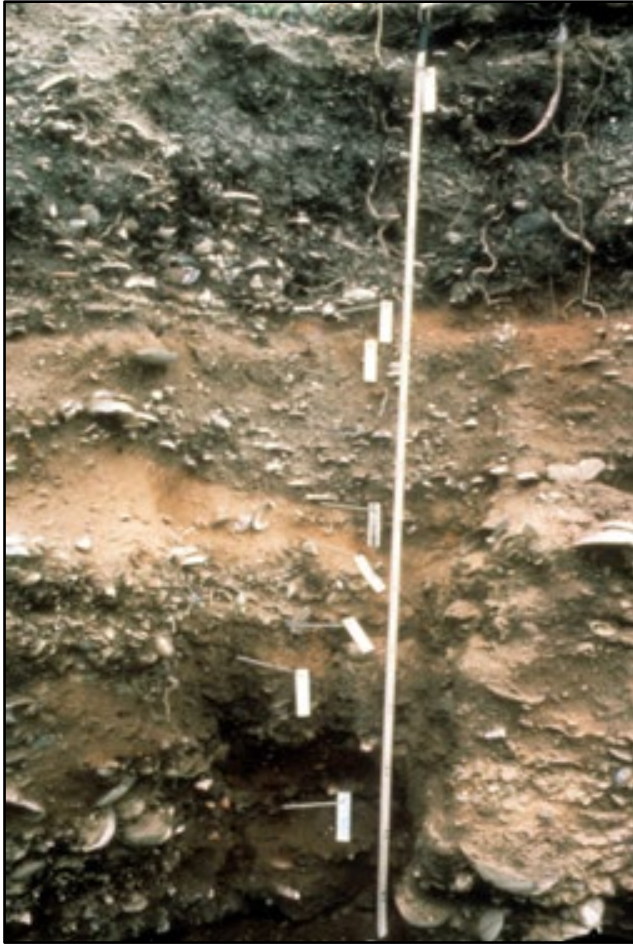
- Precontact deposits (such as midden) associated with Native American use or occupation.
- Historic-era artifacts from NRHP-eligible (or potentially NRHP eligible) deposits.
- Historic era non-Native American artifacts from non-eligible contexts, only if they are diagnostic or have educational value.
- Historic features consisting of stratified deposits with artifact concentrations that appear to be spatially or temporally distinct. This includes refuse deposits, privies, or discrete accumulations.
- Courses of brick or other architectural materials that are part of a building foundation or pavement in their original position.

Examples of deposits that will not be considered NRHP-eligible include:

- Isolated or loose construction materials (brick, mortar, window glass), bottles, cans, located within fill sediments (not located in primary context).
- Mass deposits of lumber, concrete, granite, coal, etc.
- Pilings, decking, trestle, and railroad track, unless of clearly unique construction.
- Historic-era artifacts not associated with a feature or stable surface.

Artifacts or deposits that are not potentially eligible, as described above, will only be noted in daily field logs, photographed, and documented on scaled site plans (if possible). The procedures for an inadvertent discovery will not be implemented for artifacts or deposits that are not potentially eligible for listing in the NRHP (including the stop-work clause, noted in the procedure below).

Examples of Potentially NRHP-Eligible Cultural Resources



Precontact Shell Midden



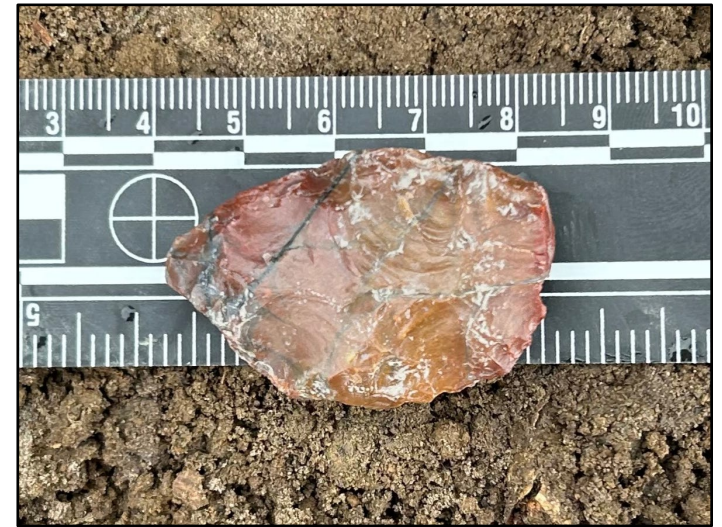
Precontact Stone Tool from 45PI1631 (courtesy of the PTOI HPD).



Precontact Shell Midden



Precontact Stone Tool from the Study Area (courtesy of Port)



Precontact Stone Tool from site 45PI1631, (courtesy of the PTOI HPD).

**Images Public Domain from National Park Service unless noted*



Precontact Animal Bone Mandible (lower jar, possibly with butcher marks), from 45PI1631 (courtesy of the PTOI HPD).



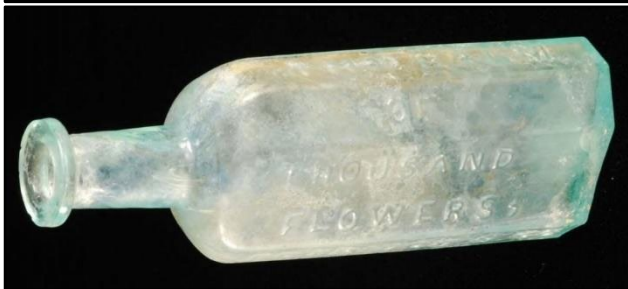
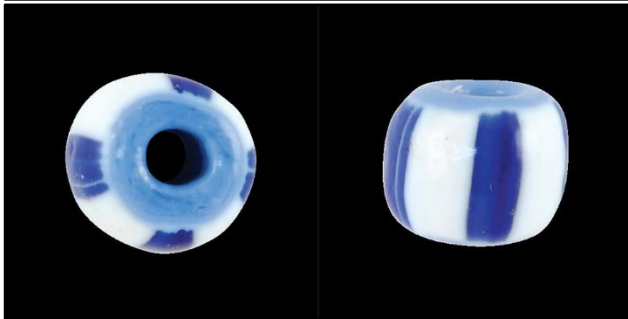
Precontact Animal Bone Tools



Precontact Animal Bone Tool from 45PI1631 (courtesy of the PTOI HPD).



Precontact Animal Bone Tool from 45PI1631 (courtesy of the PTOI HPD).



*Historic Artifacts (from top to bottom:
ceramic plate, glass bead, glass bottle)*



Historic Hearth Feature from Fort Vancouver



Historic house ruins



Profile of archaeological site in Study Area (courtesy of Port). Note the woody fill layer over native sediments.



Fish Weir in-situ (Courtesy of Burke Museum #45PI00470057)

Site 45PI1636 during construction monitoring (Courtesy of PTOI HPD)



2. PROTOCOL FOR DISCOVERY OF CULTURAL RESOURCES (EXCEPT FOR HUMAN SKELETAL REMAINS DISCOVERY)

STEP 1: STOP WORK & PROTECT THE DISCOVERY

If any employee, contractor, or subcontractor believes that a cultural resource has been uncovered during the project activities they shall instruct all work within 30 feet of the discovery to stop. If that perimeter impedes on health, safety, environmental, or legal requirements, the perimeter will be as near to 50 feet as practical. The discovery location should be secured at all times. The discovering party, or their direct on-site supervisor, shall implement Step 2.

STEP 2: NOTIFY MONITOR and PORT OF TACOMA (Port)

The discovering party shall notify the project's archaeological monitor (if applicable) and Port. If there is a cultural resource monitoring plan in place, the monitor will follow its provisions for monitoring (i.e. determine if the inadvertent discovery is an intact archaeological deposit) and proceed to Step 3 for notifications.

Port of Tacoma (Port)

<u>Engineering Contact (if PM unknown):</u> Thais Howard Director of Engineering 253.888.4718 desk / 253.209.3086 cell thoward@nwseaportalliance.com 253.383.5841 receptionist	<u>Environmental Contact:</u> Mark Rettmann Environmental Project Manager 253-592-6716 desk and cell (no text) mrettmann@portoftacoma.com
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STEP 3: Port WILL NOTIFY PTOI HPD

Puyallup Tribe of Indians (PTOI) Historic Preservation Department (HPD)

<u>Primary Contact:</u> Brandon Reynon Archaeologist/Historic Preservation Department 253-573-7965 (desk) / 253-442-9361 (cell) brandon.reynon@puyalluptribe-nsn.gov	<u>Alternative Contact:</u> Mike Shong Archaeologist 253-573-7897 (desk) / 253-339-1967 (cell) Mike.Shong@puyalluptribe-nsn.gov
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STEP 4: PORT WILL NOTIFY DAHP and/or FEDERAL LEAD AGENCY (when applicable) – Except for discovery of human skeletal remains (see protocol below in section 3)

DAHP

<u>Primary Contact:</u> Rob Whitlam, Ph.D. DAHP, State Archaeologist 360-890-2615 Rob.Whitlam@dahp.wa.gov	<u>Alternative Contact:</u> Allyson Brooks, Ph.D. DAHP, SHPO 360-586-3066 Allyson.Brooks@dahp.wa.gov	<u>Alternate Contact:</u> Stephanie Jolivet Local Gov't Archaeologist 360-628-2755 Stephanie.Jolivet@dahp.wa.gov
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The Washington State Department of Archaeology and Historic Preservation (DAHP) will review eligibility criteria, make a recommendation to the artifact or deposits potential eligibility, and will proceed with agency and tribal notification as necessary (so long as the artifact or deposit is determined eligible). After consultation, DAHP will complete a written plan of action describing the treatment of cultural resources pursuant to 43 CFR Part 10 and will execute their prescribed duties within that plan of action.

3. PROTOCOL FOR DISCOVERY OF HUMAN SKELETAL REMAINS

In the event that human remains are discovered during the construction, the following procedures are to be followed to ensure compliance with RCW 68.60: Abandoned and Historic Cemeteries and Historic Graves, and RCW 27.44: Indian Graves and Records. Washington State law requires immediate notification of known or suspected human remains to county and/or municipal law enforcement agencies, county medical examiner or coroner's offices, DAHP, and federal and local agencies involved directly with the project or having jurisdiction over the subject properties.

If ground-disturbing activities encounter human skeletal remains during construction, then all activity that may cause further disturbance to those remains must immediately cease and the area of the find must be secured and protected from further disturbance. Any human remains that are discovered will be treated with dignity and respect. *No photography* is allowed except for the purpose of the lead archaeologist or tribal archaeologist to communicate with the PTOI HPD or State Physical Anthropologist to confirm human remains. Photographs sent to the PTOI or State Physical Anthropologist shall have a scale. If and when human remains are confirmed, no further photography shall occur, and the lead archaeologist shall delete photos.

The remains should not be touched, moved, or further disturbed. If, however, handling of human remains is unavoidable, the archaeological monitor and/or professional archaeologist will use cloth gloves. All remains will remain covered with a tarp that will not be removed until such time that the coroner or DAHP assumes jurisdiction of the find.

Upon the discovery of human skeletal remains, the above Steps 1-3 will be implemented. The Port will *first notify the PTOI HPD* and subsequently notify and report to the County Sheriff, County Medical Examiner, and the Port Security in the most expeditious manner possible. The County Medical Examiner will determine if the remains are human and whether the discovery constitutes a crime scene. If the remains are determined to not be a crime scene, the County Medical Examiner will notify DAHP. The DAHP will be responsible for informing the affiliated tribes regarding the discovery. Contact information for the County Medical Examiner and the DAHP is provided below.

CONTACT INFORMATION IF HUMAN SKELETAL REMAINS ARE DISCOVERED

Port to first contact the PTOI HPD:

<u>Primary Contact:</u> Brandon Reynon Archaeologist/HPD 253-573-7965 (desk) / 253-442-9361 (cell) brandon.reynon@puyalluptribe-nsn.gov	<u>Alternative Contact:</u> Mike Shong Archaeologist 253-573-7897 (desk) / 253-339-1967 (cell) Mike.Shong@puyalluptribe-nsn.gov
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Port to contact the following in the most expeditious manner possible:

<u>Pierce County Sheriff:</u> Office Non-emergency (253)798-7530	<u>Pierce County Medical Examiner:</u> Medical Examiner's Office: (253) 798-6494
<u>Port Security:</u> Fabulich Center, 3600 Port of Tacoma Rd, 24 hr, 7 days a week 253-383-9472	

The County Medical Examiner will contact DAHP if they determine the remains are not a crime scene/non-forensic and *DAHP will be responsible for informing the affiliated tribes* regarding the discovery.

<u>Primary DAHP:</u> Guy Tasa, Ph.D. State Physical Anthropologist (360) 790-1633 Guy.Tasa@dahp.wa.gov	<u>Alternative DAHP:</u> Jackie Berger, Ph.D., RPA Assistant State Physical Anthropologist (360) 890-2633 Jackie.Berger@dahp.wa.gov
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4. PROCEEDING WITH CONSTRUCTION

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. A Cultural Resources Specialist (either from DAHP, a consulting Tribe, or a professional consultant) must determine the boundaries of the discovery location. In consultation with DAHP and affected tribes, the project lead will determine the appropriate level of documentation and treatment of the resource. If federal agencies are involved, the agencies will make the final determinations about treatment and documentation.

Construction may continue at the discovery location only after the process outlined in this plan is followed, and DAHP (and the federal agencies, if any) determine that compliance with state and federal laws is complete.

5. CONFIDENTIALITY

All parties, including Port and its employees, contractors, and consultants, shall keep inadvertent discoveries confidential. Parties shall not contact the press, post social media, or share information with any third party or member of the public. Prior to releasing any information about the inadvertent discovery, the Port, concerned Tribe(s), and DAHP will concur on the procedures and the level of information which may be released, as allowed by law.