



City of Tacoma
Department of Public Works

SPECIFICATION NO. PW23-0152F

Asphalt Plant Chip Seal Oil Tanks

Project No. 60000052679

CITY OF TACOMA

DEPARTMENT OF PUBLIC WORKS

REQUEST FOR BIDS, SPECIAL PROVISIONS, BID PROPOSAL AND CONTRACT

FOR

**SPECIFICATION NO.
PW23-0152F**

Asphalt Plant Chip Seal Oil Tanks

PROJECT NO. 60000052679

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Room 522, Tacoma Municipal Building
Engineering Division
Tacoma, Washington 98421-2711
Public Works Department
Divisions: 0 & 1



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Divisions: 2, 9, 31, 32, 40, 43



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ASPHALT PLANT CHIP SEAL OIL TANKS

SPECIFICATION NO. PW23-0152F

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**City of Tacoma
Public Works Engineering**

**REQUEST FOR BIDS PW23-0152F
Asphalt Plant Chip Seal Oil Tanks**

Submittal Deadline: 11:00 a.m., Pacific Time, Tuesday, October 3, 2023

Submittals must be received by the City's Procurement and Payables Division prior to 11:00 a.m. Pacific Time.

For electronic submittals, the City of Tacoma will designate the time of receipt recorded by our email, sendbid@cityoftacoma.org, as the official time of receipt. This clock will be used as the official time of receipt of all parts of electronic bid submittals. Late submittals will be returned unopened and rejected as non-responsive.

Submittal Delivery: Sealed submittals will be received as follows:

By Email:

sendbid@cityoftacoma.org

Maximum file size: 35 MB. Multiple emails may be sent for each submittal

Bid Opening: Sealed submittals in response to a RFB will be opened Tuesday's at 11:15 AM by a purchasing representative and read aloud during a public bid opening held at the Tacoma Public Utilities Administrative Building North, 3628 S. 35th Street, Tacoma, WA 98409, conference room M-1, located on the main floor. They will also be held virtually Tuesday's at 11:15 AM. Attend [via this link](#) or call 1 (253) 215 8782. Submittals in response to an RFP, RFQ or RFI will be recorded as received. As soon as possible, after 1:00 PM, on the day of submittal deadline, preliminary results will be posted to www.TacomaPurchasing.org.

Solicitation Documents: An electronic copy of the complete solicitation documents may be viewed and obtained at the City's plan distribution service provider, ARC, 632 Broadway, Tacoma, WA, or by going to <http://www.e-arc.com/location/tacoma>. Prospective bidders will be required to pay reproduction costs. A list of vendors registered for this solicitation is also available at their website.

Pre-Proposal Meeting: A pre-proposal meeting will be held at the Asphalt Plant located at 3210 Center St. Tacoma, WA 98409. The meeting is scheduled for 9/19/2023 at 10:00 AM PST.

Project Scope: This project is to procure, deliver, and install two new vertical asphalt oil storage tanks with associated pumps, piping, insulation, heat trace, ladders, catwalk, and including a concrete foundation and secondary containment.

Estimate: \$969,652

Paid Sick Leave: The City of Tacoma requires all employers to provide paid sick leave as set forth in Title 18 of the Tacoma Municipal Code and in accordance with State of Washington law.

Americans with Disabilities Act (ADA Information): The City of Tacoma, in accordance with Section 504 of the Rehabilitation Act (Section 504) and the Americans with Disabilities Act (ADA), commits to nondiscrimination on the basis of disability, in all of its programs and activities. Specification materials can be made available in an alternate format by emailing the contact listed below in the *Additional Information* section.

Title VI Information: "The City of Tacoma" in accordance with provisions of Title VI of the Civil Rights Act of 1964, (78 Stat. 252, 42 U.S.C. sections 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin in consideration of award.

Additional Information: Requests for information regarding the specifications may be obtained by contacting Brandon Snow, Senior Buyer by email to bsnow@cityoftacoma.org.

Protest Policy: City of Tacoma protest policy, located at www.tacomapurchasing.org, specifies procedures for protests submitted prior to and after submittal deadline.



Meeting sites are accessible to persons with disabilities. Reasonable accommodations for persons with disabilities can be arranged with 48 hours advance notice by calling 253-502-8468.

**CITY OF TACOMA
FINANCE/PURCHASING DIVISION
SPECIAL NOTICE TO BIDDERS**

Public works and improvement projects for the City of Tacoma are subject to Washington state law and Tacoma Municipal Code, including, but not limited to the following:

I. STATE OF WASHINGTON

A. RESPONSIBILITY CRITERIA – STATE OF WASHINGTON

In order to be considered a responsible bidder the bidder must meet the following mandatory state responsibility criteria contained in RCW 39.04.350:

1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect **at the time of bid submittal**;
2. Have a current Washington Unified Business Identifier (UBI) number;
3. If applicable:
 - a. Have Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;
 - b. Have a Washington Employment Security Department number, as required in Title 50 RCW;
 - c. Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW and;
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 (unlicensed or unregistered contractors) or 39.12.065(3) (prevailing wage).
5. Have received training on the requirements related to public works and prevailing wage under this chapter and chapter 39.12 RCW and must designate a person or persons to be trained on these requirements. The training must be provided by the department of labor and industries or by a training provider whose curriculum is approved by the department. Bidders that have completed three or more public works projects and have had a valid business license in Washington for three or more years are exempt from this subsection.

B. RECIPROCAL PREFERENCE FOR RESIDENT CONTRACTORS:

Effective March 30, 2012, RCW 39.04.380 imposes a reciprocal preference for resident contractors. Any bid received from a non-resident contractor from a state that provides an in-state percentage bidding preference is subject application of a comparable percentage disadvantage.

A non-resident contractor from a state that provides an in-state percentage bidding preference means a contractor that:

1. Is from a state that provides a percentage bid preference to its resident contractors bidding on public works projects, and
2. Does not have a physical office located in Washington at the time of bidding on the City of Tacoma public works project.

The state of residence for a non-resident contractor is the state in which the contractor was incorporated, or if not a corporation, the state in which the contractor's business entity was formed.

The City of Tacoma will evaluate all non-resident contractors for an out of state bidder preference. If the state of the non-resident contractor provides an in state contractor preference, a comparable percentage disadvantage will be applied to the non-resident contractor's bid prior to contract award. The responsive and lowest and best responsible bidder after application of any non-resident disadvantage will be awarded the contract.

The reciprocal preference evaluation does not apply to public works procured pursuant to RCW 39.04.155, RCW 39.04.280, federally funded competitive solicitations where such agencies prohibit the application of bid preferences, or any other procurement exempt from competitive bidding.

Bidders must provide the City of Tacoma with their state of incorporation or the state in which the business entity was formed and include whether the bidder has a physical office located in Washington.

The bidder shall submit documentation demonstrating compliance with above criteria on the enclosed State Responsibility and Reciprocal Bidder Information form.

C. SUBCONTRACTOR RESPONSIBILITY

1. The Contractor shall include the language of this subcontractor responsibility section in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. The requirements of this section apply to all subcontractors regardless of tier.
2. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:
 - a. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;
 - b. Have a current Washington Unified Business Identifier (UBI) number;
 - c. If applicable, have:
 - a. Have Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;
 - b. A Washington Employment Security Department number, as required in Title 50 RCW;
 - c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
 - d. An electrical contractor license, if required by Chapter 19.28 RCW;
 - e. An elevator contractor license, if required by Chapter 70.87 RCW and;
3. Not be disqualified from bidding on any public works contract under RCW 39.06.010 (unlicensed or unregistered contractors) or 39.12.065(3) (prevailing wage).

II. CITY OF TACOMA

A. SUPPLEMENTAL RESPONSIBILITY CRITERIA – CITY OF TACOMA:

In order to be considered a responsible bidder, the prospective bidder shall have all of the following qualifications set forth in Tacoma Municipal Code 1.06.262:

1. Adequate financial resources or the ability to secure such resources;
2. The necessary experience, stability, organization and technical qualifications to perform the proposed contract;
3. The ability to comply with the required performance schedule, taking into consideration all existing business commitments;
4. A satisfactory record of performance, integrity, judgment and skills; and
5. Be otherwise qualified and eligible to receive an award under applicable laws and regulations.
 - a. Bidder Responsibility. Bidders shall not be in violation of 39.04.350 RCW Bidder Responsibility Criteria - Supplemental Criteria.

In addition to the mandatory bidder responsibility criteria listed immediately above, the City may, in addition to price, consider any or all of the following criteria contained in Tacoma Municipal Code Chapter 1.06.262 in determining bidder responsibility:

1. The ability, capacity, experience, stability, technical qualifications and skill of the respondent to perform the contract;
2. Whether the respondent can perform the contract within the time specified, without delay or interference;
3. Integrity, reputation, character, judgment, experience, and efficiency of the respondents, including past compliance with the City's Ethics Code;
4. Quality of performance of previous contracts;
5. Previous and existing compliance with laws and ordinances relating to contracts or services;
6. Sufficiency of the respondent's financial resources;
7. Quality, availability, and adaptability of the supplies, purchased services or public works to the particular use required;
8. Ability of the respondent to provide future maintenance and service on a timely basis;
9. Payment terms and prompt pay discounts;
10. The number and scope of conditions attached to the submittal;
11. Compliance with all applicable City requirements, including but not limited to the City's Ethics Code and its Equity in Contracting and Local Employment and Apprenticeship Training programs;
12. Other qualification criteria set forth in the specification or advertisement that the appropriate department or division head determines to be in the best interests of the City.

The City may require bidders to furnish information, sworn or certified to be true, to demonstrate compliance with the City responsibility criteria set forth above. If the city manager or director of utilities is not satisfied with the sufficiency of the information provided, or if the prospective respondent does not substantially meet all responsibility requirements, any submittal from such respondent must be disregarded.

B. ADDITIONAL SUPPLEMENTAL CRITERIA – NOT APPLICABLE

C. MODIFICATIONS TO SUPPLEMENTAL CRITERIA

Potential bidders may request modifications to the City's **supplemental criteria** by submitting a written request to the Purchasing Division via email to sendbid@cityoftacoma.org no later than 5:00 p.m. Pacific Time, three days prior to the submittal deadline. Please include the Specification No. and Title when submitting such requests. Requests must include justification for why certain criteria should be modified. Requests received after this date and time will not be considered.

The City will respond to a timely submitted request prior to the bid opening date. Changes to the supplemental criteria, if warranted, will be issued by addendum to the solicitation documents and posted to the City's website for the attention of all prospective bidders.

D. DETERMINATION OF BIDDER RESPONSIBILITY

If the City determines the bidder does not meet the criteria above and is therefore not a responsible bidder, the City shall notify the bidder in writing with the reasons for its determination. If the bidder disagrees, the bidder may appeal the determination in a manner consistent with the City's Protest Policy. Appeals are coordinated by the Purchasing Division heard by the Procurement and Payables Division manager for contracts less than or equal to \$500,000 and by Contracts and Awards Board for contracts greater than \$500,000.

SPECIAL REMINDER TO ALL BIDDERS

HEALTH & SAFETY: Be sure to comply with all City of Tacoma health and safety requirements.

1. This project has been deemed to be an essential project by the City of Tacoma and it is anticipated that the contract will be operational during the COVID-19 outbreak. Therefore the contractor shall complete a health and safety plan describing how the contractor will complete the work while combating the COVID-19 spread (social distancing practices) and what Personal Protective Equipment (PPE) will be in place.

PLEASE NOTE: Be sure you have complied with all specifications and requirements and have signed all required documents.

YOUR ATTENTION IS PARTICULARLY CALLED to the following forms, which must be executed in full before the bid is submitted:

1. **BID PROPOSAL:** The unit prices bid must be shown in the space provided. Check your computations for omissions and errors.
2. **SIGNATURE PAGE:** To be filled in and executed by a duly authorized officer or representative of the bidding entity. If the bidder is a subsidiary or doing business on behalf of another entity, so state, and provide the firm name under which business is hereby transacted.
3. **BID BOND:** The Bid Bond must be executed by the person legally authorized to sign the bid, and must be properly signed by the representatives of the surety company unless the bid is accompanied by a certified check. If Bid Bond is furnished, the form furnished by the City must be followed; no variations from the language thereof will be accepted. The amount of the Bid Bond must be not less than 5% of the total amount bid.
4. **CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES:** Bidder shall complete this form in its entirety to ensure compliance with state legislation (SHB 2017).
5. **STATE RESPONSIBILITY AND RECIPROCAL BID PREFERENCE INFORMATION:** Bidder shall complete this form in its entirety to ensure compliance with state legislation (SHB 2010).
6. **LIST OF SUBCONTRACTOR CATEGORIES OF WORK:** Bidder shall list all subcontractor(s) proposed to perform the work of heating, ventilation and air conditioning, plumbing, as described in Chapter 18.106 RCW and electrical as described in Chapter 19.28 RCW. Bidder shall also list all subcontractor(s) proposed to perform the work of structural steel installation and/or rebar installation.

FAILURE TO LIST SUBCONTRACTORS WILL RESULT IN THE BID BEING NON-RESPONSIVE AND THEREFORE VOID.

7. **EQUITY IN CONTRACTING (EIC) UTILIZATION FORM**

Bidders shall complete the Equity in Contracting Utilization Form in accordance with the City of Tacoma Equity in Contracting Regulations Manual and Chapter 1.07 of the City of Tacoma Municipal Code (TMC). This form shall be fully and accurately completed and

returned with submission of the Bid and will be used to determine if the Bidder is in compliance with the EIC regulations and the TMC.

Bidders shall meet the percent sub-contracting requirements listed on the EIC Requirement Form to be considered responsive. Bidders unable to meet the percent sub-contracting requirements shall submit an Application of Waiver of EIC Requirements, the Equity in Contracting Utilization Form, and any required attachments with the Bid in accordance with the Equity in Contracting Regulations Manual located in PART III of these Specifications.

FAILURE TO COMPLETE AND SUBMIT EIC FORMS WITH THE BID SUBMITTAL PACKAGE MAY RESULT IN THE BID BEING DECLARED NON-RESPONSIVE AND REJECTED.

POST AWARD FORMS EXECUTED UPON AWARD:

- A. CONTRACT: Must be executed by the successful bidder.
- B. PAYMENT BOND TO THE CITY OF TACOMA: Must be executed by the successful bidder and his/her surety company.
- C. PERFORMANCE BOND TO THE CITY OF TACOMA: Must be executed by the successful bidder and his/her surety company.
- D. CERTIFICATE OF INSURANCE: Shall be submitted with all required endorsements.
- E. LEAP UTILIZATION PLAN: Shall be submitted at the Pre-Construction Meeting.
- F. GENERAL RELEASE.

CODE OF ETHICS: The successful bidder agrees that its violation of the City's Code of Ethics contained in TMC Chapter 1.46 shall constitute a breach of the contract subjecting the contract to termination.

LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM (LEAP):

The Local Employment and Apprenticeship Training Program (LEAP) has been adopted to counteract economic and social ills, which accompany high rates of unemployment within the City of Tacoma. The Tacoma City Council established the mandatory LEAP program for public works contracts pursuant to Ordinance No. 28520. The primary goal is to provide an opportunity for City of Tacoma residents and Tacoma Public Utilities ratepayers to enter apprenticeship programs, acquire skills, and perform work that will provide living wages.

LEAP Goals:

1. Local Employment Utilization Goal – Prime contractor is required to ensure that 15 percent of the labor hours worked on the project are performed by residents of the City of Tacoma or economically distressed areas of the Tacoma Public Utilities service area.
2. Apprentice Utilization Goal - Prime contractor is required to ensure that 15 percent of the labor hours worked on the project are performed by apprentices who reside in the Tacoma Public Utilities service area.

NOTE: The two goals can be satisfied concurrently if the prime contractor utilizes individuals who simultaneously meet the requirements of both goals, such as an apprentice who resides in an economically distressed area of the Tacoma Public Utilities service area.

DIVISION 0 – BIDDING & CONTRACT REQUIREMENTS

BID PERIOD FORMS

1. BIDDER QUESTION FORM
2. SUBSTITUTION REQUEST FORM

BIDDER QUESTION FORM

ASPHALT PLANT CHIP SEAL OIL TANKS
SPECIFICATION NO.: PW23-0152F

Prospective bidders must submit questions or clarifications in writing on this form allowing time for a written reply to reach all prospective bidders before the submission of the bids. Bidder questions shall be submitted on this form via e-mail to:

Brandon Snow, Senior Buyer.
E-mail address: bsnow@cityoftacoma.org

All e-mails must be received by **Noon on Monday, September 25, 2023**. Where changes in the project documents are required, an addendum will be issued to everyone on the plan holder's list and posted on www.tacomapurchasing.org.

I have the following question(s): _____

Submitted by:

Name

Representing

Address

Fax Number

Phone Number

SUBSTITUTION REQUEST FORM

ASPHALT PLANT CHIP SEAL OIL TANKS SPECIFICATION NO.: PW23-0152F

Prospective bidders may request substitutions in writing on this form. Substitutions shall be submitted on this form via e-mail to:

Brandon Snow, Senior Buyer.

E-mail address: bsnow@cityoftacoma.org

All e-mails must be received by **Noon Monday, September 25, 2023**. Where changes in the project documents are required, an addendum will be issued to everyone on the plan holder's list and posted on www.tacomapurchasing.org.

Submitted By

Signature _____

Company _____

Mailing Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____ E-mail _____

☐ Please check if there are attachments

1. We hereby submit for your consideration the following product instead of the specified item for the above project:

<u>Section</u>	<u>Page</u>	<u>Line/Paragraph</u>	<u>Specified Item</u>
_____	_____	_____	_____

2. Proposed Substitution. _____

3. Reason for Substitution. _____

4. Attach complete technical data, catalog cuts, drawings, samples, etc. Exact models and description of products shall be noted with any deviation noted.

5. Include complete information on changes to Drawings, and/or Specifications which proposed substitution will require for its proper installation. _____

6. Does the substitute affect dimensions shown on Drawings? _____

6a. If so, how? _____

7. Describe the effect substitution has on other trades. _____

8. Describe differences between proposed substitution and specified item. _____

9. Manufacturer's warranties of the proposed and specified items are: ☐ Same ☐ Different (explain on attachment)

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item. The undersigned agrees to pay for changes to the building and systems design, including engineering and detailing costs caused by the requested substitution.

SUBSTITUTION REQUEST FORM

ASPHALT PLANT CHIP SEAL OIL TANKS
SPECIFICATION NO.: PW23-0152F

For Reviewer

- ☐ Approved for Bidding subject to review and approval of Submittals (and as noted below) ☐ Rejected - Inadequate Information
☐ Not Accepted ☐ Received Too Late

By _____ Date _____

Remarks

PROPOSAL FORMS

The following forms must be completed in their entirety and submitted with the bid. Bidders must use the forms provided. Do not modify or substitute forms. Failure to complete and submit all the forms in this section may result in the bid being declared unresponsive and rejected.

1. BID PROPOSAL
2. SIGNATURE PAGE
3. BID BOND
4. CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES
5. STATE RESPONSIBILITY FORM
6. LIST OF SUBCONTRACTOR CATEGORIES OF WORK
7. EIC UTILIZATION FORM

BID PROPOSAL

SPECIFICATION NO. PW23-0152F

City of Tacoma – Asphalt Plant Chip Seal Oil Tanks

The undersigned hereby certifies that he/she has examined the location and construction details of work as outlined on the Plans and Specifications for Project No. 60000052679 and has read and thoroughly understands the Plans and Specifications and contract governing the work embraced in this improvement and the method by which payment will be made for said work, and hereby proposes to undertake and complete the work embraced in this improvement in accordance with said Plans, Specifications and contract and at the following schedule of rates and prices.

NOTE:

1. Unit prices of all items, all extensions and total amount of bid should be shown. Show unit prices in figures only.
2. The notations below the item numbers refer to the specification section where information may be found regarding each contract item. These notations are intended only as a guide and are not warranted to refer to all specification sections where information may be found.

All bid items are sorted in the following group:

- **Schedule A: Lump Sum, Bid Items L1 – L8**

Schedule A: Bid Items L1 – L8

<u>ITEM NO.</u>	<u>ITEM DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>		<u>UNIT PRICE</u>	<u>TOTAL AMOUNT</u>
		<u>Unit</u>	<u>No.</u>		
L1	Mobilization & Demobilization	Lump Sum	1	Lump Sum	\$ _____
L2	Temporary Erosion & Sediment Control	Lump Sum	1	Lump Sum	\$ _____
L3	Site Preparation and Site Demolition	Lump Sum	1	Lump Sum	\$ _____
L4	Storage Tank Foundation & Containment Walls	Lump Sum	1	Lump Sum	\$ _____
L5	Liquid Asphalt Handling System	Lump Sum	1	Lump Sum	\$ _____
L6	Electrical System & Lighting	Lump Sum	1	Lump Sum	\$ _____
L7	Disposal and Haul of Contaminated Materials	Lump Sum	1	Lump Sum	\$ _____
L8	Force Account	Force Account	1	Force Account	\$ 20,000
Base Bid Total (Bid Items No. L1-L8)				\$ _____	

Proposal for Incorporating Recycled Materials into the Project

In compliance with a new law that went into effect January 1, 2016 (SHB1695), the Bidder shall propose below, the total percent of construction aggregate and concrete materials to be incorporated into the Project that are recycled materials. Calculated percentages must be within the amounts allowed in Section 9-03.21(1)E, Table on Maximum Allowable Percent (By Weight) of Recycled Material, of the Standard Specifications.

Proposed total percentage: _____ percent (%)

Note: Use of recycled materials is highly encouraged within the limits shown above, but does not constitute a Bidder Preference, and will not affect the determination of award, unless two or more lowest responsive Bid totals are exactly equal, in which case proposed recycling percentages will be used as a tie-breaker, per the APWA GSP in Section 1-03.1 of the Special Provisions. Regardless, the Bidder's stated proposed percentages will become a goal the Contractor should do its best to accomplish. Bidders will be required to report on recycled materials actually incorporated into the Project, in accordance with the APWA GSP in Section 1-06.6 of the Special Provisions.

Bidder: _____

Signature of Authorized Official: _____

Date: _____

SIGNATURE PAGE

CITY OF TACOMA PUBLIC WORKS ENGINEERING

All submittals must be in ink or typewritten, executed by a duly authorized officer or representative of the bidding/proposing entity, and received and time stamped as directed in the **Request for Bids page near the beginning of the specification**. If the bidder/proposer is a subsidiary or doing business on behalf of another entity, so state, and provide the firm name under which business is hereby transacted.

REQUEST FOR BIDS SPECIFICATION NO. PW23-0152F Asphalt Plant Chip Seal Oil Tanks

The undersigned bidder/proposer hereby agrees to execute the proposed contract and furnish all materials, labor, tools, equipment and all other facilities and services in accordance with these specifications.

The bidder/proposer agrees, by submitting a bid/proposal under these specifications, that in the event any litigation should arise concerning the submission of bids/proposals or the award of contract under this specification, Request for Bids, Request for Proposals or Request for Qualifications, the venue of such action or litigation shall be in the Superior Court of the State of Washington, in and for the County of Pierce.

Non-Collusion Declaration

The undersigned bidder/proposer hereby certifies under penalty of perjury that this bid/proposal is genuine and not a sham or collusive bid/proposal, or made in the interests or on behalf of any person or entity not herein named; and that said bidder/proposer has not directly or indirectly induced or solicited any contractor or supplier on the above work to put in a sham bid/proposal or any person or entity to refrain from submitting a bid/proposal; and that said bidder/proposer has not, in any manner, sought by collusion to secure to itself an advantage over any other contractor(s) or person(s).

Bidder/Proposer's Registered Name

Signature of Person Authorized to Enter Date
into Contracts for Bidder/Proposer

Address

Printed Name and Title

City, State, Zip

(Area Code) Telephone Number / Fax Number

Authorized Signatory E-Mail Address

State Business License Number
in WA, also known as UBI (Unified Business Identifier) Number

E.I.No. / Federal Social Security Number Used on Quarterly
Federal Tax Return, U.S. Treasury Dept. Form 941

State Contractor's License Number
(See Ch. 18.27, R.C.W.)

E-Mail Address for Communications

Addendum acknowledgement #1_____ #2_____ #3_____ #4_____ #5_____

THIS PAGE MUST BE SIGNED AND RETURNED WITH SUBMITTAL.

Herewith find deposit in the form of a cashier's check in the amount of \$_____ which amount is not less than 5-percent of the total bid.

SIGN HERE_____

BID BOND

KNOW ALL MEN BY THESE PRESENTS:

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

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

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

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

PRINCIPAL:

SURETY:

_____, 20_____

Received return of deposit in the sum of \$ _____



City of Tacoma

Certification of Compliance with Wage Payment Statutes

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date (**September 12, 2023**), that the bidder is not a “willful” violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

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

Bidder

Signature of Authorized Official*

Printed Name

Title

Date

City

State

Check One:

Individual ☐

Partnership ☐

Joint Venture ☐

Corporation ☐

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

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

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

Specification No. _____

Name of Bidder: _____

State Responsibility and Reciprocal Bid Preference Information

Certificate of registration as a contractor
(Must be in effect at the time of bid submittal):

Number: _____

Effective Date: _____

Expiration Date: _____

Current Washington Unified Business Identifier
(UBI) Number:

Number: _____

Do you have industrial insurance (workers' compensation)
Coverage nor your employees working in Washington?

☐ Yes ☐ No
☐ Not Applicable

Washington Employment Security Department Number

Number: _____

☐ Not Applicable

Washington Department of Revenue state excise tax
Registration number:

Number: _____

☐ Not Applicable

Have you been disqualified from bidding any public
works contracts under RCW 39.06.010 or 39.12.065(3)?

☐ Yes ☐ No
If yes, provide an explanation of your
disqualification on a separate page.

Do you have a physical office located in the state of
Washington?

☐ Yes ☐ No

If incorporated, in what state were you incorporated?

State: _____ ☐ Not Incorporated

If not incorporated, in what state was your business
entity formed?

State: _____

Have you completed the training required by RCW
39.04.350, or are you on the list of exempt businesses
maintained by the Department of Labor and Industries?

☐ Yes ☐ No

List of Subcontractor Categories of Work

Project Name _____

Subcontractor(s) that are proposed to perform the work of heating, ventilation and air conditioning, and/or plumbing, as described in Chapter 18.106 RCW, and electrical as described in Chapter 19.28 RCW must be listed below. **This information must be submitted with the bid proposal or within one hour of the published bid submittal time via email to bids@cityoftacoma.org.**

Subcontractor(s) that are proposed to perform the work of structural steel installation and/or rebar installation must be listed below. **This information must be submitted with the bid proposal or within forty-eight hours of the published bid submittal time via email to bids@cityoftacoma.org.**

Failure to list subcontractors or naming more than one subcontractor to perform the same work will result in your bid being non-responsive. Contractors self-performing must list themselves below. The work to be performed is to be listed below the subcontractor(s) name.

Subcontractor Name _____
Work to be Performed _____

Subcontractor Name _____
Work to be Performed _____

Subcontractor Name _____
Work to be Performed _____

Subcontractor Name _____
Work to be Performed _____

Subcontractor Name _____
Work to be Performed _____



City of Tacoma
Community & Economic Development
Office of Equity in Contracting
747 Market Street, Rm 900
Tacoma WA 98402
253-591-5826
Email: EICOffice@cityoftacoma.org

EQUITY IN CONTRACTING UTILIZATION FORM

This form is to document **only** the contractors, subcontractors, material suppliers or other types of firms that are intended to be used to meet the stated EIC requirements for the contract awarded from this solicitation. This information will be used to determine contract award. Additional forms may be used if needed.

- You must include this form with your bid submittal in order for your bid to be responsive.
- Prime contractors are **required** to solicit bids from Businesses that are "Certified" by the Office of Minority and Women's Business Enterprises (OMWBE) www.omwbe.wa.gov as a MBE, WBE, and SBE to be known as "Certified Business".
- It is the Prime contractor's responsibility to verify the certification status of the business(s) intended to be utilized prior to the submittal deadline.

Bidder's Name: _____

Address: _____ City/State/Zip: _____

Spec. No. _____ Base Bid * \$ _____ **Complete business names and phone numbers are required to verify your usage of Certified Businesses**

a. Business Name and Certification Number(s)	b. MBE, WBE, or SBE (Write all that apply)	c. NAICS code(s)	d. Contractor Bid Amount (100%)	e. Material Supplier Bid Amount (20%)	f. Estimated MBE Usage Dollar Amount	g. Estimated WBE Usage Dollar Amount	h. Estimated SBE Usage Dollar Amount
i. MBE Utilization %	j. WBE Utilization %	k. SBE Utilization %					

By signing and submitting this form the bidder certifies that the OMWBE Certified Business(s) listed will be used on this project including all applicable change orders.

Type or Print Name of Responsible Officer / Title

Signature of Responsible Officer

Date

INSTRUCTIONS FOR COMPLETING EIC UTILIZATION FORM

The purpose of these instructions is to assist bidders in properly completing the EIC Utilization Form.

This form when submitted with your bid, provides information to the City of Tacoma to accurately review and evaluate your proposed EIC usage.

1. * Base Bid is the prime contractor's bid, plus any alternates, additives and deductibles selected by the City of Tacoma. Also, please refer to Items #10-12 below.
2. Column "a" – List all **Certified Business(s)** that you will be awarding a contract to if you are the successful bidder.
3. Column "b" – Identify if the **Certified Business(s)** is being utilized as an MBE, WBE, or SBE. (Businesses may count towards multiple requirements).
4. Column "c" – List the appropriate NAICS code(s) for the scope of work, services, or materials/supplies for each **Certified Business**.
5. Column "d" – The bid amount must be indicated for **all** listed **Certified Businesses** that you plan on doing business with. This quote is the price that you and the **Certified Businesses** have negotiated prior to bid opening.
6. Column "e" – The bid amount must be indicated for **all** listed **Certified Businesses** that you plan on doing business with. This quote is the price that you and the material supplier have negotiated prior to bid opening.
7. Column "f" – Estimated MBE Usage Dollar Amount: For all MBE firms used, multiply the amount in Column "d" by 1.0 plus the amount in Column "e" by 0.20. Insert the total amount in this column.
8. Column "g" – Estimated WBE Usage Dollar Amount: For all WBE firms used, multiply the amount in Column "d" by 1.0 plus the amount in Column "e" by 0.20. Insert the total amount in this column.
9. Column "h" – Estimated SBE Usage Dollar Amount: For all MBE, WBE, or SBE firms used, Multiply the amount in Column "d" by 1.0 plus the amount in Column "e" by 0.20. Insert the total amount in this column.
10. Block "i" – The percentage of actual MBE utilization calculated on the Base Bid only. (Divide the sum of Estimated MBE Usage Dollar Amount (Column "f") by your Base Bid (*) then multiply by 100 to get a percentage: \$ amounts from column "f" divided by Base Bid (*) x 100 = MBE usage as a percentage of the Base Bid.)
11. Block "j" – The percentage of actual WBE utilization calculated on the Base Bid only. (Divide the sum of Estimated WBE Usage Dollar Amount (Column "g") by your Base Bid (*) then multiply by 100 to get a percentage: \$ amounts from column "g" divided by Base Bid (*) x 100 = WBE usage as a percentage of the Base Bid.)

12. Block “k” – The percentage of actual SBE utilization calculated on the Base Bid only. (Divide the sum of Estimated SBE Usage Dollar Amount (Column “h”) by your Base Bid (*) then multiply by 100 to get a percentage: \$ amounts from column “h” divided by Base Bid (*) x 100 = SBE usage as a percentage of the Base Bid.)

It is the prime contractor’s responsibility to check the status of **Certified Businesses** prior to bid opening. Call the EIC Office at 253-591-5826 or email at EICOffice@cityoftacoma.org for additional information.

CONTRACT FORMS (POST AWARD)

3. CONTRACT
4. INSURANCE REQUIREMENTS
5. PERFORMANCE BOND TO THE CITY OF TACOMA
6. PAYMENT BOND TO THE CITY OF TACOMA
7. BOND IN LIEU OF RETAINAGE (OPTIONAL)
8. ESCROW IN LIEU OF RETAINAGE (OPTIONAL)
9. CONTRACTOR'S WORK HAZARD ANALYSIS REPORT
10. GENERAL RELEASE TO THE CITY OF TACOMA

CONTRACT

Resolution No.
Contract No.

This Contract is made and entered into effective as of [Month], [Day], [Year] ("Effective Date") by and between the City of Tacoma, a Municipal Corporation of the State of Washington ("City"), and [supplier name as it appears in Ariba, including dbas or trade names] ("Contractor").

That in consideration of the mutual promises and obligations hereinafter set forth the Parties hereto agree as follows:

- I. Contractor shall fully execute and diligently and completely perform all work and provide all services and deliverables described herein and in the items listed below each of which are fully incorporated herein and which collectively are referred to as "Contract Documents":

 1. Specification No. [Spec Number] [Spec Title] together with all authorized addenda.
 2. Contractor's submittal [or specifically described portions thereof] dated [Enter Submittal Date] submitted in response to Specification No. [Spec Number] [Spec Title].
 3. Describe with specific detail and list separately any other documents that will make up the contract (fee schedule, work schedule, authorized personnel, etc.) or any other additional items mutually intended to be binding upon the parties.

- II. If federal funds will be used to fund, pay or reimburse all or a portion of the services provided under the Contract, the terms and conditions set forth at this Appendix A are incorporated into and made part of this Contract and CONTRACTOR will comply with all applicable provisions of Appendix A and with all applicable federal laws, regulations, executive orders, policies, procedures, and directives in the performance of this Contract.

If CONTRACTOR's receipt of federal funds under this Contract is as a sub-recipient, a fully completed Appendix B, "Sub-recipient Information and Requirements" is incorporated into and made part of this Contract.
- III. In the event of a conflict or inconsistency between the terms and conditions contained in this document entitled Contract and any terms and conditions contained the above referenced Contract Documents the following order of precedence applies with the first listed item being the most controlling and the last listed item the least controlling:
 1. Contract, inclusive of Appendices A and B.
 2. List remaining Contract Documents in applicable controlling order.
- IV. The Contract terminates on xxxxx, and may be renewed for xxxxxxxx
- V. The total price to be paid by City for Contractor's full and complete performance hereunder, including during any authorized renewal terms, may not exceed:
\$[Dollar Amount], plus any applicable taxes.
- VI. Contractor agrees to accept as full payment hereunder the amounts specified herein and in Contract Documents, and the City agrees to make payments at the times and in the manner and upon the terms and conditions specified. Except as may be otherwise provided herein or in Contract Documents Contractor shall provide and bear the expense of all equipment, work and labor of any sort whatsoever that may be required for the transfer of materials and for constructing and completing the work and providing the services and deliverables required by this Contract.
- VII. The City's preferred method of payment is by ePayables (Payment Plus), followed by credit card (aka procurement card), then Electronic Funds Transfer (EFT) by Automated Clearing House (ACH), then check or other cash equivalent. CONTRACTOR may be required to have the capability of accepting the City's ePayables or credit card methods of payment. The City of Tacoma will not accept price changes or pay additional fees when ePayables (Payment Plus) or credit card is used. The City, in its sole discretion, will determine the method of payment for this Contract.

VIII. Failure by City to identify a deficiency in the insurance documentation provided by Contractor or failure of City to demand verification of coverage or compliance by Contractor with the insurance requirements contained in the Contract Documents shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

IX. Contractor and for its heirs, executors, administrators, successors, and assigns, does hereby agree to the full performance of all the requirements contained herein and in Contract Documents.

It is further provided that no liability shall attach to City by reason of entering into this Contract, except as expressly provided herein.

IN WITNESS WHEREOF, the Parties hereto have accepted and executed this Contract, as of the Effective Date stated above, which shall be Effective Date for bonding purposes as applicable.

CITY OF TACOMA:

Signature:

Name:

Title:

CONTRACTOR:

Signature:

Name:

Title:

(City of Tacoma use only - blank lines are intentional)

Director of Finance: _____

Deputy/City Attorney (approved as to form): _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____

**APPENDIX A
FEDERAL FUNDING**

1. Termination for Breach

CITY may terminate this Contract in the event of any material breach of any of the terms and conditions of this Contract if CONTRACTOR's breach continues in effect after written notice of breach and 30 days to cure such breach and fails to cure such breach.

2. Prevailing Wages

1. If federal, state, local, or any applicable law requires CONTRACTOR to pay prevailing wages in connection with this Contract, and CONTRACTOR is so notified by the CITY, then CONTRACTOR shall pay applicable prevailing wages and otherwise comply with the Washington State Prevailing Wage Act (RCW 39.12) in the performance of this Contract.
2. If applicable, a Schedule of Prevailing Wage Rates and/or the current prevailing wage determination made by the Secretary of Labor for the locality or localities where the Contract will be performed is made of part of the Contract by this reference. If prevailing wages apply to the Contract, CONTRACTOR and its subcontractors shall:
 - i. Be bound by and perform all transactions regarding the Contract relating to prevailing wages and the usual fringe benefits in compliance with the provisions of Chapter 39.12 RCW, as amended, the Washington State Prevailing Wage Act and/or the Davis-Bacon Act (40 U.S.C. 3141- 3144, and 3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable, including the federal requirement to pay wages not less than once a week.
 - ii. Ensure that no worker, laborer or mechanic employed in the performance of any part of the Contract shall be paid less than the prevailing rate of wage specified on that Schedule and/or specified in a wage determination made by the Secretary of Labor (unless specifically preempted by federal law, the higher of the Washington state prevailing wage or federal Davis-Bacon rate of wage must be paid.
 - iii. Immediately upon award of the Contract, contact the Department of Labor and Industries, Prevailing Wages section, Olympia, Washington and/or the federal Department of Labor, to obtain full information, forms and procedures relating to these matters. Per such procedures, a Statement of Intent to Pay Prevailing Wages and/or other or additional documentation required by applicable federal law, must be submitted by CONTRACTOR and its subcontractors to the CITY, in the manner requested by the CITY, prior to any payment by the CITY hereunder, and an Affidavit of Wages Paid and/or other or additional documentation required by federal law must be received or verified by the CITY prior to final Contract payment.

3. COPELAND ANTI-KICKBACK ACT

For Contracts subject to Davis Bacon Act the following clauses will be incorporated into the Contract:

- A. CONTRACTOR shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this Contract.
- B. CONTRACTOR or subcontractor shall insert in any subcontracts the clause above and such other clauses federal agencies may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts.

The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these Contract clauses.

- C. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.

4. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, CONTRACTOR will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. If the CONTRACTOR does over \$10,000 in business a year that is funded, paid or reimbursed with federal funds, CONTRACTOR will take specific and affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

- A. Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- B. CONTRACTOR will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- C. CONTRACTOR will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.
- D. CONTRACTOR will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- E. CONTRACTOR will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- F. In the event of CONTRACTOR's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the CONTRACTOR may be declared ineligible for further federally funded contracts in accordance with procedures

authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

- G. CONTRACTOR will include the portion of the sentence immediately preceding paragraph (A) and the provisions of paragraphs (A) through (G) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. CONTRACTOR will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event CONTRACTOR becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

5. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

- A. Overtime requirements. Neither CONTRACTOR or subcontractor contracting for any part of the Contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
- B. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (3)(A) of this section the CONTRACTOR and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such CONTRACTOR and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (3)(A) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (3)(A) of this section.
- C. Withholding for unpaid wages and liquidated damages. The CITY shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the CONTRACTOR or subcontractor under any such contract or any other Federal

contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such CONTRACTOR or sub-contractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (3)(B) of this section.

- D. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (3)(A) through (D) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime CONTRACTOR shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (3)(A) through (D) of this section.

6. CLEAN AIR ACT

- A. CONTRACTOR agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
- B. CONTRACTOR agrees to report each violation to the CITY and understands and agrees that the CITY will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

CONTRACTOR agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with federal funds.

7. FEDERAL WATER POLLUTION CONTROL ACT

- A. CONTRACTOR agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.
- B. CONTRACTOR agrees to report each violation to the CITY and understands and agrees that the CITY will, in turn, report each violation as required to assure notification to the appropriate federal agency.
- C. CONTRACTOR agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with federal funding.

8. DEBARMENT AND SUSPENSION

- A. This Contract is a Covered Transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the CONTRACTOR is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).
- B. CONTRACTOR must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier Covered Transaction it enters into.

- C. This certification is a material representation of fact relied upon by the CITY. If it is later determined that the CONTRACTOR did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to CITY, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
- D. CONTRACTOR agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C throughout the period of this Contract and to include a provision requiring such compliance in its lower tier covered transactions.

9. BYRD ANTI-LOBBYING AMENDMENT

- A. Contractors who apply or bid for an award of \$100,000 or more shall file the required certification with CITY. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the CITY.
- B. If applicable, CONTRACTOR must sign and submit to the CITY the certification required by Appendix A to 44 CFR Part 18 contained at Appendix A-1 to this Contract.

10. PROCUREMENT OF RECOVERED MATERIALS

- A. In the performance of this Contract, CONTRACTOR shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired:
 - i. Competitively within a timeframe providing for compliance with the contract performance schedule;
 - ii. Meeting contract performance requirements; or
 - iii. At a reasonable price.
- B. Information about this requirement, along with the list of EPA- designated items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.
- C. CONTRACTOR also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

APPENDIX A-1

APPENDIX A to 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap.38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Name and Title of Contractor's Authorized Official

Date

APPENDIX B—Sub-recipient information and requirements

Pursuant to 2 CFR 200.332(a)(1) Federal Award Identification

(i) Agency Name (must match the name associated with its unique entity identifier)		(ii) Unique Entity Identifier <i>(i.e., DUNS)</i>	City of Tacoma Number for This Agreement
(iii) Federal Award Identification Number (FAIN)	(iv) Federal Award Date	(v) Federal Period of Performance Start and End Date	(vi) Federal Budget Period Start and End Date
(vii) Amount of Federal Funds <i>Obligated</i> to the agency <i>by this action</i>: \$	(viii) Total Amount of Federal Funds <i>Obligated</i> to the agency		(ix) Total Amount of the Federal Award <i>Committed</i> to the agency \$
(x) Federal Award Project Description: CORONAVIRUS STATE AND LOCAL FISCAL RECOVERY FUNDS– City of Tacoma			
(xi) Federal Awarding Agency: DEPARTMENT OF THE TREASURY	Pass-Through Entity: City of Tacoma	Awarding Official Name and Contact Information:	
(xii) Assistance Listing Number and Name (the pass-through entity must identify the dollar amount made available under each Federal award and the Assistance Listing number at time of disbursement)			(xiii) Identification of Whether the Award is R&D
(xiv) Indirect Cost Rate for the Federal Award	Award Payment Method (lump sum payment or reimbursement) REIMBURSEMENT		



CITY OF TACOMA INSURANCE REQUIREMENTS FOR CONTRACTS

This Insurance Requirements shall serve as an attachment and/or exhibit form to the Contract. The Agency entering a Contract with City of Tacoma, whether designated as a Supplier, Contractor, Vendor, Proposer, Bidder, Respondent, Seller, Merchant, Service Provider, or otherwise referred to as "Contractor".

1. GENERAL REQUIREMENTS

The following General Requirements apply to Contractor and to Subcontractor(s) performing services and/or activities pursuant to the terms of this Contract. Contractor acknowledges and agrees to the following insurance requirements:

- 1.1. Contractor shall not begin work under the Contract until the required insurance has been obtained and approved by the City of Tacoma.
- 1.2. Contractor shall keep in force during the entire term of the Contract, at no expense to the City of Tacoma, the insurance coverage and limits of liability listed below and for Thirty (30) calendar days after completion of all work required by the Contract, unless otherwise provided herein.
- 1.3. Liability insurance policies, except for Professional Liability and Workers' Compensation, shall:
 - 1.3.1. Name the City of Tacoma and its officers, elected officials, employees, and agents as **additional insured**
 - 1.3.2. Be considered primary and non-contributory for all claims with any insurance or self-insurance or limits of liability maintained by the City of Tacoma
 - 1.3.3. Contain a "Waiver of Subrogation" clause in favor of City of Tacoma
 - 1.3.4. Include a "Separation of Insureds" clause that applies coverage separately to each insured and additional insured
 - 1.3.5. Name the "City of Tacoma" on certificates of insurance and endorsements and not a specific person or department
 - 1.3.6. Be for both ongoing and completed operations using Insurance Services Office (ISO) form CG 20 10 04 13 and CG 20 37 04 13 or the equivalent
 - 1.3.7. Be satisfied by a single primary limit or by a combination of a primary policy and a separate excess umbrella
- 1.4. A notation of coverage enhancements on the Certificate of Insurance shall not satisfy these requirements below. Verification of coverage shall include:
 - 1.4.1. An ACORD certificate or equivalent
 - 1.4.2. Copies of requested endorsements
- 1.5. Contractor shall provide to City of Tacoma Procurement & Payable Division, prior to the execution of the Contract, Certificate(s) of Insurance and endorsements from the insurer certifying the coverage of all insurance required herein. Contract or Permit number and the City of Tacoma Department must be shown on the Certificate of Insurance.



CITY OF TACOMA INSURANCE REQUIREMENTS FOR CONTRACTS

- 1.6. A renewal Certificate of Insurance shall be provided electronically prior to coverage expiration via email sent annually to coi@cityoftacoma.org.
- 1.7. Contractor shall send a notice of cancellation or non-renewal of this required insurance within Thirty (30) calendar days to coi@cityoftacoma.org.
- 1.8. "Claims-Made" coverages, except for pollution coverage, shall be maintained for a minimum of three years following the expiration or earlier termination of the Contract. Pollution coverage shall be maintained for six years following the expiration of the Contract. The retroactive date shall be prior to or coincident with the effective date of the Contract.
- 1.9. Each insurance policy must be written by companies licensed or authorized (or issued as surplus line by Washington surplus line broker) in the State of Washington pursuant to RCW 48 with an (A-) VII or higher in the A.M. Best key rating guide.
- 1.10. Contractor shall not allow any insurance to be cancelled, voided, suspended, or reduced in coverage/limits, or lapse during any term of this Contract. Otherwise, it shall constitute a material breach of the Contract.
- 1.11. Contractor shall be responsible for the payment of all premiums, deductibles and self-insured retentions, and shall indemnify and hold the City of Tacoma harmless to the extent such a deductible or self-insured retained limit may apply to the City of Tacoma as an additional insured. Any deductible or self-insured retained limits in excess of Twenty Five Thousand Dollars (\$25,000) must be disclosed and approved by City of Tacoma Risk Manager and shown on the Certificate of Insurance.
- 1.12. City of Tacoma reserves the right to review insurance requirements during any term of the Contract and to require that Contractor make reasonable adjustments when the scope of services changes.
- 1.13. All costs for insurance are included in the initial Contract and no additional payment will be made by City of Tacoma to Contractor.
- 1.14. Insurance coverages specified in this Contract are not intended and will not be interpreted to limit the responsibility or liability of Contractor or Subcontractor(s).
- 1.15. Failure by City of Tacoma to identify a deficiency in the insurance documentation or to verify coverage or compliance by Contractor with these insurance requirements shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- 1.16. If Contractor is a government agency or self-insured for any of the above insurance requirements, Contractor shall be liable for any self-insured retention or deductible portion of any claim for which insurance is required. A certification of self-insurance shall be attached and incorporated by reference and shall constitute compliance with this Section.



CITY OF TACOMA

INSURANCE REQUIREMENTS FOR CONTRACTS

2. SUBCONTRACTORS

It is Contractor's responsibility to ensure that each subcontractor obtain and maintain adequate liability insurance coverage that applies to the service provided. Contractor shall provide evidence of such insurance upon City of Tacoma's request. Failure of any subcontractor to comply with insurance requirements does not limit Contractor's liability or responsibility.

3. REQUIRED INSURANCE AND LIMITS

The insurance policies shall provide the minimum coverages and limits set forth below. Providing coverage in these stated minimum limits shall not be construed to relieve Contractor from liability in excess of such limits.

3.1 Commercial General Liability Insurance

Contractor shall maintain Commercial General Liability Insurance policy with limits not less than One Million Dollars (\$1,000,000) each occurrence and Two Million Dollars (\$2,000,000) annual aggregate. This policy shall be written on ISO form CG 00 01 04 13 or its equivalent and shall include product liability especially when a Contract is solely for purchasing supplies. It includes Products and Completed Operations for three years following the completion of work related to performing construction services. It shall be endorsed to include: A per project aggregate policy limit (using ISO form CG 25 03 05 09 or equivalent endorsement)

3.2 Commercial (Business) Automobile Liability Insurance

Contractor shall maintain Commercial Automobile Liability policy with limits not less than One Million Dollars (\$1,000,000) each accident for bodily injury and property damage and bodily injury and property damage coverage for owned (if any), non-owned, hired, or leased vehicles. Commercial Automobile Liability Insurance shall be written using ISO form CA 00 01 or equivalent. Contractor must also maintain MCS 90 and CA 99 48 endorsements or equivalent if "Pollutants" are to be transported unless in-transit Pollution coverage is covered under required Contractor's Pollution Liability Insurance.

3.3 Workers' Compensation

Contractor shall comply with Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington, as well as any other similar coverage required for this work by applicable federal laws of other states. Contractor must comply with their domicile State Industrial Insurance laws if it is outside the State of Washington.

3.4 Employers' Liability Insurance

Contractor shall maintain Employers' Liability coverage with limits not less than One Million Dollars (\$1,000,000) each employee, One Million Dollars (\$1,000,000) each accident, and One Million Dollars (\$1,000,000) policy limit.

3.5 Professional Liability Insurance or Errors and Omissions

For contracts with professional licensing, design, or engineering services. Contractor and/or its subcontractor shall maintain Professional Liability or Errors and Omissions with limits of One Million Dollars (\$1,000,000) per claim and Two Million Dollars (\$2,000,000) in the aggregate covering acts, errors and omissions arising out of the professional services under this Contract. Contractor shall maintain this coverage for Two Million Dollars (\$2,000,000) if the policy limit includes the payment of claims or defense costs, from the policy limit. If the scope of such design-related professional services includes work related to pollution conditions, the



CITY OF TACOMA

INSURANCE REQUIREMENTS FOR CONTRACTS

Professional Liability policy shall include Pollution Liability coverage.

3.6 Excess or Umbrella Liability Insurance

Contractor shall provide Excess or Umbrella Liability Insurance with limits not less than Three Million Dollars (\$3,000,000) per occurrence and in the aggregate. This coverage shall apply, at a minimum, in excess of primary underlying Commercial General Liability, Employer's Liability, Pollution Liability, Marine General Liability, Protection and Indemnity, and Automobile Liability if required herein.

3.7 Installation Floater Insurance

Contractor shall maintain during the term of the Contract, at its own expense, Installation Floater Insurance covering Contractor's labor, materials, and equipment to be used for completion of the work performed under this Contract against all risks of direct physical loss, excluding earthquake and flood, for an amount equal to the full amount of the Contract improvements.

3.8 Builder's Risk Insurance

Contractor shall maintain during the term of the Contract and until final acceptance of the work by the City of Tacoma, a policy of Builder's Risk Insurance providing coverage for all-risk of physical injury to all structures to be constructed according to the Contract. City of Tacoma shall be included as a named insured (not named as additional insured) on the policy. Builder's Risk Insurance policy shall:

- 3.8.1 Have a deductible of no more than Five Thousand Dollars (\$5,000) for each occurrence, the payment of which will be the responsibility of Contractor. Any increased deductibles accepted by City of Tacoma will remain the responsibility of Contractor
- 3.8.2 Be on an ISO Special Form Causes of Loss or the equivalent and also include coverage for Collapse, Earthquake and Flood. The deductible for Earthquake and Flood may be higher than the \$5,000 deductible required in 3.18.1
- 3.8.3 Include coverage for temporary buildings, debris removal, and damage to materials in transit or stored off-site
- 3.8.4 Be written in the amount of the completed value of the structures, with no coinsurance provisions exposure on the part of Contractor or City of Tacoma
- 3.8.5 Contain a Waiver of Subrogation provision whereby each insured waives their subrogation rights to the extent the loss is covered by this insurance
- 3.8.6 Grant permission to occupy, allowing the building or structure to be partially occupied prior to completion, without detrimental effect to the coverage provided
- 3.8.7 Include coverage for the testing and startup of the building's operating systems
- 3.8.8 Include coverage for City of Tacoma's loss of use or business interruption arising out of a covered loss which delays completion
- 3.8.9 Include resultant damage coverage for loss due to faulty workmanship and defective material
- 3.8.10 Include coverage for startup and testing
- 3.8.11 Include coverage for resultant damage coverage for loss due to faulty workmanship and defective material



CITY OF TACOMA INSURANCE REQUIREMENTS FOR CONTRACTS

Contractor and City of Tacoma waive all rights against each other, their respective subcontractors, agents, and representatives for damages caused by fire or other perils to the extent covered by Builder's Risk Insurance or other property insurance applicable to the work. The policies shall provide such waivers by endorsement or otherwise.

3.9 Other Insurance

Other insurance may be deemed appropriate to cover risks and exposures related to the scope of work or changes to the scope of work required by City of Tacoma. The costs of such necessary and appropriate Insurance coverage shall be borne by Contractor.



PERFORMANCE BOND TO THE CITY OF TACOMA

Resolution No.
Bond No.

That we, the undersigned,

as principal, and

as a surety, are jointly and severally held and firmly bound to the CITY OF TACOMA, in the penal sum of

\$ _____, for the payment whereof Contractor and Surety bind themselves,

their executors, administrators, legal representatives, successors and assigns, jointly and severally, firmly by these presents.

This obligation is entered into in pursuance of the statutes of the State of Washington, the Ordinances of the City of Tacoma.

WHEREAS, under and pursuant to the City Charter and general ordinances of the City of Tacoma, the said City has or is about to enter with the above bounden principal, a contract, providing for

Specification No. _____

Specification Title: _____

Contract No. _____

(which contract is referenced to herein and is made a part hereof as though attached hereto), and

WHEREAS, the said principal has accepted, the said contract, and undertake to perform the work therein provided for in the manner and within the time set forth.

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

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

If the City shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgement, shall pay all costs and attorney's fees incurred by the City in enforcement of its rights hereunder. Venue for any action arising out of in connection with this bond shall be in Pierce County, Washington.

Surety companies executing bonds must be authorized to transact business in the State of Washington as surety and named in the current list of "Surety Companies Acceptable in Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Department of the Treasury.

One original bond shall be executed, and signed by the parties' duly authorized officers. This bond will only be accepted if it is accompanied by a fully executed power of attorney for the office executing on behalf of the surety.

Principal: Enter Vendor Legal Name

By: _____

Surety:

By: _____

Agent's Name: _____

Agent's Address: _____



PAYMENT BOND TO THE CITY OF TACOMA

Resolution No.
Bond No.

That we, the undersigned,

as principal, and _____
as a surety, are jointly and severally held and firmly bound to the CITY OF TACOMA, in the penal sum of,
\$ _____, for the payment whereof Contractor and Surety bind themselves,
their executors, administrators, legal representatives, successors and assigns, jointly and severally, firmly by these presents.

This obligation is entered into in pursuance of the statutes of the State of Washington, the Ordinances of the City of Tacoma.

WHEREAS, under and pursuant to the City Charter and general ordinances of the City of Tacoma, the said City has or is about to enter with the above bounden principal, a contract, providing for

Specification No. _____

Specification Title: _____

Contract No. _____

(which contract is referenced to herein and is made a part hereof as though attached hereto), and

WHEREAS, the said principal has accepted, the said contract, and undertake to perform the work therein provided for in the manner and within the time set forth.

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

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

No suit or action shall be commenced hereunder by any claimant unless claimant shall have given the written notices to the City, and where required, the Contractor, in accordance with RCW 39.08.030.

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.

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 City as a result of such suit. Venue for any action arising out of or in connection with this bond shall be in Pierce County, WA.

Surety companies executing bonds must be authorized to transact business in the State of Washington as surety and named in the current list of "Surety Companies Acceptable in Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Department of the Treasury.

Resolution No.
Bond No.
Specification No.
Contract No.

One original bond shall be executed, and be signed by the parties' duly authorized officers. This bond will only be accepted if it is accompanied by a fully executed power of attorney for the office executing on behalf of the surety.

Principal: Enter Vendor Legal Name

By: _____

Surety:

By: _____

Agent's Name: _____

Agent's Address: _____

SAMPLE



BOND IN LIEU OF RETAINAGE TO THE CITY OF TACOMA

Bond No. [REDACTED]

That we [SUPPLIER NAME], as PRINCIPAL, and [REDACTED], a corporation organized and existing under the laws of the State of [REDACTED] and registered to transact business as a surety in the State of Washington, as SURETY, are by these presents held and firmly bound unto the City of Tacoma, a political subdivision of the State of Washington ("OBLIGEE"), and are similarly held and bound unto the beneficiaries of the trust fund created by Chapter 60.28, RCW, in the sum of [REDACTED], (\$[REDACTED]) lawful money of the United States of America plus five percent (5%) of any increase in the contract amount that may occur due to change order or other increases in the quantities of materials and/or work, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns jointly and severally hereunder.

WHEREAS, the Principal and the Obligor have entered into and executed a certain contract for:
\$ [AMOUNT] plus applicable taxes Contract No. [CW #], Dated [Month Day, Year].

The Contract requires the City of Tacoma to withhold from the Principal, pursuant to Chapter 60.28, RCW the sum not to exceed five percent (5%) from monies earned by said Principal during the execution and performance of work thereunder, hereinafter referred to as earned retained funds; and

The Principal has requested that the City of Tacoma not withhold any such future earned retained funds and accept this Bond in lieu thereof as allowed under the provisions of Chapter 60.28, RCW.

The Condition of this Obligation is such that if the Principal shall use and apply the earned retained funds released pursuant hereto for the trust and purposes set forth in Chapter 60.28, RCW, and shall further indemnify and save the Obligor harmless from and against all losses, damages, claims, suits, demands, causes, charges and expenses to which the Obligor may be subject or in any way made liable by reason of or in consequence of having made contract payments to Principal without having first reserved, withheld, or retained earned funds therefrom, then the Obligations of Surety hereunder shall be released in accordance with Chapter 60.28, RCW; otherwise, this Bond shall remain in full force and effect.

PROVIDED, HOWEVER, it is expressly understood and agreed that:

1. Any suit or action under this Bond must be instituted within the time period provided by applicable law, but in no event more than two (2) years from the date final payment under the Contract falls due;
2. The Surety hereby consents to and waives notice of any extension in the time for performance of the Contract, assignment of obligations under the Contract, or Contract alteration, termination, amendment or change order;
3. Until written release of this obligation by the Obligor, this Bond may not be terminated or cancelled by the Principal or Surety for any reason; and
4. The laws of the State of Washington shall govern the determination of the rights and obligations of the parties hereunder and Venue for any dispute or claim hereunder shall be in Pierce County, Washington.
5. No final payment by City to Contractor under the Contract shall serve as a release of the obligations of the Surety hereunder or create any defense to contract performance by the Contractor and/or Surety.

Signed and Sealed this _____ day of _____, 20_____.

Principal: [SUPPLIER NAME]

By: _____

Surety: _____

By: _____

Agent's Name: _____

Agent's Address: _____



Escrow No. _____
City of Tacoma Select or enter department
Division - Section _____
Project _____
Specification No. _____
Contract No. _____

Escrow Agreement

TO: _____

The undersigned, herein referred to as the "Contractor," has directed the City of Tacoma, Select or enter department, hereinafter referred to as the "City," to deliver to _____ [Name of Bank/Financial Institution] ("You" or "Your") its warrants which shall be payable to You and the Contractor jointly. Such warrants are to be held and disposed of by You in accordance with the following instructions and upon the terms and conditions hereinafter set forth, as provided in Chapter 60.28, RCW, including but limited to RCW 60.28.011(4)(c).

INSTRUCTIONS

1. Warrants or checks made payable to You and the Contractor jointly upon delivery to You shall be endorsed by You and forwarded for collection. The monies will then be used by You to purchase, as directed by the Contractor, bonds or other securities chosen by the Contractor but limited to those securities listed in Exhibit A to this Agreement. Purchase of such bonds or other securities shall be in a form which shall allow You alone to readily reconvert such bonds or other securities into money if You are required to do so by the City as provided in paragraph 4 of this Escrow Agreement.
2. When and as interest on the securities held by You pursuant to this Agreement accrues and is paid, You shall collect such interest and forward it to the Contractor at its address designated below unless otherwise directed by the Contractor.
3. You are not authorized to deliver to the Contractor all or any part of the securities held by You pursuant to this Agreement (or any monies derived from the sale of such securities, or the negotiation of the City's warrants) except in accordance with written instructions from the City. Compliance with such instructions shall relieve You of any further liability related thereto.
4. In the event the City further instructs You to do so in writing, You shall, within seven (7) days of receipt of such written instruction, reconvert into money the securities held by You pursuant to this Agreement and return such money together with any other monies held by You hereunder, to the City.
5. The Contractor agrees to pay You as compensation for services hereunder as follows:

Fees: _____

Payment of all fees shall be the sole responsibility of the Contractor and shall not be deducted from any property placed with You pursuant to this Agreement until and unless the City directs the release to the Contractor of the securities and/or monies held hereunder whereupon You shall be granted a first lien upon such property released and shall be entitled to reimburse yourself from such property for the entire amount of Your fee as provided for hereinabove. In the event that You are made a party to any litigation



with respect to the property held by You hereunder, or in the event that the conditions of this Escrow are not promptly fulfilled, or that You are required to render any service not provided for in these instructions or that there is any assignment of the interests of this Escrow or any modification hereof, You shall be entitled to reasonable compensation for such extraordinary services from the Contractor and reimbursement from the Contractor for all costs and expenses, including attorney fees occasioned by such default, delay, controversy or litigation.

6. This Agreement shall not be binding until executed by the Contractor and the City and accepted by You.
7. This instrument contains the entire agreement between You, the Contractor, and the City with respect to this Escrow and You are not a party to nor bound by any instrument or agreement between the City and Contractor other than this instrument. You shall not be required to take notice of any default or any other matter, nor be bound by nor required to give any notice or demand, nor required to take any action whatever except as herein expressly provided. You shall not be liable for any loss or damage not caused by Your own negligence or willful misconduct.
8. The forgoing provisions shall be binding upon the assigns, successors, personal representatives, and heirs of the Parties hereto.

The undersigned have read and hereby approve the instructions as given above governing the administration of this Escrow and do hereby execute this Agreement on this _____ day of _____, 20_____.

Name of Contractor

By _____

Printed Name _____

Printed Title _____

The above Escrow instructions received and ACCEPTED this _____ day of _____, 20_____.
(**Must be dated** by Escrow Company.)

Print Name of Bank

Bank Tax ID Number

Bank Address

Bank Phone Number

_____ and _____
Bank Account No. ABA No.

By _____ Title _____
(Authorized Signature)

Print Name _____



Exhibit A
Approved Escrow Securities

1. ***U.S. Treasury Obligations.*** Obligations in the form of bills, notes, bonds or certificates of indebtedness backed by the full faith and credit of the United States of America. The maximum maturity for investments in U.S. Treasury Obligations shall be limited to five years.
2. ***U.S. Agency Obligations.*** Obligations issued by or fully guaranteed as to principal and interest by Federal Agencies or United States government-sponsored enterprises (“Agencies”). Subordinate debt of any U.S. Agency is not authorized. The maximum maturity for investments in Agencies shall be limited to five years.
3. ***Municipal Bonds.*** Bonds of the State of Washington or any local government in the state of Washington, including bonds of the City of Tacoma, rated in one of the three highest ratings categories by Standard & Poor’s Corporation, Moody’s Ratings Corporation or Fitch Ratings Service. The maximum maturity for investments in municipal bonds shall be limited to five years.
4. ***Certificates of Deposit (CDs).*** Certificates of Deposit (CDs) issued by financial institutions qualified by the Washington Public Deposit Protection Commission. The maximum maturity for investments in CDs shall be limited to one year.

CITY OF TACOMA
CONTRACTOR'S WORK HAZARD ANALYSIS REPORT
for

(Project Name)

The contractor and his/her subcontractors shall thoroughly review the scope of work described in the proposed project drawings and specifications. Following the review, the contractor will be responsible to indicate below any known or potential safety issues or phases of construction that may require specific safety procedures as identified by WISHA or OSHA regulations, and/or prudent construction practices; i.e., shoring, fall protection, scaffolding, hazardous materials, etc.

Failure to list and comply with safety requirements will be cause for disqualification from future City of Tacoma contracts. A copy of this report shall be posted at the job site at all times.

If, during the course of construction, other safety requirements are identified, they will be added to this report as an addendum. The contractor will be required to adhere to the recommended actions and/or controls identified in the addendum.

SAFETY ISSUES/CONCERNS*	HAZARDS	RECOMMENDED ACTION AND/OR CONTROLS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

*USE A SEPARATE SHEET IF MORE ROOM IS NEEDED

Contractor Name and Title

Date

Job Site Superintendent

Date

Company Officer Signature



City of Tacoma

City of Tacoma Contract No.: _____ Specification No.: _____

General Release to the City of Tacoma

The undersigned, named as the Contractor in a certain agreement between contractor name and the City of Tacoma, dated _____, 20____, hereby releases the City of Tacoma, its departmental officers, employees, and agents, from any and all claim or claims known or unknown, in any manner whatsoever, arising out of, or in connection with, or relating to said contract, excepting only the equity of the undersigned in the amount now retained by the City of Tacoma under said contract, to-wit: the sum of \$_____.

Signed on this _____ day of _____, 20____.

Contractor Name

Contractor Authorized Signature

Title

Type or Print Signature Name

WASHINGTON STATE PREVAILING WAGE RATES

1. PREVAILING WAGE RATES

PREVAILING WAGE RATES

This project requires prevailing wages under [39.12 RCW](#). Any worker, laborer, or mechanic employed in the performance of any part of the work shall be paid not less than the applicable prevailing rate of wage.

The project site is located in Pierce County.

The effective date for prevailing wages on this project will be the **submittal deadline** with these exceptions:

- a. If the project is not awarded within six months of the submittal deadline, the award date is the effective date.
- b. If the project is not awarded pursuant to a competitive solicitation, the date the contract is executed is the effective date.
- c. Janitorial contracts follow WAC 296-127-023.

Except for janitorial contracts, these rates shall apply for the duration of the contract unless otherwise noted in the solicitation.

Look up prevailing rates of pay, benefits, and overtime codes from this link:

<https://secure.lni.wa.gov/wagelookup/>

REQUIRED FILINGS

The contractor and all subcontractors covered under [39.12 RCW](#) shall submit to the Department of Labor and Industries (L&I) for work provided under this contract:

1. A Statement of Intent to Pay Prevailing Wages must be filed with and approved by L&I upon award of contract.
2. An Affidavit of Wages Paid must be filed with and approved by L&I upon job completion.

Payments cannot be released by the City until verification of these filings are received by the engineer. Additional information regarding these filings can be obtained by calling the Department of Labor & Industries, Prevailing Wage at 360-902-5335, <https://www.lni.wa.gov/> or by visiting their MY L&I account.

CITY PROGRAMS

1. EQUITY IN CONTRACTING (EIC) PROGRAM
2. LOCAL EMPLOYMENT APPRENTICE PROGRAM (LEAP)

EQUITY IN CONTRACTING (EIC) PROGRAM

EIC REQUIREMENT FORM

EQUITY IN CONTRACTING REQUIREMENTS & PROCEDURES:

All bidders must complete and submit with their bid the following solicitation form contained in the bid submittal package:

City of Tacoma – EIC Utilization Form

IMPORTANT NOTE:

It is the bidder's responsibility to ensure that the subcontractor(s) listed on the EIC Utilization Form are currently certified by the State of Washington's Office of Minority and Women Business Enterprises (OMWBE) at the time of bid opening. This may be verified by contacting the EIC Office at 253-591-5075 between 8 AM and 5 PM, Monday through Friday or the [OMWBE](http://www.omwbe.com) Office at (866) 208-1064. Please refer to the City of Tacoma EIC code.

EQUITY IN CONTRACTING REQUIREMENTS

Minority Business
Enterprise Requirement

8%

Women Business
Enterprise Requirement

8%

Small Business Enterprise
Requirement

16%

A list of EIC-eligible companies is available on the following web site addresses:

www.omwbe.diversitycompliance.com*

MATERIAL MISSTATEMENTS CONCERNING COMPLETED ACTIONS BY THE BIDDER IN ANY SWORN STATEMENT OR FAILURE TO MEET COMMITMENTS AS INDICATED ON THE EIC UTILIZATION FORM MAY RENDER THE BIDDER IN DEFAULT OF CITY ORDINANCE 1.07

CCD/SBE: 60000052679

Date of Record: 09/05/2023

Project Spec#:PW23-0152F

Project Title: Asphalt Plant Chip Seal Oil Tank

*For the OMWBE list, be sure to look for businesses in Pierce, King, Lewis, Mason, Grays Harbor, Thurston, or any counties adjacent to the county in which the work is performed per 1.07.050(2)(b-c). Contact the EIC Office if you have any questions.



City of Tacoma
Community & Economic Development
747 Market Street, Rm 900
Tacoma WA 98402

CITY OF TACOMA EQUITY IN CONTRACTING (EIC) PROGRAM

Bidders Special Instructions

As part of the City of Tacoma's ongoing work to address past disparities and to increase the City's contracting with and utilization of historically underutilized businesses, the Equity in Contracting (EIC) Program places requirements on City contracts for utilization of businesses certified by the Washington State Office of Minority and Women's Business Enterprise (OMWBE) and approved by the Equity in Contracting Program ("Certified Businesses"). The EIC Program also provides guidance and technical assistance to Certified Businesses who are interested in providing supplies, services and public works to the City of Tacoma.

The EIC Program requirements are contained in [Tacoma Municipal Code Chapter 1.07](#).

Contractors bidding on City of Tacoma projects are required to meet the stated EIC requirements. Bids will be evaluated on an individual basis to determine EIC compliance. **A contractor who fails to meet the stated EIC requirements will be considered non-responsible.** Bidders are also subject to the City's Equal Employment Opportunity policies prohibiting discrimination.

The stated EIC requirements may be met by the contractor or by identified subcontractors. All EIC Requirements may be met by using MBEs, WBEs, DBEs or SBEs from the OMWBE certified list ([OMWBE website](#)). It is the bidder's responsibility to ensure that their firm or identified subcontractors are certified by OMWBE and approved by the City of Tacoma EIC Program **at the time of bid submittal**. Business certification may be verified by contacting the EIC Office*.

For the OMWBE list, be sure to look for businesses in Pierce, King, Lewis, Mason, Grays Harbor, Thurston, or any counties adjacent to the county in which the work is performed per 1.07.050(2)(b-c). Contact the EIC Office if you have any questions.*

The Equity in Contracting (EIC) forms included in these bid documents must be fully completed (including attachments) and included with bid submittals. Failure to include the required forms will result in the submittal being rejected as nonresponsive.

Post-Award Important Information

For all contracts that have requirements related to the EIC policy, the City of Tacoma is utilizing a cloud-based software system:

B2Gnow - Contractors and subcontractors must report payment information in the B2Gnow System on a monthly basis. The EIC Staff will monitor/audit that retainage is paid by the prime contractor to the subcontractor(s) within 10 [working] days after the subcontractors' work is satisfactorily completed. This will be monitored/audited using the B2Gnow System.

The system is monitored/audited by EIC staff to ensure contract compliance, proactively identify potential issues, and track contract progress.

***EIC STAFF Contact Information**

For questions regarding Certifications, EIC Compliance and B2GNow support, contact EIC Staff:

- **Call EIC Office** at (253) 591-5630 or (253) 591-5826
- **Email EIC Office** at EICOffice@cityoftacoma.org



City of Tacoma
Community & Economic Development
Office of Equity in Contracting
747 Market Street, Rm 900
Tacoma WA 98402
253-591-5826
Email: EICOffice@cityoftacoma.org

EQUITY IN CONTRACTING UTILIZATION FORM

This form is to document **only** the contractors, subcontractors, material suppliers or other types of firms that are intended to be used to meet the stated EIC requirements for the contract awarded from this solicitation. This information will be used to determine contract award. Additional forms may be used if needed.

- You must include this form with your bid submittal in order for your bid to be responsive.
- Prime contractors are **required** to solicit bids from Businesses that are "Certified" by the Office of Minority and Women's Business Enterprises (OMWBE) www.omwbe.wa.gov as a MBE, WBE, and SBE to be known as "Certified Business".
- It is the Prime contractor's responsibility to verify the certification status of the business(s) intended to be utilized prior to the submittal deadline.

Bidder's Name: _____

Address: _____ City/State/Zip: _____

Spec. No. _____ Base Bid * \$ _____ Complete business names and phone numbers are required to verify your usage of Certified Businesses

a. Business Name and Certification Number(s)	b. MBE, WBE, or SBE (Write all that apply)	c. NAICS code(s)	d. Contractor Bid Amount (100%)	e. Material Supplier Bid Amount (20%)	f. Estimated MBE Usage Dollar Amount	g. Estimated WBE Usage Dollar Amount	h. Estimated SBE Usage Dollar Amount
i. MBE Utilization %	j. WBE Utilization %	k. SBE Utilization %					

By signing and submitting this form the bidder certifies that the OMWBE Certified Business(s) listed will be used on this project including all applicable change orders.

Type or Print Name of Responsible Officer / Title

Signature of Responsible Officer

Date

INSTRUCTIONS FOR COMPLETING EIC UTILIZATION FORM

The purpose of these instructions is to assist bidders in properly completing the EIC Utilization Form.

This form when submitted with your bid, provides information to the City of Tacoma to accurately review and evaluate your proposed EIC usage.

1. * Base Bid is the prime contractor's bid, plus any alternates, additives and deductibles selected by the City of Tacoma. Also, please refer to Items #10-12 below.
2. Column "a" – List all **Certified Business(s)** that you will be awarding a contract to if you are the successful bidder.
3. Column "b" – Identify if the **Certified Business(s)** is being utilized as an MBE, WBE, or SBE. (Businesses may count towards multiple requirements).
4. Column "c" – List the appropriate NAICS code(s) for the scope of work, services, or materials/supplies for each **Certified Business**.
5. Column "d" – The bid amount must be indicated for **all** listed **Certified Businesses** that you plan on doing business with. This quote is the price that you and the **Certified Businesses** have negotiated prior to bid opening.
6. Column "e" – The bid amount must be indicated for **all** listed **Certified Businesses** that you plan on doing business with. This quote is the price that you and the material supplier have negotiated prior to bid opening.
7. Column "f" – Estimated MBE Usage Dollar Amount: For all MBE firms used, multiply the amount in Column "d" by 1.0 plus the amount in Column "e" by 0.20. Insert the total amount in this column.
8. Column "g" – Estimated WBE Usage Dollar Amount: For all WBE firms used, multiply the amount in Column "d" by 1.0 plus the amount in Column "e" by 0.20. Insert the total amount in this column.
9. Column "h" – Estimated SBE Usage Dollar Amount: For all MBE, WBE, or SBE firms used, Multiply the amount in Column "d" by 1.0 plus the amount in Column "e" by 0.20. Insert the total amount in this column.
10. Block "i" – The percentage of actual MBE utilization calculated on the Base Bid only. (Divide the sum of Estimated MBE Usage Dollar Amount (Column "f") by your Base Bid (*) then multiply by 100 to get a percentage: \$ amounts from column "f" divided by Base Bid (*) x 100 = MBE usage as a percentage of the Base Bid.)
11. Block "j" – The percentage of actual WBE utilization calculated on the Base Bid only. (Divide the sum of Estimated WBE Usage Dollar Amount (Column "g") by your Base Bid (*) then multiply by 100 to get a percentage: \$ amounts from column "g" divided by Base Bid (*) x 100 = WBE usage as a percentage of the Base Bid.)

12. Block “k” – The percentage of actual SBE utilization calculated on the Base Bid only. (Divide the sum of Estimated SBE Usage Dollar Amount (Column “h”) by your Base Bid (*) then multiply by 100 to get a percentage: \$ amounts from column “h” divided by Base Bid (*) x 100 = SBE usage as a percentage of the Base Bid.)

It is the prime contractor’s responsibility to check the status of **Certified Businesses** prior to bid opening. Call the EIC Office at 253-591-5826 or email at EICOffice@cityoftacoma.org for additional information.

CHAPTER 1.07

EQUITY IN CONTRACTING

Sections:

- 1.07.010 Policy and purpose.
- 1.07.020 Definitions.
- 1.07.030 Discrimination prohibited.
- 1.07.040 Program administration.
- 1.07.050 Approval as a Certified Business.
- 1.07.060 Program requirements.
- 1.07.070 Evaluation of submittals.
- 1.07.080 Contract compliance.
- 1.07.090 Program monitoring.
- 1.07.100 Enforcement.
- 1.07.110 Remedies.
- 1.07.120 Unlawful acts.
- 1.07.130 Severability.
- 1.07.140 Review of program.

1.07.010 Policy and purpose.

It is the policy of the City of Tacoma that citizens be afforded an opportunity for full participation in our free enterprise system and that historically underutilized business enterprises shall have an equitable opportunity to participate in the performance of City contracts. The City finds that in its contracting for supplies, services and public works, there has been historical underutilization of small and minority-owned businesses located in certain geographically and economically disfavored locations and that this underutilization has had a deleterious impact on the economic well-being of the City. The purpose of this chapter is to remedy the effects of such underutilization through use of narrowly tailored contracting requirements to increase opportunities for historically underutilized businesses to participate in City contracts. It is the goal of this chapter to facilitate a substantial procurement, education, and mentorship program designed to promote equitable participation by historically underutilized businesses in the provision of supplies, services, and public works to the City. It is not the purpose of this chapter to provide any person or entity with any right, privilege, or claim, not shared by the public, generally, and this chapter shall not be construed to do so. This chapter is adopted in accordance with Chapter 35.22 RCW and RCW 49.60.400.

(Ord. 28625 Ex. A; passed Nov. 5, 2019; Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.020 Definitions.

Terms used in this chapter shall have the following meanings unless defined elsewhere in the Tacoma Municipal Code (“TMC”), or unless the context in which they are used clearly indicates a different meaning.

1.07.020.B

A. “Bid” means an offer submitted by a Respondent to furnish Supplies, Services, and/or Public Works in conformity with the Specifications and any other written terms and conditions included in a City request for such offer.

B. “Bidder” means an entity or individual who submits a Bid, Proposal or Quote. See also “Respondent.”

1.07.020.C

“Certified Business” means an entity that has been certified as a Disadvantaged Business Enterprise (“DBE”), Small Business Enterprise (“SBE”), Minority Business Enterprise (“MBE”), Women Business Enterprise (“WBE”), or Minority and Women’s Business Enterprise (“MWBE”) by the Washington State Office of Minority and Women’s Business Enterprise and meets the criteria set forth in Section 1.07.050 (2) of this chapter and has been approved as meeting that criteria by the Community and Economic Development Department Program Manager.

“City” means all Departments, Divisions and agencies of the City of Tacoma.

“Contract” means any type of legally binding agreement regardless of form or title that governs the terms and conditions for procurement of Public Works and Improvements and/or Non-Public Works and Improvements Supplies and Services. Contracts include the terms and conditions found in Specifications, Bidder or Respondent Submittals, and purchase orders issued by the City. A “Contract” as used in this chapter shall include an agreement between the City and a non-profit entity to perform construction-related services for Public Works. A “Contract” does not include: (1) awards made by the City with

federal/state grant or City general funds monies to a non-profit entity where the City offers assistance, guidance, or supervision on a project or program, and the recipient of the grant awards uses the grant moneys to provide services to the community; (2) sales transactions where the City sells its personal or real property; (3) a loan transaction where the City is acting as a debtor or a creditor; (4) lease, franchise; (5) agreements to use City real property (such as Licenses, Permits and Easements) and, (6) banking and other financial or investment services.

“Contractor” means any Person that presents a Submittal to the City, enters into a Contract with the City, and/or performs all or any part of a Contract awarded by the City, for the provision of Public Works, or Non-Public Works and Improvements, Supplies or Services.

1.07.020.G

“Goals” means the annual level of participation by Certified Businesses in City Contracts as established in this chapter, the Program Regulations, or as necessary to comply with applicable federal and state nondiscrimination laws and regulations. Goals for individual Contracts may be adjusted as provided for in this chapter and shall not be construed as a minimum for any particular Contract or for any particular geographical area.

1.07.020.N

“Non-Public Works and Improvements” means all competitively solicited procurement of Supplies and/or Services by the City not solicited as Public Works.

1.07.020.P

“Person” means individuals, companies, corporations, partnerships, associations, cooperatives, any other legally recognized business entity, legal representative, trustee, or receivers.

“Program Manager” means the individual appointed, from time to time, by the City’s Community and Economic Development Director to administer the Program Regulations.

“Program Regulations” means the written regulations and procedures adopted pursuant to this chapter for procurement of Supplies, Services and Public Works.

“Proposal” means a written offer to furnish Supplies or Services in response to a Request for Proposals. This term may be further defined in the Purchasing Policy Manual and/or in competitive solicitations issued by the City.

“Public Works (or “Public Works and Improvements)” means all work, construction, alteration, repair, or improvement other than ordinary maintenance, executed at the cost of the City, or that is by law a lien or charge on any property therein. This term includes all Supplies, materials, tools, and equipment to be furnished in accordance with the Contract for such work, construction, alteration, repair, or improvement.

1.07.020.Q

“Quote” means a competitively solicited written offer to furnish Supplies or Services by a method of procurement that is less formalized than a Bid or a Proposal. This term may be further defined in the Purchasing Policy Manual.

1.07.020.R

“Respondent” means any entity or Person, other than a City employee, that provides a Submittal in response to a request for Bids, Request for Proposals, Request for Qualifications, request for quotes or other request for information, as such terms are defined in Section 1.06.251 TMC. This term includes any such entity or Person whether designated as a supplier, seller, vendor, proposer, Bidder, Contractor, consultant, merchant, or service provider that; (1) assumes a contractual responsibility to the City for provision of Supplies, Services, and/or Public Works; (2) is recognized by its industry as a provider of such Supplies, Services, and/or Public works; (3) has facilities similar to those commonly used by Persons engaged in the same or similar business; and/or (4) distributes, delivers, sells, or services a product or performs a Commercially Useful Function.

1.07.020.S

“Services” means non-Public Works and Improvements services and includes professional services, personal services, and purchased services, as such terms are defined in Section 1.06.251 TMC and/or the City’s Purchasing Policy Manual.

“Submittal” means Bids, Proposals, Quotes, qualifications or other information submitted in response to requests for Bids, Requests for Proposals, Requests for Qualifications, requests for Quotations, or other City requests for information, as such terms are defined in Section 1.06.251 TMC.

“Supplies” means materials, Supplies, and other products that are procured by the City through a competitive process for either Public Works procurement or Non-Public Works and Improvements procurement unless an approved waiver has been granted by the appropriate authority.

1.07.020.T

“Tacoma Public Utilities Service Area” means any ZIP code in which Tacoma Public Utilities maintains infrastructure or provides retail services.

1.07.020.W

“Waiver” means a discretionary decision by the City that the one or more requirements of this chapter will not be applied to a Contract or Contracts.

(Ord. 28766 Ex. A; passed June. 8, 2021: Ord. 28625 Ex. A; passed Nov. 5, 2019: Ord. 28274 Ex. A; passed Dec. 16, 2014: Ord. 28141 Ex. A; passed Mar. 26, 2013: Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.030 Discrimination prohibited.

A. No person that is engaged in the construction of public works for the City, engaged in the furnishing of laborers or craftspeople for public works of the City, or is engaged for compensation in the provision of non-public works and improvements supplies and/or services to the City, shall discriminate against any other person on the basis of race, religion, color, national origin or ancestry, sex, gender identity, sexual orientation, age, marital status, familial status, or the presence of any sensory, mental or physical disability, or “pregnancy outcomes” under TMC 1.29.040, in employment. Such discrimination includes the unfair treatment or denial of normal privileges to a person as manifested in employment upgrades, demotions, transfers, layoffs, termination, rates of pay, recruitment of employees, or advertisement for employment.

B. The violation of the terms of RCW 49.60 or Chapter 1.29 TMC by any person that is engaged in the construction of public works for the City, is engaged in the furnishing of laborers or craftspeople for public works of the City, or is engaged for compensation in the provision of non-public works and improvements supplies and/or services shall result in the rebuttable presumption that the terms of this chapter have also been violated. Such violation may result in termination of any City contract the violator may have with the City and/or the violator’s ineligibility for further City Contracts.

(Ord. 28859 Ex. A; passed Nov. 22, 2022: Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.040 Program administration.

A. The Community and Economic Development Director, or their designated Program Manager, shall be responsible for administering this chapter and obtaining compliance with respect to contracts entered into by the City and/or its contractors. It shall be the duty of the Director to pursue the objectives of this chapter by conference, conciliation, persuasion, investigation, or enforcement action, as may be necessary under the circumstances. The Director is authorized to implement an administrative and compliance program to meet these responsibilities and objectives.

B. The Director is hereby authorized to adopt and to amend administrative regulations known as the Program Regulations, to properly implement and administer the provisions of this chapter. The Program Regulations shall be in conformance with City of Tacoma policies and state and federal laws and be designed to encourage achievement of the Goals set forth herein.

(Ord. 28766 Ex. A; passed June. 8, 2021: Ord. 28141 Ex. A; passed Mar. 26, 2013: Ord. 28110 Ex. B; passed Dec. 4, 2012: Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.050 Approval as a Certified Business.

A. The Program Manager shall approve an entity as a Certified Business if all of the following criteria are satisfied:

1. The entity is certified as a DBE, SBE, MBE, WBE, or MWBE through the state of Washington’s Office of Minority & Women Business Enterprises; and
2. The entity can demonstrate that it also meets at least one of the following additional requirements:
 - a. The personal residence of the owner is located within the City of Tacoma or Tacoma Public Utilities Service Area, or
 - b. The entity’s business offices are located in any county of the Tacoma Public Utilities Service Area or any county adjacent to Pierce County, or
 - c. When the work is performed outside of Pierce County, the entity’s business offices may be located in an adjacent county in which the work is performed, or
 - d. Such additional information as the Program Manager or designee may require.
3. When another governmental entity has an equivalent business classification process, the City may enter into an interlocal cooperative agreement for mutual recognition of certifications.

B. Appeals.

The applicant may appeal any approval determination by the Program Manager under this chapter to the Director. The appeal must be made in writing and must set forth the specific reasons for the appeal. The Director shall make a decision on the appeal request within a reasonable time, which decision shall be final unless further appeal is made to the Hearing Examiner. In that event, the Hearing Examiner Rules of Procedure for Hearings, Chapter 1.23 TMC, shall be applicable to that appeal proceeding.

(Ord. 28766 Ex. A; passed June. 8, 2021: Ord. 28625 Ex. A; passed Nov. 5, 2019: Ord. 28274 Ex. A; passed Dec. 16, 2014: Ord. 28147 Ex. A; passed May 7, 2013: Ord. 28141 Ex. A; passed Mar. 26, 2013: Ord. 28110 Ex. B; passed Dec. 4, 2012: Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.060 Program requirements.

A. The program shall meet the following requirements:

1. Establishment of Annual Goals.

The Program Regulations adopted pursuant to this chapter shall state reasonably achievable cumulative annual goals for utilization of Certified Businesses in the provision of supplies, services, and public works procured by the City. Cumulative annual goals for the participation of Certified Businesses in City contracts shall be based on the number of qualified Certified Businesses operating within the Tacoma Public Utilities Service Area. The dollar value of all contracts awarded by the City to Certified Businesses in the procurement of supplies, services, and public works shall be counted toward the accomplishment of the applicable goal.

2. Application of Annual Goals to Contracts.

The Program Manager shall consult with City departments/divisions to establish department/division specific goals for competitively solicited contracts in accordance with this chapter and the Program Regulations.

B. Exceptions:

City departments/divisions or the Program Manager may request an exception to one or more of the requirements of this chapter as they apply to a particular Contract or Contracts. Exceptions may be granted in any one or more of the following circumstances:

1. Emergency:

The supplies, services and/or public works must be provided with such immediacy that neither the City nor the contractor can comply with the requirements herein. Such emergency will be deemed documented whenever a waiver of competitive solicitation for emergency situations is authorized under Tacoma Municipal Code Chapter 1.06.257 or as may be hereinafter amended.

2. Not Practicable:

The Contract involves special facilities or market conditions or specially tailored or performance criteria-based products, such that compliance with the requirements of this chapter would cause financial loss to the City or an interruption of vital services to the public. Such circumstances must be documented by the department/division awarding the Contract and approved by the senior financial manager or, for Contracts where the estimated cost is over \$500,000 (excluding sales tax), approved by the Board of Contracts and Awards ("C&A Board").

3. Sole source:

The supplies, services, and/or public works are available from only one feasible source, and subcontracting possibilities do not reasonably exist as documented by the department/division awarding the Contract and approved by the senior financial manager or, for Contracts where the estimated cost is over \$500,000 (excluding sales tax), approved by the C&A Board.

4. Government purchasing.

The Contract or Contracts are the result of a federal, state or inter-local government purchasing agreement and the use of such agreement in lieu of a bid solicitation conducted by the City is approved by the senior financial manager.

5. Lack of certified contractors:

An insufficient number of qualified contractors exist to create any utilization opportunities as documented by the Program Manager.

C. Waiver:

If, after receipt of Submittals but prior to Contract award, it is determined that due to unforeseen circumstances, waiver of goals is in the best interests of the City, the Director or Superintendent of the department/division awarding the Contract may request in writing that the City Manager or designee, on behalf of General Government, or the Director of Utilities or designee, on behalf of the Department of Public Utilities, approve such waiver..

Waivers may be granted only after determination by the City Manager or Director of Utilities that compliance with the requirements of this chapter would impose unwarranted economic burden on, or risk to, the City of Tacoma as compared with the degree to which the purposes and policies of this chapter would be furthered by requiring compliance.

(Ord. 28766 Ex. A; passed June. 8, 2021: Ord. 28625 Ex. A; passed Nov. 5, 2019: Ord. 28141 Ex. A; passed Mar. 26, 2013: Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.070 Evaluation of submittals.

A. All submittals for a supplies, services, or public works and improvements contracts shall be evaluated for attainment of the Certified Business requirements established for that contract in accordance with this chapter and the Program Regulations.

B. The determination of Certified Business usage and the calculation of Certified Business requirements per this section shall include the following considerations:

1. General.

The dollar value of the contract awarded by the City to a Certified Business in the procurement of supplies, services, or public works shall be counted toward achievement of the respective goal.

2. Supplies.

A public works and improvements contractor may receive credit toward attainment of the Certified Business requirement(s) for expenditures for supplies obtained from a Certified Business; provided such Certified Business assumes the actual and contractual responsibility for delivering the supplies with its resources. The contractor may also receive credit toward attainment of the Certified Business goal for the amount of the commission paid to a Certified Business resulting from a supplies contract with the City; provided the Certified Business performs a commercially useful function in the process.

3. Services and Public Works subcontracts.

Any bid by a Certified Business or a bidder that utilizes a Certified Business shall receive credit toward requirement attainment based on the percentage of Certified Business usage demonstrated in the bid. A contractor that utilizes a Certified Business as a subcontractor to provide services or public works shall receive a credit toward the contractor's attainment of the respective requirement based on the value of the subcontract with that firm.

4. Brokers, Fronts, or Similar Pass-Through Arrangements.

Certified Business acting as brokers, fronts, or similar pass-through arrangements (as such terms are defined in the Program Regulations) shall not count toward the requirement attainment unless the activity reflects normal industry practices and the broker performs a commercially useful function.

C. Evaluation of competitively solicited submittals for public works and improvements and for services when a requirement has been established for the contract to be awarded shall be as follows:

1. When contract award is based on price.

The lowest priced bid submitted by a responsive and responsible bidder will be reviewed to determine if it meets the requirement. Certified Businesses may self-count utilization on such bids if they will perform the work for the scope the requirement is based upon.

a. If the low bidder meets the requirements, the bid shall be presumed the lowest and best responsible bid for contract award.

b. Any bidder that does not meet the stated Certified Business requirements shall be considered a non-responsible bidder unless a waiver of one or more of the requirements of this chapter is granted, in the City's sole discretion, pursuant to the criteria and processes in Tacoma Municipal Code 1.07.060.C.

2. When contract award is based on qualifications or other performance criteria in addition to price, solicitations shall utilize a scoring system that promotes participation by certified contractors. The Program Regulations may establish further requirements and procedures for final selection and contract award, including:

a. Evaluation of solicitations for Architectural and Engineering (A&E) services;

b. Evaluation and selection of submittals in response to requests for proposals; and

c. Selection of contractors from pre-qualified roster(s).

(Ord. 28766 Ex. A; passed Jun. 8, 2021: Ord. 28625 Ex. A; passed Nov. 5, 2019: Ord. 28141 Ex. A; passed Mar. 26, 2013: Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.080 Contract compliance.

A. The contractor awarded a contract based on Certified Business participation shall, during the term of the contract, comply with the requirements established in said contract. To ensure compliance with this requirement following contract award, the following provisions apply:

1. Any substitutions for or failure to utilize Certified Business projected to be used must be approved in advance by the Program Manager. Substitution of one Certified Business with another shall be allowed where there has been a refusal to execute necessary agreements by the original Certified Business, a default on agreements previously made or other reasonable excuse; provided that the substitution does not increase the dollar amount of the bid.
2. Where it is shown that no other Certified Business is available as a substitute and that failure to secure participation by the Certified Business identified in the solicitation is not the fault of the respondent, substitution with a non-Certified Business shall be allowed; provided, that, the substitution does not increase the dollar amount of the bid.
3. If the Program Manager determines that the contractor has not reasonably and actively pursued the use of replacement Certified Business, such contractor shall be deemed to be in non-compliance.

B. Record Keeping.

All contracts shall require contractors to maintain relevant records and information necessary to document compliance with this chapter and the contractor's utilization of Certified Businesses, and shall include the right of the City to inspect such records.

(Ord. 28766 Ex. A; passed Jun. 8, 2021: Ord. 28625 Ex. A; passed Nov. 5, 2019: Ord. 28141 Ex. A; passed Mar. 26, 2013: Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.090 Program monitoring.

A. An Advisory Committee shall monitor compliance with all provisions of this chapter and the related Regulations. The Program Manager shall establish procedures to collect data and monitor the effect of the provisions of this chapter to assure, insofar as is practical, that the remedies set forth herein do not disproportionately favor one or more racial, gender, ethnic, or other protected groups, and that the remedies do not remain in effect beyond the point that they are required to eliminate the effects of under utilization in City contracting, unless such provisions are supported by a Disparity Study. The Program Manager shall have the authority to obtain from City departments/divisions, respondents, and contractors such relevant records, documents, and other information as is reasonably necessary to determine compliance.

B. The Program Manager shall submit an annual report to the Community and Economic Development Director, Director of Utilities, and the City Manager detailing performance of the program. The report shall document Certified Business utilization levels, waivers, proposed modifications to the program, and such other matters as may be specified in the Program Regulations.

(Ord. 28766 Ex. A; passed Jun. 8, 2021: Ord. 28625 Ex. A; passed Nov. 5, 2019: Ord. 28141 Ex. A; passed Mar. 26, 2013: Ord. 28110 Ex. B; passed Dec. 4, 2012: Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.100 Enforcement.

The Director, or designee, may investigate the employment practices of contractors to determine whether or not the requirements of this chapter have been violated. Such investigation shall be conducted in accordance with the procedures established in the Program Regulations.

(Ord. 28625 Ex. A; passed Nov. 5, 2019: Ord. 28141 Ex. A; passed Mar. 26, 2013: Ord. 28110 Ex. B; passed Dec. 4, 2012: Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.110 Remedies.

A. Upon receipt of a determination of contractor violation by the Program Manager, the City Manager or Director of Utilities, as appropriate, may take the following actions, singly or together, as appropriate:

1. Forfeit the contractor's bid bond and/or performance bond;

2. Publish notice of the contractor's noncompliance;
3. Cancel, terminate, or suspend the contractor's contract, or portion thereof;
4. Withhold funds due contractor until compliance is achieved; and/or
5. Recommend appropriate action including, but not limited to, disqualification of eligibility for future contract awards by the City (debarment) per Section 1.06.279 TMC;

B. Prior to exercise of any of the foregoing remedies, the City shall provide written notice to the contractor specifying the violation and the City's intent to exercise such remedy or remedies. The notice shall provide that each specified remedy becomes effective within ten business days of receipt unless the contractor appeals said action to the Hearing Examiner pursuant to Chapter 1.23 TMC.

C. When non-compliance with this chapter or the Program Regulations has occurred, the Program Manager and the department/division responsible for enforcement of the contract may allow continuation of the contract upon the contractor's development of a plan for compliance acceptable to the Director.

(Ord. 28625 Ex. A; passed Nov. 5, 2019; Ord. 28141 Ex. A; passed Mar. 26, 2013; Ord. 28110 Ex. B; passed Dec. 4, 2012; Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.120 Unlawful acts.

It shall be unlawful for any Person to willfully prevent or attempt to prevent, by intimidation, threats, coercion, or otherwise, any Person from complying with the provisions of this chapter.

(Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.130 Severability.

If any section of this chapter or its application to any Person or circumstance is held invalid by a court of competent jurisdiction, then the remaining sections of this chapter, or the application of the provisions to other Persons or circumstances, shall not be affected.

(Ord. 27867 Ex. A; passed Dec. 15, 2009)

1.07.140 Review of program.

This chapter shall be in effect through and until December 31, 2024, unless the City Council shall determine at an earlier date that the requirements of this chapter are no longer necessary. If this chapter has not been repealed by July 1, 2024, the City Council shall determine by the end of that year whether substantial effects or lack of opportunity of MWBEs and/or SBEs remain true in the relevant market and whether, and for how long, some or all of the requirements of this chapter should remain in effect.

(Ord. 28625 Ex. A; passed Nov. 5, 2019; Ord. 28274 Ex. A; passed Dec. 16, 2014; Ord. 28141 Ex. A; passed Mar. 26, 2013; Ord. 27867 Ex. A; passed Dec. 15, 2009)

LOCAL EMPLOYMENT APPRENTICE PROGRAM (LEAP)



City of Tacoma
Community and Economic Development Department
LEAP Office
747 Market Street, Room 900
Tacoma, WA 98402
(253) 591-5590
leap@cityoftacoma.org

LEAP LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM ABBREVIATED PROGRAM REQUIREMENTS

LEAP is a mandatory City of Tacoma program adopted to provide employment opportunities for City of Tacoma residents and residents of Economically Distressed Areas of the Tacoma Public Utilities Service Area. Based on the dollar amounts of projects, it requires Prime Contractors performing qualifying public works projects or service contracts ensure that a percentage of the total labor hours worked on the project are performed by LEAP-Qualified local employees and/or LEAP-Qualified apprentices approved by the Washington State Apprenticeship Council (SAC), residents of Tacoma, residents of surrounding Economically Distressed Areas, and/or TPU Service Areas (as outlined below). Compliance may be met through any combination LEAP-Qualified employees.

Prime Contractors may obtain further information by contacting the City of Tacoma's LEAP Coordinator, Deborah Trevorow, at (253) 591-5590 or leap@cityoftacoma.org. The LEAP Coordinator can assist contractors in the recruitment of qualified entry-level workers to work on City of Tacoma Public Works projects. The LEAP Office is in the Tacoma Municipal Building, 747 Market Street, Rm 900.

***NOTE – for projects bid on or after October 10, 2023, compliance with workforce requirements and payrolls will be strictly enforced.**

LEAP PROGRAM REQUIREMENTS:

1. **LOCAL EMPLOYMENT Requirement:** The Prime Contractor is required to ensure that 15 percent of the total Labor Hours worked on the project are performed by residents of the City of Tacoma or Economically Distressed ZIP Codes for the following projects:

- a) Civil Projects over \$250,000
- b) Building Projects over \$750,000

2. **APPRENTICE Requirement:** The Contractor is required to ensure that an additional 15 percent of the total Labor Hours worked on any project over \$1,000,000 are performed by Apprentices who are residents of the Tacoma Public Utilities Service Area. This is in addition to the Local Employment Goal.

3. **SUBCONTRACTOR NOTIFICATION:** Prime Contractors shall notify all Subcontractors of the LEAP Program requirement(s). Subcontractor labor hours may be utilized towards achievement of the LEAP Requirements. Owner/Operator hours may be used for the Local Employment Requirement.

4. **FAILURE TO MEET LEAP UTILIZATION REQUIREMENT:** Contractors shall be assessed an amount for each hour that is not achieved. The amount per hour shall be based on the percent of the requirement that is met. All rounding shall be done down to the nearest whole percent. The amount per hour that shall be assessed is as follows:

- 100% achievement \$0.00 penalty
- 99% to 90% achievement \$2.00 penalty
- 89% to 75% achievement \$3.50 penalty
- 74% to 50% achievement \$5.00 penalty
- 49% to 1% achievement \$7.50 penalty
- 0% achievement \$10.00 penalty

LEAP DOCUMENT SUBMITTALS:**

1. *LEAP EMPLOYEE VERIFICATION FORM*: upon request, the Contractor must provide the LEAP Office with a form for every person whom the contractor thinks will assist with attaining credit towards meeting the LEAP Utilization Requirements with at least one piece of verifying documentation. The LEAP Office staff will respond regarding whether or not the employee is LEAP-Qualified.
2. *WEEKLY CERTIFIED PAYROLL*: In LCP Tracker: the Prime and Subcontractors must submit weekly Certified Payrolls that include, employee name, address, social security number, craft/trade, class, hours worked on this job, rate of pay, and gross wages paid including benefits for this job.
3. *DEPARTMENT OF LABOR & INDUSTRIES (L&I)*: The Prime must enter the project in the L&I project site under the 'Tacoma, City of' account and notify the LEAP Office when this has been completed.

****WITHHOLDING PROGRESS PAYMENTS**: The LEAP Coordinator may withhold progress payments for failure to follow the above-outlined procedures



City of Tacoma
LEAP Office
747 Market Street, Room 900
Tacoma, WA 98402
(253) 591-5590 or leap@cityoftacoma.org

LEAP

Documents and Submittal Schedule

In the attached packet, you will find the LEAP documentation and forms that are required to be submitted by the Prime and Sub Contractors.

- ❑ **LEAP Abbreviated Program Requirements:** brief overview of LEAP Program requirements
- ❑ **LEAP Employee Verification Form:** to be submitted, upon request, for each employee who may be a LEAP-qualified employee
- ❑ **Tacoma Public Utilities Service Area Map and List, Economically Distressed ZIP Codes Map and List:** for your reference on LEAP-qualified zoning areas

In addition, the City of Tacoma will also require from the Prime Contractor and all its Subcontractors:

- ❑ **Weekly Certified Payrolls:** to be submitted via LCP Tracker weekly, biweekly or monthly.
- ❑ **Statement of Intent to Pay Prevailing Wages:** to be submitted prior to commencing work
- ❑ **Affidavit of Wages Paid:** to be submitted upon completion of each contractor's work
- ❑ **Document Verification:** provide required information when requested from LEAP Office

Please submit above documents as instructed by the LEAP Coordinator.

If you have any questions or request further information, please feel free to contact the City of Tacoma's LEAP Program at (253) 591-5590 or leap@cityoftacoma.org

CHAPTER 1.90

LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM

Sections:

- 1.90.010 Purpose.
- 1.90.020 Scope.
- 1.90.030 Definitions.
- 1.90.040 LEAP goals.
- 1.90.050 *Repealed.*
- 1.90.060 Effect of program on prime contractor/subcontractor relationship.
- 1.90.070 Apprentice utilization requirements – Bidding and contractual documents.
- 1.90.080 Enforcement.
- 1.90.090 Compliance with applicable law.
- 1.90.100 Review and reporting.
- 1.90.105 Authority
- 1.90.110 Interpretation.

1.90.010 Purpose.

The purpose of this Chapter is to establish a means of providing for the development of a trained and capable workforce possessing the skills necessary to fully participate in the construction trades.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.020 Scope.

The provisions of this Chapter shall apply to all Public Works or Improvements funded in whole or in part with City funds or funds which the City expends or administers in accordance with the terms of a grant.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.030 Definitions.

As used in this chapter, the following terms shall have the following meanings:

- A. “Apprentice” shall mean a person enrolled in a course of training specific to a particular construction trade or craft, which training shall be approved by the Washington State Apprenticeship and Training Council established pursuant to RCW 49.04.010.
- B. “Building Projects” shall mean all Public Works or Improvements having an Estimated Cost greater than \$750,000.00, and for which a building permit must be issued pursuant to Chapter 1 of the current edition of the state building code (Uniform Building Code).
- C. “City” shall mean all divisions and departments of the City of Tacoma, and all affiliated agencies, provided, however, that the Tacoma Community Redevelopment Authority shall not be included within this definition.
- D. “Civil Projects” shall mean all Public Works or Improvements that are not defined as a “Building Project,” provided that those projects having an Estimated Cost of less than \$250,000.00 shall not be included in this definition.
- E. “Contractor or Service Provider” means a person, corporation, partnership, or joint venture entering into a contract with the City to construct a Public Work or Improvement.
- F. “Director” shall mean the Director of Community and Economic Development, or the Director’s Designee.
- G. “Economically Distressed ZIP Codes” shall mean ZIP codes in the Tacoma Public Utilities Service Area that meet two out of three (2/3) of the thresholds of:
 1. High concentrations of residents living under 200% of the federal poverty line in terms of persons per acre (69th percentile)
 2. High concentrations of unemployed people in terms of persons per acre (45th percentile)
 3. High concentrations of people 25 years or older without a college degree in terms of persons per acre (75th percentile)

Said thresholds shall be updated within 30 days following any Prevailing Wage updates issued by the Washington State Labor and Industry. All updates are to be published on the first business day in August and in February of each calendar year.

H. “Electrical Utility” and “Water Utility” shall mean, respectively, the Light Division of the Department of Public Utilities of the City of Tacoma, and shall include the electrical and telecommunications services of that Division, and the Water Division of the Department of Public Utilities of the City of Tacoma.

I. “Estimated Cost” shall mean the anticipated cost of a Public Work or Improvement, as determined by the City, based upon the expected costs of materials, supplies, equipment, and labor, but excluding taxes and contingency funds.

J. “Estimated Labor Hours” shall mean the anticipated number of Labor Hours determined by the City to be necessary to construct a Public Work or Improvement and set forth in the specifications for the project, or as may be subsequently revised due to contract or project adjustment, or pursuant to an agreed upon change order.

K. “Existing Employee” shall mean an employee whom the Contractor or Service Provider can demonstrate was actively employed by the Contractor or Service Provider for at least 1000 hours in the calendar year prior to bid opening plus one month following bid opening, and who was performing work in the construction trades.

L. “Labor Hours” shall mean the actual number of hours worked by workers receiving an hourly wage who are employed on the site of a Public Work or Improvement, and who are subject to state or federal prevailing wage requirements. The term “Labor Hours” shall include hours performed by workers employed by the Contractor or Service Provider and all Subcontractors, and shall include additional hours worked as a result of a contract or project adjustment or pursuant to an agreed upon change order. The term “Labor Hours” shall not include hours worked by workers who are not subject to the prevailing wage requirements set forth in either RCW 39.12 or the Davis-Bacon Act - 40 U.S.C. 276 (a).

M. “LEAP Coordinator” shall mean the City of Tacoma staff member who administers LEAP.

N. “LEAP Program” or “Program” shall mean the City of Tacoma’s Local Employment and Apprenticeship Training Program, as described in this chapter.

O. “LEAP Regulations” or “Regulations” shall mean the rules and practices established in this document.

P. “LEAP Utilization Plan” shall mean the document submitted by the Contractor to the LEAP Coordinator which outlines how the associated goals will be met on the project.

Q. “Priority Hire Resident” shall mean any resident within the Economically Distressed ZIP Codes.

R. “Project Engineer” shall mean the City employee who directly supervises the engineering or administration of a particular construction project subject to this chapter.

S. “Public Work or Improvement” shall have the same meaning as provided in Section 39.04.010 RCW, as that Section may now exist or hereafter be amended.

T. “Resident of Tacoma” shall mean any person, not defined as a Resident of the Community Empowerment Zone, who continues to occupy a dwelling within the boundaries of the City of Tacoma, has a present intent to continue residency within the boundaries of the City, and who demonstrates the genuineness of that intent by producing evidence that the person’s presence is more than merely transitory in nature.

U. “Service Area - Electrical” or “Electrical Service Area” shall mean that area served with retail sales by the Electrical Utility of the City of Tacoma at the time a bid is published by the Electrical Utility for a Public Work or Improvement to be performed primarily for the Electrical Utility.

V. “Service Area - Water” or “Water Service Area” shall mean that area served with retail sales by the water utility of the City of Tacoma at the time a bid is published by the water utility for a Public Work or Improvement to be performed primarily for the water utility.

W. “Service Contract” shall mean all City contracts relating to a Public Work or Improvement which utilize labor at a City site and which are not within the exceptions to nor defined as “Building Projects” or “Civil Projects.”

X. “Subcontractor” means a person, corporation, partnership, or joint venture that has contracted with the Contractor or Service Provider to perform all or part of the work to construct a Public Work or Improvement by a Contractor.

Y. “Tacoma Public Utilities” means the City of Tacoma, Department of Public Utilities.

Z. “Tacoma Public Utilities Service Area” shall mean every ZIP code listed by Tacoma Public Utilities as an area that either receives services or maintains infrastructure to provide services.

AA. Washington State Labor and Industry Prevailing Wage shall mean the hourly wage, usual benefits and overtime, paid in the largest city in each county, to the majority of workers, laborers, and mechanics. Prevailing wages are established, by the Department of Labor & Industries, for each trade and occupation employed in the performance of public work. They are established separately for each county, and are reflective of local wage conditions.

(Ord. 28520 Ex. A; passed Jul. 17, 2018; Ord. 28147 Ex. B; passed May 7, 2013; Ord. 28110 Ex. C; passed Dec. 4, 2012; Ord. 27815 Ex. A; passed Jun. 30, 2009; Ord. 27368 § 1; passed Jun. 21, 2005; Ord. 26698 § 1; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.040 LEAP goals.

A. Utilization Goals.

1. All Contractors constructing Civil Projects or Building Projects, and all Service Providers involved with the construction of a Public Work or Improvement, shall ensure that at least 15 percent of the total Labor Hours actually worked on the Project are performed by persons having their residence within the boundaries of the City of Tacoma or Economically Distressed ZIP Codes, whether or not any such person is an Apprentice.

a. The thresholds for this section shall be \$250,000.00 for Civil Projects and \$750,000.00 for Building Projects.

2. Fifteen percent (15%) of the Total Labor Hours on contracts above one-million dollars (\$1,000,000.00) shall have work performed by Apprentices who are residents of the Tacoma Public Utilities Service Area consistent with RCW 39.04.320(1)(a), subject to waiver based on exceptions as specified in RCW 39.04.320(2)(a), (b), and (c).

3. Labor Hours performed by non-residents of the State of Washington will be deducted from a project's total Labor Hours for purposes of determining compliance with the requirements of this chapter.

4. All Contractors and Service Providers shall submit a LEAP Utilization Plan as provided for in the regulations adopted under this chapter, and shall meet with the LEAP Coordinator to review said Plan prior to being issued a Notice to Proceed. Failure to submit a LEAP Utilization Plan may be grounds for the City to withhold remittance of a progress payment until such Plan is received from the responsible Contractor or Provider. A meeting with the LEAP Coordinator prior to issuance of a Notice to Proceed shall be excused only when the LEAP Coordinator is unavailable to meet prior to the scheduled date for issuance of the Notice to Proceed and the Contractor and the LEAP Coordinator have otherwise scheduled a meeting for the coordinator to review the Contractor's or Provider's plan.

The Contractor or Service Provider shall be responsible for meeting the LEAP utilization goal requirements of the contract, including all amendments and change orders thereto, and shall be responsible for overall compliance for all hours worked by Subcontractors. To the extent possible, the Contractor or Service Provider shall recruit Apprentices from multiple trades or crafts.

B. Failure to Meet Utilization Goal.

1. Contracts for the construction of Building projects or Civil projects and Service Contracts shall provide that Contractors or Service Providers failing to meet the LEAP utilization goals shall be assessed an amount for each hour that is not achieved. The amount per hour shall be based on the extent the Contractor or Service Provider met its goal. The amount per hour that shall be assessed shall be as follows:

Percent of Goal Met	Assessment per unmet hour
100%	\$ 0.00
90% - 99%	\$ 2.00
75% to 89%	\$ 3.50
50% to 74%	\$ 5.00
1% to 49%	\$ 7.50
0%	\$10.00

When determining the percent of goal that is met, all rounding shall be down to the nearest whole percent. No penalty shall be waived by the City unless it is determined by the Director to be in the best interests of the City, which determination shall be made after consultation with the LEAP Coordinator.

2. Deposit of Assessments. All assessments imposed pursuant to this section shall be deposited into a separate account and utilized to support the City's pre-apprenticeship and training program. The policies and regulations adopted by the City Manager and Director of Utilities pursuant to this chapter shall address issues pertaining to a Contractor's existing workforce. Contributions need not be made for Labor Hours that have been adjusted in accordance with Section 1.90.040(E).

C. LEAP Reports.

Notwithstanding the provisions of TMC 1.90.100, the Director shall, not less than annually, publish a LEAP report setting forth Contractor compliance with this chapter. Said report shall include information on all contracts and all Contractors to which this chapter applies, and shall detail the level and nature of LEAP participation by contract and by Contractor, The

Director's LEAP report may include such other information as may be helpful to assuring fair and accurate representation of the contracts, Contractors or projects covered in the report. The Director's LEAP reports may be considered by the Board of Contracts and Awards in its determinations as to bidder responsibility.

D. LEAP Goal Adjustments.

1. LEAP utilization goals may be adjusted prior to bid opening and/or as a result of a contract amendment or change order on a Building Project, Civil Project, or Service Contract.

a. If LEAP utilization goals are adjusted prior to bid opening, they shall be set forth in the bid or Request For Proposal advertisement and specification documents or in an addendum timely provided to prospective bidders, provided that such adjustment shall be based upon a finding by the Project Engineer that the reasonable and necessary requirements of the contract render LEAP utilization unfeasible at the required levels. The Director shall concur with the Project Engineer's finding, provided that should the Project Engineer and the Director fail to reach agreement on the Project Engineer's finding, then in that circumstance the matter shall be referred to the City Manager or the Director of Utilities, as appropriate, for ultimate resolution. Notwithstanding any other provision of this chapter to the contrary, the decision of the City Manager or the Director of Utilities with regard to LEAP goal adjustment may not be appealed.

b. If LEAP utilization goals are adjusted due to contract amendment or change order, the amount of adjustment shall be consistent with the utilization goals set forth in this chapter and shall be determined pursuant to regulations adopted pursuant to this chapter for administration of LEAP utilization goal adjustments.

2. The methodology of determining the appropriate adjustments to LEAP utilization goals shall be determined in consultation with the LEAP Advisory Committee, established pursuant to this ordinance for so long as the LEAP Advisory Committee remains in existence.

3. LEAP utilization goals shall not apply to those portions of a project that are funded by sources other than (a) City funds, or (b) funds which the City expends or administers in accordance with the terms of a grant to the City, provided that the Project Engineer shall notify the Director of such non-application prior to bid advertisement. For the purposes of this paragraph, credits extended by another entity for the purpose of providing project funding shall not be considered to be City funds.

E. Utilization - Electrical Projects Outside Electrical Service Area.

Civil Projects or Building Projects that are constructed primarily for the benefit or use by the City's Electrical Utility, which are wholly situated outside the Electrical Service Area, and for which the estimated cost is less than \$1,000,000.00, are exempt from the requirements of this chapter.

F. Utilization - Water Projects Outside Water Service Area.

Civil Projects or Building Projects that are constructed primarily for the benefit or use by the City's water utility, which are wholly situated outside the Water Service Area, and for which the estimated cost is less than \$1,000,000.00 are exempt from the requirements of this chapter.

G. Utilization - Projects Outside Tacoma Public Utilities Service Area.

Civil Projects or Building Projects that are constructed primarily for the benefit or use by Tacoma Public Utilities, which are wholly situated outside the retail service area of the Tacoma Public Utilities Service Area, and for which the estimated cost is less than \$1,000,000.00 are exempt from the requirements of this chapter. Projects wholly situated outside the Tacoma Public Utilities Service Area, and for which the estimated cost is more than \$1,000,000.00, shall be exempt from 15% utilization goal specified in subsection A1. of this section. The 15% utilization goal specified in subsection A2. of this section may be met if project work is performed by Apprentices who are enrolled in a course of training specific to a particular construction trade or craft, provided such training has been approved by the Washington State Apprenticeship and Training Council in accordance with Chapter 49.04, RCW.

H. Emergency.

This chapter shall not apply in the event of an Emergency. For the purposes of this section, an "Emergency" means unforeseen circumstances beyond the control of the City that either: (a) present a real, immediate threat to the proper performance of essential functions; or (b) will likely result in material loss or damage to property, bodily injury, or loss of life if immediate action is not taken.

I. Conflict with State or Federal Requirements.

If any part of this chapter is found to be in conflict with federal or state requirements which are a prescribed condition to the allocation of federal or state funds to the City, then the conflicting part of this chapter is inoperative solely to the extent of the conflict and with respect to the City departments directly affected. This provision does not affect the operation of the

remainder of this chapter. Administrative rules or regulations adopted under this chapter shall meet federal and state requirements which are a necessary condition to the receipt of federal or state funds by the City.

(Ord. 28520 Ex. A; passed Jul. 17, 2018; Ord. 28147 Ex. B; passed May 7, 2013; Ord. 27815 Ex. A; passed Jun. 30, 2009; Ord. 27368 § 2; passed Jun. 21, 2005; Ord. 26992 § 1; passed Oct. 15, 2002; Ord. 26698 § 2; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.050 Repealed by Ord. 27368. Good faith efforts.

(Ord. 27368 § 3; passed Jun. 21, 2005; Ord. 26698 § 3; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.060 Effect of program on prime contractor/service provider - subcontractor relationship.

The LEAP Program shall not be construed so as to modify or interfere with any relationship between any Contractor or Service Provider and Subcontractor. The LEAP Program shall not grant the City any authority to control the manner or method of accomplishing any construction work that is additional to any authority retained by the City in a Public Works contract.

(Ord. 26698 § 4; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.070 Apprentice utilization requirements – Bidding and contractual documents.

All packages of bid documents for every Building Project and every Civil Project shall incorporate provisions satisfactory to the City Attorney so as to allow enforcement of the provisions contained in this Chapter. Such contractual provisions may include liquidated damages, calculated to reimburse the City for the Contractor's breach of these performance requirements, which shall be published with the City's call for bids.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.080 Enforcement.

A. The Director shall review the Contractor's or Service Provider's and all Subcontractor's employment practices during the performance of the work for compliance with LEAP Program requirements. On-site visits may be conducted as necessary to verify compliance with the requirements of the LEAP Program. The Contractor, Service Provider, or Subcontractors shall not deny to the City the right to interview its employees, provided that the Director shall make reasonable efforts to coordinate employee interviews with employers.

B. Any knowing failure or refusal to cooperate in compliance monitoring may disqualify the defaulting Contractor, Service Provider, or Subcontractor from eligibility for other City contracts.

C. The making of any material misrepresentation may disqualify the defaulting Contractor, Service Provider, or Subcontractor from eligibility for other City contracts.

D. Any action by the City, its officers and employees, under the provisions of this Chapter may be reviewed by the Board of Contracts and Awards, upon written application of the party so affected. Application shall be made within twenty (20) days of the date of the action upon which the appeal is based, and provided to the City by certified mail or by personal service. Any action taken by the Board of Contracts and Awards may be appealed to the City Council or Public Utility Board, as appropriate, and thereafter if desired, to the Superior Court of Pierce County, Washington, within fifteen (15) days of the previous decision.

(Ord. 26698 § 5; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.090 Compliance with applicable law.

Nothing in this Chapter shall excuse a Prime Contractor, Service Provider, or Subcontractor from complying with all relevant federal, state, and local laws.

(Ord. 26698 § 6; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.100 Review and reporting.

The City Manager and Director of Utilities shall review the Program on or before January 1, 2000, and every two (2) years thereafter, and shall report to the City Council and Public Utility Board the Manager's and Director's findings, conclusions, and recommendations as to the continued need for the Program, and any revisions thereto that should be considered by the Council and Board.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.105 Authority.

The City Manager and the Director of Utilities shall have authority to jointly adopt policies and regulations consistent with this chapter to implement the LEAP program.

(Ord. 26698 § 7; passed Sept. 12, 2000: Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.110 Interpretation.

This Chapter shall not be interpreted or construed so as to conflict with any state or federal law, nor shall this Chapter be enforced such that enforcement results in the violation of any applicable judicial order.

(Ord. 26301 § 1; passed Oct. 6, 1998)

LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM (LEAP)

The LEAP office enforces post-award mandatory requirements. Bidders do not have to submit any information in the bid submittal package to be in compliance with LEAP.

Post-award:

- ***Provide information to the LEAP Office (see LEAP contact information below).*** Provide the name and email address of the person(s) who will oversee LEAP utilization and payrolls.
- ***LEAP Employee Verification.*** Proof of residency may be requested for employees who may be LEAP-Qualified and may be able to help meet the LEAP Requirements.
- ***All certified payrolls.*** Prime contractor is responsible for ensuring their, and their subcontractors', payrolls are submitted via LCP Tracker. By submitting payrolls in LCP Tracker before the Labor & Industry's website, you can reduce data entry.

The City of Tacoma's LEAP office enforces varying workforce utilization requirements based on City projects based on certain monetary thresholds and project locations.

Local Employment Utilization Requirement - the Prime Contractor performing a qualifying public work or improvement must ensure that 15 percent of the total labor hours worked on the project are performed by journey or apprentice level craft workers who are residents of the City of Tacoma or Economically Distressed Zip Codes.

Apprenticeship Utilization Requirement – the Prime Contractor performing a qualifying public work or improvement must ensure that 15 percent of the total labor hours worked on the project are performed by apprentices who are residents of the Tacoma Public Utilities Service Area.

***Exceptions:** If the project is located outside of the retail service area of the Tacoma Public Utilities Service Area, then Apprentices may come from the county in which the work is performed.

This project is subject to the:

1. 15% Local Employment Utilization Requirement

**LEAP staff can assist contractors in identifying qualified City of Tacoma residents, Economically Distressed Area residents, and Apprentices. Contractors may obtain further information by contacting the City's LEAP Office at (253) 591-5590. The LEAP Office is located in the Tacoma Municipal Building, 747 Market Street, Room 900, Tacoma, WA 98402.
www.cityoftacoma.org/leap**



City of Tacoma LEAP Office
747 Market Street, Room 900
Tacoma, WA 98402
(253) 591-5590 or leap@cityoftacoma.org
www.cityoftacoma.org/leap

LEAP EMPLOYEE VERIFICATION FORM

Submit upon request from LEAP Office

Contractor/Sub:_____ Specification Number:_____

Project Description:_____

Employee Name:_____ Craft:_____

Ethnic Group (*optional*): ☐ Asian/Pac Isl. ☐ Black ☐ Hispanic ☐ Native American ☐ White ☐ Other

Gender (*optional*): ☐ MALE ☐ FEMALE

Complete Physical Address (No PO Boxes):_____

City:_____ State:_____ Zip:_____ Telephone:_____ Date of Hire:_____

Apprenticeship County:_____ Apprentice Registration I.D. (*if applicable*):_____

Age:_____ Copy of DD-214:_____

*******Please fill out entire form for tracking LEAP performance*******

LEAP qualified employee categories: (check all that apply and provide evidence for each check)

_____ a. Resident (journey level or certified apprentice) within the geographic boundaries of the City of Tacoma

_____ b. Resident (journey level or certified apprentice) within Economically Distressed ZIP Codes of the Tacoma Public Utilities Service Area

_____ c. WA State Approved Apprentice living in the Tacoma Public Utilities Service Area (Only valid for projects over \$1,000,000)

_____ d. WA State Approved Apprentice *(Only valid for contracts where 100% of work is performed outside of Pierce County)

Signature of Employee:_____ Date:_____

Contractor Representative:_____ Date:_____

LEAP EMPLOYEE VERIFICATION FORM

To be Completed by Contractor or Subcontractor

Please attach a legible copy of one or more of the following document(s) showing the address of residence as proof of local (Tacoma) and/or Economically Distressed Area and/or TPU Service Areas residency. For youth, see first line and for veteran status, see second line.

.....

- _____ Driver's License with current address
- _____ Utility Bill/Phone Bill/Cell Bill/Cable Bill with current address
- _____ Copy of current tax form W-4
- _____ Rental Agreement/Lease (residential)
- _____ Computer Printout From Other Government Agencies
- _____ Property Tax Records
- _____ Apprentice Registration I.D.
- _____ Food Stamp Award Letter
- _____ Housing Authority Verification
- _____ Insurance Policy (Residence/Auto)

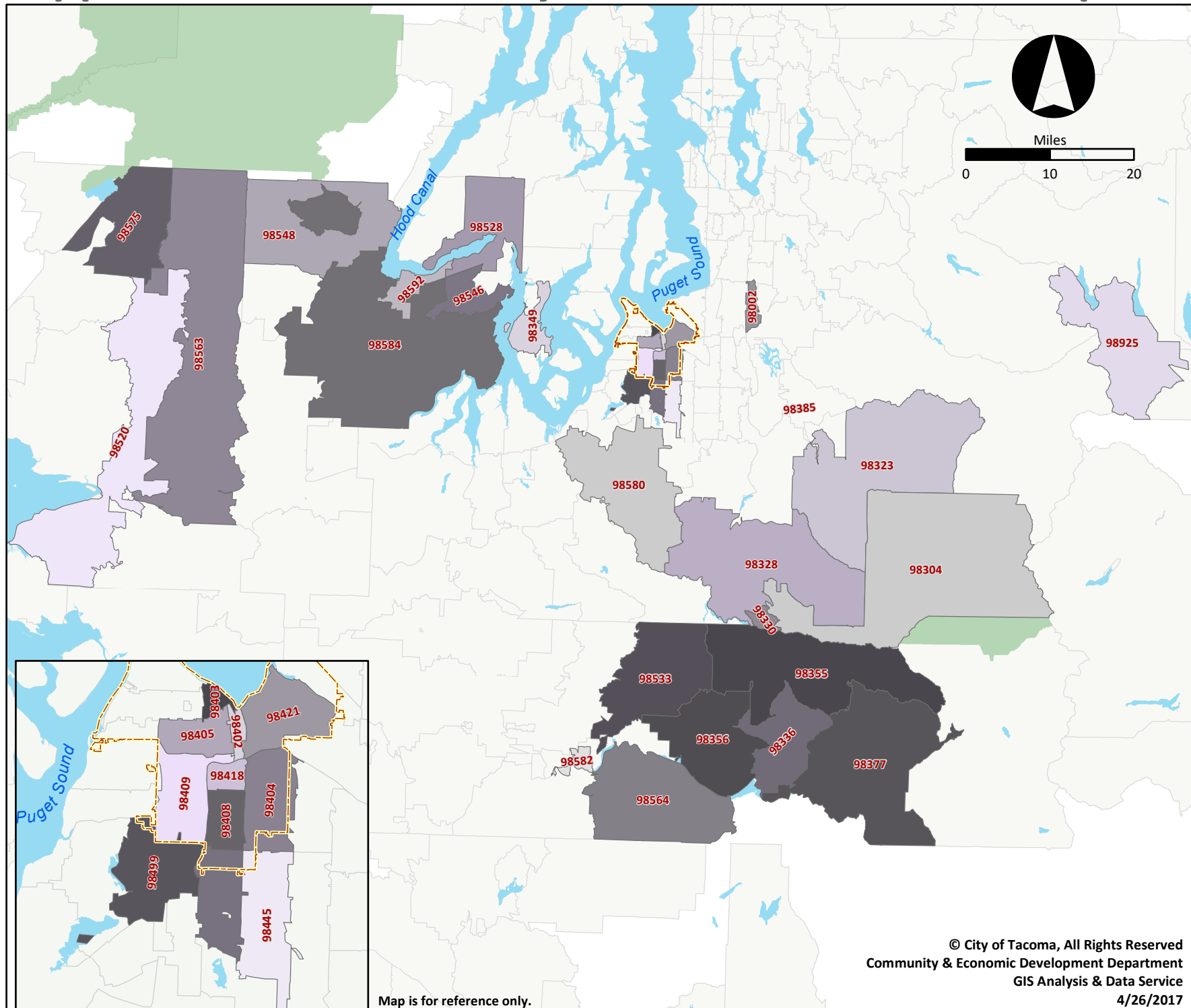
*Any of the above must have a complete physical address verified by the www.govme.org website.

No PO Boxes

Contractor Representative: _____ Date: _____

Title: _____

Appendix C: Economically Distressed ZIP Codes Map



City Limits

98002

98304

98323

08278

08330

Abstract

58556

58549

98355

98356

98377

98385

98520

98528

98533

08546

22512

See 10

58503

98564

98575

98580

98582

98584

98592

98925

08402

08402

58404

98405

98408

98409

98418

98421

98444

98445

98/99

100%

© City of Tacoma, All Rights Reserved
Community & Economic Development Department
GIS Analysis & Data Service
4/26/2017

Map is for reference only.

LOCAL EMPLOYEE REQUIREMENT ONLY

City of Tacoma
(Journeyman AND Apprentice)

98402	98421
98403	98422
98404 (some)	98424
98405	98444
98406	98445
98407	98465 (some)
98408	98466 (some)
98409	98467 (some)
98418	

Check addresses here:

[https://tacoma.maps.arcgis.com/apps/webappviewer/index.html?
id=38107f6b096a4b8280c0d9b8a05bc7eb](https://tacoma.maps.arcgis.com/apps/webappviewer/index.html?id=38107f6b096a4b8280c0d9b8a05bc7eb)

LOCAL EMPLOYEE REQUIREMENT ONLY

Economically Distressed Areas

(Journeyman AND Apprentice)

Zip Code	200% Pov	Unemployed	25+ College	Area
98002	Y		Y	Auburn
98304	Y		Y	Ashford/Rainier
98323	Y	Y	Y	Carbonado
98328	Y		Y	Eatonville
98330	Y		Y	Elbe
98336	Y		Y	Glenoma
98349	Y	Y		Lakebay
98355		Y	Y	Mineral
98356	Y	Y	Y	Morton
98377	Y	Y	Y	Randle
98385		Y	Y	South Prairie
98402	Y	Y		Downtown
98403	Y	Y		Stadium/St. Helens
98404	Y	Y		Eastside
98405	Y	Y		Hilltop/Central
98408	Y		Y	South End
98409	Y	Y		South Tacoma
98418	Y		Y	Lincoln/South End
98421	Y	Y	Y	Port
98439	Y	Y		McChord AFB
98444	Y	Y		Parkland
98445	Y		Y	Midland
98499	Y	Y		Lakewood
98520	Y	Y	Y	Aberdeen
98528	Y		Y	Belfair
98533		Y	Y	Cinebar
98546	Y	Y	Y	Grapeview
98548	Y	Y	Y	Hoodspport
98563	Y	Y	Y	Montesano
98564	Y	Y	Y	Mossyrock
98575	Y		Y	Quinault
98580	Y		Y	Roy
98582	Y		Y	Salkum
98584	Y		Y	Shelton
98591	Y		Y	Toledo
98592		Y	Y	Union
98925	Y		Y	Easton

**GENERAL CONDITIONS AND OTHER CONTRACT TERMS &
CONDITIONS**

1. GENERAL PROVISIONS
2. MODIFICATIONS TO THE GENERAL CONDITIONS, AS MODIFIED BY THE CITY OF TACOMA
3. GENERAL CONDITIONS FOR WASHINGTON STATE FACILITY CONSTRUCTION

GENERAL PROVISIONS

(Revised December 15, 2020)

SECTION I - BIDDING REQUIREMENTS

SECTION I REQUIREMENTS ARE BINDING ON ALL RESPONDENTS.

1.01 USE AND COMPLETION OF CITY PROPOSAL SHEETS

A. Respondent's Proposal

Each Respondent must bid exactly as specified on the Proposal sheets. All proposals must remain open for acceptance by the City for a period of at least 60 calendar days from the date of opening of the bids.

B. Alterations of Proposals Not Allowed

Proposals that are incomplete or conditioned in any way contain alternatives or items not called for in the General Provisions and Specifications, or not in conformity with law may be rejected as being nonresponsive. The City cannot legally accept any proposal containing a substantial deviation from these Specifications.

C. Filling Out City Proposal Sheets

All proposals must be completed using the proposal sheets and forms included with this specification, and the prices must be stated in figures either written in ink or typewritten. No proposal having erasures or interlineations will be accepted unless initialed by the Respondent in ink.

1.02 CLARIFICATION OF PROPOSAL FOR RESPONDENT

If a prospective Respondent has any questions concerning any part of the Proposal, he/she may submit a written request for answer of his/her questions. Any interpretation of the Proposal will be made by an Addendum duly issued and mailed or delivered to each prospective Respondent. Such addendum must be acknowledged in the proposal. The City of Tacoma will not be responsible for any other explanation or interpretation of the bid documents.

1.03 RESPONDENT'S BOND OR CERTIFIED CHECK

Each bid for construction must be accompanied either by a certified or cashier's check for 5 percent of the total amount bid, including tax, payable to the City Treasurer, or an approved bid bond, by a surety company authorized to do business in the State of Washington, for 5 percent of the total amount bid. The person legally authorized to sign the bid must sign all bid bonds. The approved bid bond form attached to these Specifications should be used: no substantial variations from the language thereof will be accepted.

If a bid bond is used, the 5 percent may be shown either in dollars and cents, or the bid bond may be filled in as follows, "5 percent of the total amount of the accompanying proposal."

The check of the successful Respondent will be returned after award of the Contract, acceptance of the Payment and Performance Bond and City's receipt of the signed Contract. The checks of all other Respondents will be returned immediately upon the award of the Contract. Bid bonds will not be returned.

1.04 DELIVERY OF PROPOSALS TO THE CITY'S PURCHASING OFFICE

- A.** Proposal packages must be received by the City's Procurement and Payables Division in SAP Ariba (unless another form of delivery is stated), prior to the scheduled time and date stated in the Solicitation.
- B.** Supplier is solely responsible for timely delivery of its Submittal.
- C.** Submittals received after the time stated in the solicitation will not be accepted.
- D.** For purposes of determining whether a Submittal has been timely received in SAP Ariba, the City's Procurement and Payables Division will rely on the submittal clock in SAP Ariba.

1.05 LICENSES/PERMITS

- A.** Suppliers, if applicable, must have a Washington state business license at the time of Submittal and throughout the term of the Contract. Failure to include a Washington state business license may be grounds for rejection of the Submittal or cancellation of contract award. Information regarding Washington state business licenses may be obtained at <http://bls.dor.wa.gov>.
- B.** Upon award, it is the responsibility of the Supplier to register with the City of Tacoma's Tax and License Division, 733 South Market Street, Room 21, Tacoma, WA 98402-3768, 253-591-5252, https://www.cityoftacoma.org/government/city_departments/finance/tax_and_license/. Supplier shall obtain a business license as is required by Tacoma Municipal Code Subtitle 6C.20.
- C.** During the term of the Contract, Supplier, at its expense, shall obtain and keep in force any and all necessary licenses and permits.

1.06 CONTRACTOR'S STATE REGISTRATION NUMBER

Contractors for construction or public works construction are required to be licensed by the state. If the provisions of Chapter 18.27 of the Revised Code of Washington apply to the Respondent, then the Respondent's Washington State Contractor's Registration No. must accompany the bid.

1.07 BID IS NONCOLLUSIVE

The Respondent represents by the submission of the Proposal that the prices in this Bid are neither directly nor indirectly the result of any formal or informal agreement with another Respondent.

1.08 EVALUATION OF BID

A. Price, Experience, Delivery Time and Responsibility

In the evaluation of bids, the Respondent's experience, delivery time, quality of performance or product, conformance to the specifications and responsibility in performing other contracts (including satisfying all safety requirements) may be considered in addition to price. In addition, the bid evaluation factors set forth in City Code Section 1.06.262 may be considered by the City. Respondents who are inexperienced or who fail to properly perform other contracts may have their bids rejected for such cause.

B. Prequalified Electrical Contractor

Certain types of electrical construction require special expertise, experience, and prequalification of the Contractor (or subcontractor) by the City. In such cases, the Respondent must be prequalified or the Respondent must subcontract with a City prequalified electrical contractor for the specialty work.

C. Insertions of Material Conflicting with Specifications

Only material inserted by the Respondent to meet requirements of the Specifications will be considered. Any other material inserted by the Respondent will be disregarded as being nonresponsive and may be grounds for rejection of the Respondent's Proposal.

D. Correction of Ambiguities and Obvious Errors

The City reserves the right to correct obvious errors in the Respondent's proposal. In this regard, if the unit price does not compute to the extended total price, the unit price shall govern.

1.09 WITHDRAWAL OF BID

A. Prior to Bid Opening

Any Respondent may withdraw his/her Proposal prior to the scheduled bid opening time by delivering a written notice to the City's Procurement and Payables Office. The notice may be submitted in person or by mail; however, it must be received by the City's Procurement and Payables Office prior to the time of bid opening.

B. After Bid Opening

No Respondent will be permitted to withdraw his/her Proposal after the time of bid opening, as set forth in the Call for Bids, and before the actual award of the Contract, unless the award of Contract is delayed more than sixty (60) calendar days after the date set for bid opening. If a delay of more than 60 calendar days does occur, then the Respondent must submit written notice withdrawing his/her Proposal to the Purchasing Manager.

1.10 OPENING OF BIDS

At the time and place set for the opening of bids, all Proposals, unless previously withdrawn, will be publicly opened and read aloud, irrespective of any irregularities or informalities in such Proposal.

1.11 CITY COUNCIL/PUBLIC UTILITY BOARD FINAL DETERMINATION

The City Council or Public Utility Board of the City of Tacoma shall be the final judge as to which is the lowest and best bid in the interest of the City of Tacoma. The City reserves the right to reject any and all bids, waive minor deviations or informalities, and if necessary, call for new bids.

1.12 RESPONDENT'S REFUSAL TO ENTER INTO CONTRACT

Any Respondent who refuses to enter into a Contract after it has been awarded to the Respondent will be in breach of the agreement to enter the Contract and the Respondent's certified or cashier's check or bid bond shall be forfeited.

1.13 TAXES

A. Include In Proposal All Taxes

Respondent shall include in his/her Proposal all applicable local, city, state, and federal taxes. It is the Respondent's obligation to state on his/her Proposal sheet the correct percentage and total applicable Washington State and local sales tax. The total cost to the City including all applicable taxes may be the basis for determining the low Respondent.

B. Federal Excise Tax

The City of Tacoma is exempt from federal excise tax. Where applicable, the City shall furnish a Federal Excise Tax Exemption certificate.

C. City of Tacoma Business and Occupation Tax

Sub-Title 6A of the City of Tacoma Municipal Code (TMC) provides that transactions with the City of Tacoma, may be subject to the City of Tacoma's Business and Occupation Tax. It is the responsibility of the Respondent awarded the Contract to register with the City of Tacoma's Department of Tax and License, 733 South Market Street, Room 21, Tacoma, WA 98402-3768, telephone 253-591-5252. The City's Business and Occupation Tax amount shall not be shown separately but shall be included in the unit and/or lump sum prices bid.

1.14 FIRM PRICES/ESCALATION

Except as specifically allowed by the Special Provisions, only firm prices will be accepted.

1.15 AWARD

A. Construction and/or Labor Contracts

Unless specifically noted in the Special Provisions or Proposal sheets, all construction and/or labor contracts will be awarded to only one Respondent.

B. Supply/Equipment Contracts

The City reserves the right to award an equipment or supply contract for any or all items to one or more Respondents as the interests of the City will be best satisfied.

1.16 INCREASE OR DECREASE IN QUANTITIES

The City of Tacoma reserves the right to increase or decrease the quantities of any items under this Contract and pay according to the unit prices quoted in the Proposal (with no adjustments for anticipated profit).

1.17 EXTENSION OF CONTRACT

Contracts resulting from this specification shall be subject to extension by mutual agreement per the same prices, terms and conditions.

1.18 PAYMENT TERMS

- A. Prices will be considered as net 30 calendar days if no cash discount is shown. Payment discount periods of twenty (20) calendar days or more if offered in the submittal, will be considered in determining the apparent lowest responsible submittal. Discounts will be analyzed in context of their overall cumulative effect. Invoices will not be processed for payment nor will the period of cash discount commence until receipt of a properly completed invoice and until all invoiced items are received and satisfactory performance of the Contractor has been attained. If an adjustment in payment is necessary due to damage or dispute, the cash discount period shall commence on the date final approval for payment is authorized.
- B. ePayable/Credit Card Acceptance. Submittals offering ePayable/Credit card acceptance may be compared against submittals offering a prompt payment discount to evaluate the overall cumulative effect of the discount against the advantage to the City of the ePayable/Credit card acceptance, and may be considered in determining the apparent lowest responsible submittal.

1.19 PAYMENT METHOD – EPAYABLES – CREDIT CARD ACCEPTANCE – EFT/ACH ACCEPTANCE

- A. Payment methods include:
- EPayables (Payment Plus). This is payment made via a virtual, single use VISA card number provided by the City's commercial card provider. Suppliers accepting this option will receive "due immediately" payment terms. Two options for acceptance are available to suppliers. Both are accompanied by an emailed advice containing complete payment details:
 - Straight-through processing (buyer initiated). Immediate, exact payments directly deposited to supplier accounts by the City's provider bank; the supplier does not need to know card account details.
 - Supplier retrieves card account through the secure, on-line portal provided via email notifications sent by the City's commercial card provider.
 - Credit card. Tacoma's VISA procurement card program is supported by standard bank credit suppliers and requires that merchants abide by the VISA merchant operating rules. It provides "due immediately" payment terms.
 - Suppliers must be PCI-DSS compliant (secure credit card data management) and federal FACTA (sensitive card data display) compliant.
 - Suppliers must be set up by their card processing equipment provider (merchant acquirer) as a minimum of a Level II merchant with the ability to pass along tax, shipping and merchant references information.
 - Electronic Funds Transfer (EFT) by Automated Clearing House (ACH). Standard terms are net 30 for this payment method.
 - Check or other cash equivalent. Standard terms are net 30 for this payment method.
- B. The City's preferred method of payment is by ePayables (Payment Plus) followed by credit card (aka procurement card). Suppliers may be required to have the capability of accepting the City's ePayables or credit card methods of payment. **The City of Tacoma will not accept price changes or pay additional fees when ePayables (Payment Plus) or credit card is used.**
- C. The City, in its sole discretion, will determine the method of payment for goods and/or services as part of the Contract.

1.20 COOPERATIVE PURCHASING

The Washington State Interlocal Cooperative Act RCW 39.34 provides that other governmental agencies may purchase goods and services on this solicitation or contract in accordance with the terms and prices indicated therein if all parties are agreeable.

1.21 PUBLIC DISCLOSURE: PROPRIETARY OR CONFIDENTIAL INFORMATION

- A. Respondent's Submittals, all documents and records comprising any Contract awarded to Respondent, and all other documents and records provided to the City by Respondent are deemed public records subject to disclosure under the Washington State Public Records Act, Chapter 42.56 RCW (Public Records Act). Thus, City may be required, upon request, to disclose the Contract and documents or records related to it unless an exemption under the Public Records Act or other laws applies. In the event CITY receives a request for such disclosure, determines in its legal judgment that no applicable exemption to disclosure applies; and Respondent has complied with the requirements to mark records considered confidential or proprietary

as such requirements are stated below, City agrees to provide Respondent 10 days written notice of impending release. Should legal action thereafter be initiated by Respondent to enjoin or otherwise prevent such release, all expense of any such litigation shall be borne by Respondent, including any damages, attorneys' fees or costs awarded by reason of having opposed disclosure. City shall not be liable for any release where notice was provided and Respondent took no action to oppose the release of information.

B. If Respondent provides City with records or information that Respondent considers confidential or proprietary, Respondent must mark all applicable pages or sections of said record(s) as "Confidential" or "Proprietary." Further, in the case of records or information submitted in response to a Request for Proposals, an index must be provided indicating the affected pages or sections and locations of all such material identified Confidential or Proprietary. Information not included in the required index will not be reviewed for confidentiality or as proprietary before release. If Supplier fails to so mark or index Submittals and related records, then the City, upon request, may release said record(s) without the need to satisfy the requirements of subsection A above; and Respondent expressly waives its right to allege any kind of civil action or claim against the City pertaining to the release of said record(s). Submission of materials in response to City's Solicitation shall constitute assent by Respondent to the foregoing procedure and Respondent shall have no claim against the City on account of actions taken pursuant to such procedure.

1.22 FEDERAL AID PROJECTS

The City of Tacoma in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, subtitle A, Office of the Secretary, part 21, nondiscrimination in federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises as defined at 49 CFR, part 26, will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

SECTION II - CONTRACT REQUIREMENTS

2.01 CONTRACTOR'S RESPONSIBILITY

A. Contract Documents

The Respondent to whom the Contract is awarded, hereinafter called the Contractor, shall enter into a Contract with the City of Tacoma, , within 10 days after receipt from the City of Tacoma of a properly prepared Contract. In addition, the Contractor will do all things required to promptly perform this Contract pursuant to the terms of this Contract. Certain contracts for supplies, goods or equipment may use the City Purchase Order in place of a formal contract document.

B. Surety Bonds

Except as modified by the Special Provisions, the Respondent to whom the Contract is awarded shall provide a payment and performance bond, including power of attorney, for 100 percent of the amount of his/her bid (including sales taxes), to insure complete performance of the Contract including the guarantee. The bonds must be executed by a surety company licensed to do business in the State of Washington. For a supply-type contract, a cashier's check or cash may be substituted for the bonds; however, this cash or cashier's check must remain with the City through the guarantee period and any interest on said amount shall accrue to the City.

C. Independent Contractor

Contractor is an independent contractor; no personnel furnished by the Contractor shall be deemed under any circumstances to be the agent or servant of the City. Contractor shall be fully responsible for all acts or omissions of Subcontractors and its and their suppliers and of persons employed by them, and shall be specifically responsible for sufficient and competent supervision and inspection to assure compliance in every respect with the Contract. There shall be no contractual relationship between any Subcontractors or supplier and the City arising out of or by virtue of this agreement. No provision of the Contract is intended or is to be construed to be for the benefit of any third party.

2.02 CONFLICTS IN SPECIFICATIONS

Anything mentioned in the Specifications and not shown on the Drawings and anything on the Drawings and not mentioned in the Specifications shall be of like effect and shall be understood to be shown and/or mentioned in both. In case of differences between Drawings and Specifications, the Specifications shall govern. In addition, in the event of any conflict between these General Provisions, the Special Provisions, the Technical Provisions and/or the Proposal pages, the following order of precedence shall control:

1. Proposal pages prevail if they conflict with the General, Special or Technical Provisions.
2. Special Provisions prevail if they conflict with the General Provisions and/or Technical Provisions.
3. Technical Provisions prevail if they are in conflict with the General Provisions.

In case of discrepancy of figures between Drawings, Specifications or both, the matter shall immediately be submitted to the Engineer for determination. Failure to submit the discrepancy issue to the Engineer shall result in the Contractor's actions being at his/her own risk and expense. The Engineer shall furnish from time to time such detailed drawings and other information as he/she may consider necessary.

2.03 INSPECTION

A. Of the Work

All materials furnished and work done shall be subject to inspection.

The Inspector administering the Contract shall at all times have access to the work wherever it is in progress or being performed, and the Contractor shall provide proper facilities for such access and inspection. Such inspection shall not relieve the Contractor of the responsibility of performing the work correctly, utilizing the best labor and materials in strict accordance with the Specifications of this Contract. All material or work approved and later found to be defective shall be replaced without cost to the City of Tacoma.

B. Inspector's Authority

The inspector shall have power to reject materials or workmanship which do not fulfill the requirements of these Specifications, but in case of dispute the Contractor may appeal to the Director or Superintendent, whose decision shall be final. The word "Director" means the Director of the City of Tacoma General Government department that is administering the contract. The word "Superintendent" means the Superintendent of the City of Tacoma, Department of Public Utilities Division that is administering the contract.

The Contract shall be carried out under the general control of the representative of the particular City Department or Division administering the Contract, who may exercise such control over the conduct of the work as may be necessary, in his or her opinion, to safeguard the interest of the City of Tacoma. The Contractor shall comply with all orders and instructions given by the representative of the particular Department or Division administering the Contract in accordance with the terms of the Contract.

Provided, that for the purposes of construction contracts, such control shall only apply (a) to the extent necessary to ensure compliance with the provisions of this contract, and (b) to the extent necessary to fulfill any nondelegable duty of the City for the benefit of third parties not engaged in promoting the activity of this contract.

Nothing herein contained, however, shall be taken to relieve the Contractor of his/her obligations or responsibilities under the Contract.

2.04 FEDERAL, STATE AND MUNICIPAL REGULATIONS

All federal, state, municipal and/or local regulations shall be satisfied in the performance of all portions of this Contract. The Contractor shall be solely responsible for all violations of the law from any cause in connection with work performed under this Contract.

2.05 INDEMNIFICATION

A. Indemnification

Contractor acknowledges that pursuant to the terms of this agreement, Contractor is solely and totally responsible for the safety of all persons and property in the performance of this Contract. To the greatest extent allowed by law, Contractor assumes the risk of all damages, loss, cost, penalties and expense and agrees to indemnify, defend and hold harmless the City of Tacoma, from and against any and all liability which may accrue to or be sustained by the City of Tacoma on account of any claim, suit or legal action made or brought against the City of Tacoma for the death of or injury to persons (including Contractor's or subcontractor's employees) or damage to property involving Contractor, or subcontractor(s) and their employees or agents, arising out of and in connection with or incident to the performance of the Contract including if the City is found to have a nondelegable duty to see that work is performed with requisite care, except for injuries or damages caused by the sole negligence of the City. In this regard, Contractor recognizes that Contractor is waiving immunity under industrial Insurance Law, Title 51 RCW. This indemnification extends to the officials, officers and employees of the City and also includes attorney's fees and the cost of establishing the right to indemnification hereunder in favor of the City of Tacoma. In addition, within the context of competitive bidding laws, it is agreed that this indemnification has been mutually negotiated. Provided however, this provision is intended to be applicable to the parties to this agreement and it shall not be interpreted to allow a Contractor's employee to have a claim or cause of action against Contractor.

B. Limitation of Liability for Primarily Supply-Type Contracts

In all contracts where the total cost of the supply of materials and/or equipment constitute at least 70 percent of the total contract price (as determined by the City), the City agrees that it will not hold the contractor, supplier or manufacturer liable for consequential damages for that part of the contract related to the manufacture and/or design of the equipment, materials or supplies.

2.06 CONTRACTOR'S INSURANCE

A. During the course and performance of a Contract, Contractor will provide proof and maintain the insurance coverage in the amounts and in the manner specified in the City of Tacoma Insurance Requirements as is applicable to the services, products, and deliverables provided under the Contract. The City of Tacoma Insurance Requirements document, if issued, is fully incorporated into the Contract by reference.

B. Failure by City to identify a deficiency in the insurance documentation provided by Contractor or failure of City to demand verification of coverage or compliance by Contractor with these insurance requirements shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

2.07 ASSIGNMENT AND SUBLETTING OF CONTRACT

C. Assignment

The Contract shall not be assigned except with the consent of the Superintendent or his/her designee.

Requests for assignment of this contract must be in writing with the written consent of the surety, and the request must show the proposed person or organization to which the contract is assigned is capable, experienced and equipped to perform such work. The proposed substitute person or organization may be required to submit to the City information as to his/her experience, financial ability and give statements covering tools, equipment, organization, plans and methods to fulfill any portion of the Contract prior to approval of assignment.

D. Subletting

The Contract shall not be sublet except with the written consent of the Superintendent or his/her designee. In the event that a prequalified electrical contractor is necessary to perform certain portions of the work, such work may be subcontracted with a City prequalified electrical contractor for the type of work involved.

Requests for subletting of this Contract must be in writing with the written consent of the Surety, and the request must show the proposed person or organization to which the Contract is sublet is capable, experienced and equipped to perform such work. The proposed substitute person or organization may be required to submit to the City information as to his experience, financial ability and give statements covering tools, equipment, organization, plans and methods to fulfill any portion of the Contract prior to approval of subletting.

The written consent approving the subletting of the Contract shall not be construed to relieve the Contractor of his/her responsibility for the fulfillment of the Contract. The Subcontractor shall be considered to be the agent of the Contractor and the Contractor agrees to be responsible for all the materials, work and indebtedness incurred by the agent.

A subcontractor shall not sublet any portion of a subcontract for work with the City without the written consent of the City.

2.08 DELAY

E. Extension of Time

With the written approval of the Superintendent or his/her designee, the Contractor may be granted additional time for completion of the work required under this Contract, if, in the Superintendent's opinion the additional time requested arises from unavoidable delay.

F. Unavoidable Delay

Unavoidable delays in the prosecution of the work shall include only delays from causes beyond the control of the Contractor and which he/she could not have avoided by the exercise of due care, prudence, foresight and diligence. Delay caused by persons other than the Contractor, Subcontractors or their employees will be considered unavoidable delays insofar as they necessarily interfere with the Contractor's completion of the work, and such delays are not part of this Contract.

Unavoidable delay will not include delays caused by weather conditions, surveys, measurements, inspections and submitting plans to the Engineer of the particular Division involved in administering this Contract.

2.09 GUARANTEE

A. Guarantee for Construction, Labor or Services Contract

Neither the final certificate of payment or any provision in the Contract Documents, nor partial or entire occupancy of the premises by the City, shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of final acceptance of the work unless a longer period is specified. The City will give notice of observed defects with reasonable promptness.

If it has been discovered, before payment is required under the terms of the Contract, that there is a failure to comply with any of the terms and provisions of this Contract, the City has the right and may withhold payment.

In case of a failure of any part of the work, materials, labor and equipment furnished by the Contractor or to fully meet all of the requirements of the Contract, the Contractor shall make such changes as may be necessary to fully meet all of the specifications and requirements of this Contract. Such changes shall be made at the Contractor's sole cost and expense without delay and with the least practicable inconvenience to the City of Tacoma. Rejected material and equipment shall be removed from the City's property by and at the expense of the Contractor.

B. Guarantee for Supply Contracts

Unless a longer period is specified, the supplier and/or manufacturer of the supplies, materials and/or equipment furnished pursuant to this Contract agrees to correct any defect or failure of the supplies, materials and/or equipment which occurs within one year from the date of: (1) test energization if electrical or mechanical equipment; (2) commencement of use if supplies or materials, provided, however, said guarantee period shall not extend beyond eighteen months after date of receipt by the City. All of the costs (including shipping, dismantling and reinstallation) of repairs and/or corrections of defective or failed equipment, supplies and/or material is the responsibility of the supplier and/or manufacturer.

When the supplier is not the manufacturer of the item of equipment, supplier agrees to be responsible for this guarantee and supplier is not relieved by a manufacturer's guarantee.

C. Guarantee Period Extension

The Contract guarantee period shall be suspended from the time a significant defect is first documented by the City until the work or equipment is repaired or replaced by Contractor and accepted by the City. In addition, in the event less than ninety (90) days remain on the guarantee period (after recalculating), the guarantee period shall be extended to allow for at least ninety (90) days from the date the work or equipment is repaired or replaced and accepted by the City.

2.10 DEDUCTIONS FOR UNCORRECTED WORK

If the City of Tacoma deems it expedient to correct work not done in accordance with the terms of this Contract, an equitable deduction from the Contract price shall be made.

2.11 CITY OF TACOMA'S RIGHT TO TERMINATE CONTRACT

A. Termination for Convenience

1. Supplies. The City may terminate a Contract for supplies at any time upon prior written notice to Contractor. Upon the effective date of termination specified in such notice, and payment by the City, all conforming supplies, materials, or equipment previously furnished hereunder shall become its property.
2. Services. The City may terminate a Contract for services at any time, with or without cause, by giving 10-business day's written notice to Supplier. In the event of termination, all finished and unfinished work prepared by Supplier pursuant to the Contract shall be provided to the City. In the event City terminates the Contract due to the City's own reasons and without cause due to Supplier's actions or omissions, the City shall pay Supplier the amount due for actual work and services necessarily performed under the Contract up to the effective date of termination, not to exceed the total compensation set forth in the Contract.

B. Termination for Cause

1. The City may terminate a Contract for either services or supplies in the event of any material breach of any of the terms and conditions of the Contract if the Contractor's breach continues in effect after written notice of breach and 30 days to cure such breach and fails to cure such breach
2. Bankruptcy. If the Contractor should be adjudged as bankrupt, or makes a general assignment for the benefit of creditors, or a receiver should be appointed on account of his/her insolvency, or if he/she or any of his/her subcontractors should violate any of the provisions of the Contract, or if the work is not being properly and diligently performed, the City of Tacoma may serve written notice upon the Contractor and Surety, executing the Payment and Performance Bond, of its intention to terminate the Contract; such notice will contain the reasons for termination of the Contract, and unless within 10 days after the serving of such notice, such violation shall cease and an arrangement satisfactory to the City of Tacoma for correction thereof shall be made, the Contract shall, upon the expiration of said 10 days, cease and terminate and all rights of the Contractor hereunder shall be forfeited. In the event the Contract is terminated for cause, Contractor shall not be entitled to any lost profits resulting therefrom.
3. Notice. In the event of any such termination for cause, the City of Tacoma shall immediately send (by regular mail or other method) written notice thereof to the Surety and the Contractor. Upon such termination the Surety shall have the right to take over and perform the Contract, provided however, the Surety must provide written notice to the City of its intent to complete the work within 15 calendar days of its receipt of the original written notice (from the City) of the intent to terminate. Upon termination and if the Surety does not perform the work, the City of Tacoma may take over the work and prosecute the same to completion by any method it may deem advisable, for the account of and at the expense of the Contractor, and the Contractor and the Surety shall be liable to the City of Tacoma for all cost occasioned to the City of Tacoma thereby. The City of Tacoma may without liability for doing so, take possession of and utilize in completing the work, such materials, equipment, plant and other property belonging to the Contractor as may be on the site of the work and necessary therefore.

2.12 LIENS

In the event that there are any liens on file against the City of Tacoma, the City of Tacoma shall be entitled to withhold final or progress payments to the extent deemed necessary by the City of Tacoma to properly protect the outstanding lien claimants until proper releases have been filed with the City Clerk.

2.13 LEGAL DISPUTES

A. General

Washington law shall govern the interpretation of the Contract. The state or federal courts located in Pierce County Washington shall be the sole venue of any mediation, arbitration, or litigation arising out of the Contract.

Respondents providing submittals from outside the legal jurisdiction of the United States of America will be subject to Tacoma's City Attorney's Office (CAO) opinion as to the viability of possible litigation pursuant to a contract resulting from this Specification. If it is the opinion of the CAO that any possible litigation would be beyond reasonable cost and/or enforcement, the submittal may be excluded from evaluation.

B. Attorney Fees

For contracts up to \$250,000, which become the subject of litigation or arbitration, the substantially prevailing party may be entitled to reasonable attorney fees, as provided in RCW 39.04.240. Provided, however, the attorney fee hourly rate for the City of Tacoma's assistant city attorneys is agreed to be \$150 per hour or the same as the hourly rate for Contractor's legal counsel, whichever is greater.

2.14 DELIVERY

Prices must be quoted F.O.B. destination, freight prepaid and allowed with risk of loss during transit remaining with Contractor/Supplier (unless otherwise stated in these Specifications) to the designated address set forth in these Specifications.

Deliveries shall be between 9:00 a.m. and 3:30 p.m.; Monday through Friday only (except legal holidays of the City of Tacoma).

Legal holidays of the City of Tacoma are:

New Year's Day	January 1
Martin Luther King's Birthday	3rd Monday in January
Washington's Birthday	3rd Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	1st Monday in September
Veteran's Day	November 11
Thanksgiving Day	4th Thursday of November
Day after Thanksgiving	4th Friday of November
Christmas Day	December 25

When any of these holidays occur on Saturday or Sunday, the preceding Friday or the following Monday, respectively, is a legal holiday for the City of Tacoma.

2.15 PACKING SLIPS AND INVOICES

A. Packing slips and shipping notices shall be sent to the specific City Division or Department receiving the item(s) at the address stated in City's Solicitation or as otherwise stated in the Contract and include complete description of items, contents of items if crated or cased, quantity, shipping point, carrier, bill of lading number and City of Tacoma purchase order.

B. Each invoice shall show City of Tacoma purchase order number, release number if applicable, quantity, unit of measure, item description, unit price and extended price for each line if applicable, services and deliverables provided if applicable. Line totals shall be summed to give a grand total to which sales tax shall be added, if applicable.

1. For transactions conducted in SAP Ariba, invoices shall be submitted through Ariba.
2. For invoices paid by ACH or by check, unless stated otherwise, invoices shall be electronically submitted by email with corresponding PO number listed in the subject line to accountspayable@cityoftacoma.org.

3. For invoices paid by credit card, invoices shall also display the last name of the cardholder and last four digits (only) of the card number (e.g., Jones/6311). Unless stated otherwise, invoices shall be electronically submitted by email with corresponding PO number listed in the subject line to (do not combine different POs into one invoice or charge) to pcardadmin@cityoftacoma.org.

2.16 APPROVED EQUALS

A. Unless an item is indicated as "No substitute", special brands, when named, are intended to describe the standard of quality, performance or use desired. Equal items will be considered by the City, provided that the respondent specifies the brand and model, and provides all descriptive literature, independent test results, product samples, local servicing and parts availability to enable the City to evaluate the proposed "equal".

B. The decision of the City as to what items are equal shall be final and conclusive. If the City elects to purchase a brand represented by the respondent to be an "equal", the City's acceptance of the item is conditioned on the City's inspection and testing after receipt. If, in the sole judgment of the City, the item is determined not to be an equal, the item shall be returned at the respondent's expense.

C. When a brand name or level of quality is not stated by the respondent, it is understood the offer is exactly as specified. If more than one brand name is specified, respondents must clearly indicate the brand and model/part number being bid.

2.17 ENTIRE AGREEMENT

This written contract represents the entire Agreement between the parties and supersedes any prior oral statements, discussions or understandings between the parties.

2.18 CODE OF ETHICS

The City's Code of Ethics, Chapter 1.46, Tacoma Municipal Code, provides ethical standards for City personnel and prohibits certain unethical conduct by others including respondents and contractors. Violation of the City's Code of Ethics will be grounds for termination of this contract.

2.19 FEDERAL FINANCIAL ASSISTANCE

If federal funds, including FEMA financial assistance to the City of Tacoma, will be used to fund, pay or reimburse all or a portion of the Contract, Contractor will comply with all applicable Federal law, regulations, executive orders, FEMA policies, procedures, and directives and the following clauses will be incorporated into the Contract:

A. EQUAL EMPLOYMENT OPPORTUNITY During the performance of this Contract, Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

1. Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
3. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other

employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
5. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
6. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
7. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
8. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

B. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (B)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (B)(1) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

3. Withholding for unpaid wages and liquidated damages. The City shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (B)(2) of this section.
4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (B)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (B)(1) through (4) of this section.

C. CLEAN AIR ACT

1. Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
2. Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FEMA.

D. FEDERAL WATER POLLUTION CONTROL ACT

1. Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.
2. Contractor agrees to report each violation to the City, understands, and agrees that the City will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FEMA.

E. DEBARMENT AND SUSPENSION

1. This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).
2. Contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
3. This certification is a material representation of fact relied upon by the City. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to (insert name of recipient/subrecipient/applicant), the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
4. Contractor agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

F. BYRD ANTI-LOBBYING AMENDMENT

1. Contractors who apply or bid for an award of \$100,000 or more shall file the required certification with City. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the City.
2. If applicable, Contractor must sign and submit to the City the following certification:

APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap.38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Name and Title of Contractor's Authorized Official

Date

G. PROCUREMENT OF RECOVERED MATERIALS

1. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired:
 - a. Competitively within a timeframe providing for compliance with the contract performance schedule;
 - b. Meeting contract performance requirements; or
 - c. At a reasonable price.
2. Information about this requirement, along with the list of EPA- designated items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.
3. Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

[Section III is for contracts that involve construction and/or labor, and are not applicable to contracts solely for material/supply purchases.]

GENERAL PROVISIONS

SECTION III - CONSTRUCTION AND/OR LABOR CONTRACTS

SECTION III REQUIREMENTS APPLY ONLY TO CONSTRUCTION AND/OR LABOR CONTRACTS AND ARE IN ADDITION TO APPLICABLE REQUIREMENTS CONTAINED IN SECTION II CONTRACT REQUIREMENTS.

3.01 RESPONDENT'S DUTY TO EXAMINE

The Respondent agrees to be responsible for examining the site(s) and to have compared them with the Specifications and Contract Drawings, and to be satisfied as to the facilities and difficulties attending the execution of the proposed Contract (such as uncertainty of weather, floods, nature and condition of materials to be handled and all other conditions, obstacles and contingencies) before the delivery of his/her Proposal. No allowance will be subsequently made by the City on behalf of the Respondent by reason of any error or neglect on Respondent's part, for such uncertainties as aforesaid.

3.02 PERMITS

Except when modified by the Special Provisions, the Contractor shall procure and pay for all permits and licenses necessary for the completion of this Contract including those permits required by the City of Tacoma. The City will obtain county or state road crossing permits if required. In the event a necessary permit is not obtained, the Contractor will not be permitted to work on items subject to said permit and any delays caused thereby will not be subject to extra compensation or extensions.

3.03 NOTIFICATION OF OTHER GOVERNMENTAL AGENCIES AND UTILITIES WHEN UNDERGROUND WORK IS INVOLVED

The Contractor shall notify all other affected governmental agencies and utilities whenever underground work is done under the terms of this Contract. The Contractor is required to obtain permission of the appropriate public and private utilities and governmental agencies before performing underground work pursuant to the terms of this Contract. The Contractor is required to call "one call" at 1-800-424-5555 for all work involving excavation or digging more than 12 inches beneath ground or road surface.

The City may have indicated on the plans and specifications the existence of certain underground facilities that are known to the City department responsible for this Contract. It is the Contractor's responsibility to fully comply with the Underground Utility Locate Law, Chapter 19.122 RCW. If the site conditions are "changed or differing" as defined by RCW 19.122.040(l), the Contractor may pursue the party responsible for not properly marking or identifying the underground facility. The Contractor agrees not to file any claim or legal action against the City (department responsible for this Contract) for said "changed or differing" conditions unless said City department is solely responsible for the delay or damages that the Contractor may have incurred.

3.04 TRENCH EXCAVATION BID ITEM

In the event that "trench excavation" in excess of four feet requires a safety system pursuant to Washington State law and safety shoring, sloping, sheeting, or bracing is used, a separate bid item should be set forth in the Proposal for this work. If a separate bid item is not set forth in the Proposal pages, said installed safety system shall be paid at \$3.00 per lineal foot of trench, which unit price includes both sides of the trench.

3.05 SAFETY

A. General

The Contractor shall, at all times, exercise adequate precautions for the safety of all persons, including its employees and the employees of a Subcontractor, in the performance of this Contract and shall comply with all applicable provisions of federal, state, county and municipal safety laws and regulations. It is the Contractor's responsibility to furnish safety equipment or to contractually require Subcontractors to furnish adequate safety equipment relevant to their responsibilities.

The Contractor shall obtain the necessary line clearance from the inspector before performing any work in, above, below or across energized Light Division circuits.

The Inspector and/or Engineer may advise the Contractor and the Safety Officer of any safety violations. It is the Contractor's responsibility to make the necessary corrections. Failure to correct safety violations is a breach of this Contract and, as such, shall be grounds for an order from the Safety Officer, Inspector or Engineer to cease further work and remove from the job site until the condition is corrected. Time and wages lost due to such safety shutdowns shall not relieve the Contractor of any provisions of Section 3.14 of this Specification and shall be at the sole cost of the Contractor. The purpose of this authority to stop work is to enforce the contract and not to assume control except to the extent necessary to ensure compliance with the provisions of this contract.

Any of the above actions by employees of the City of Tacoma shall in no way relieve the Contractor of his/her responsibility to provide for the safety of all persons, including his/her employees.

B. Work Hazard Analysis Report

The Contractor will be required to complete a work hazard analysis report. This report shall outline how the Contractor proposes to satisfy all safety laws and regulations involved in performing the work. This report shall be completed and submitted to the City Safety Officer before the pre-construction conference. A copy of the report shall be maintained at the work site (accessible to the supervisor).

3.06 PROTECTION OF WORKERS AND PROPERTY

The Contractor shall erect and maintain good and sufficient guards, barricades and signals at all unsafe places at or near the work and shall, in all cases, maintain safe passageways at all road crossings, and crosswalks, and shall do all other things necessary to prevent accident or loss of any kind.

The Contractor shall protect from damage all utilities, improvements, and all other property that is likely to become displaced or damaged by the execution of the work under this Contract.

The Contractor is responsible for all roads and property damaged by his/her operations as shall be determined by the Engineer administering this Contract. The Contractor shall be responsible for repairing all damage to roads caused by his/her operations to the satisfaction of the particular governmental body having jurisdiction over the road.

3.07 CONTRACTOR - SUPERVISION AND CHARACTER OF EMPLOYEES

A. Superintendent to Supervise Contractor's Employees

The Contractor shall keep on his/her work, during its progress, a competent superintendent and any necessary assistants, all of whom must be satisfactory to the City of Tacoma. The Contractor's superintendent shall not be changed except with the consent of the City of Tacoma, unless the Contractor's superintendent proves to be unsatisfactory to the Contractor and ceases to be in his/her employ. The Contractor's superintendent shall represent the Contractor in his/her absence and all directions given to him/her shall be binding as if given to the Contractor directly. The Contractor shall give efficient supervision to the work, using his/her best skill and attention.

B. Character of Contractor's Employees

The Contractor shall employ only competent, skillful, faithful and orderly persons to do the work, and whenever the Engineer administering the Contract shall notify the Contractor in writing that any person on the work is, in his or her opinion, incompetent, unfaithful, disorderly or otherwise unsatisfactory, the Contractor shall forthwith discharge such persons from the work and shall not again employ him or her on this Contract.

3.08 CONTRACTOR'S COMPLIANCE WITH THE LAW

A. Hours of Labor

The Contractor and Subcontractors shall be bound by the provisions of RCW Chapter 49.28 (as amended) relating to hours of labor. Except as set forth in the Special Provisions, eight (8) hours in any calendar day shall constitute a day's work on a job performed under this Contract.

In the event that the work is not performed in accordance with this provision and in accordance with the laws of the State of Washington, then this Contract may be terminated by the City of Tacoma for the reason that the same is not performed in accordance with the public policy of the State of Washington as defined in said statutes.

B. Prevailing Wages

If federal, state, local, or any applicable law requires Supplier to pay prevailing wages in connection with a Contract, and Supplier is so notified by the City, then Supplier shall pay applicable prevailing wages.

If applicable, a Schedule of Prevailing Wage Rates and/or the current prevailing wage determination made by the Secretary of Labor for the locality or localities where the Contract will be performed is attached and made of part of the Contract by this reference. If prevailing wages do apply to the Contract, Supplier and its subcontractors shall:

1. Be bound by and perform all transactions regarding the Contract relating to prevailing wages and the usual fringe benefits in compliance with the provisions of Chapter 39.12 RCW, as amended, the Washington State Prevailing Wage Act and/or the Davis-Bacon Act (40 U.S.C. 3141- 3144, and 3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable, including the federal requirement to pay wages not less than once a week,
2. Ensure that no worker, laborer or mechanic employed in the performance of any part of the Contract shall be paid less than the prevailing rate of wage specified on that Schedule and/or specified in a wage determination made by the Secretary of Labor (unless specifically preempted by federal law, the higher of the Washington state prevailing wage or federal Davis-Bacon rate of wage must be paid) and Additionally, in compliance with applicable federal law, contractors are required to pay wages not less than once a week.
3. Immediately upon award of the Contract, contact the Department of Labor and Industries, Prevailing Wages section, Olympia, Washington and/or the federal Department of Labor, to obtain full information, forms and procedures relating to these matters. Per such procedures, a Statement of Intent to Pay Prevailing Wages and/or other or additional documentation required by applicable federal law, must be submitted by Contractor and its subcontractors to the City, in the manner requested by the City, prior to any payment by the City hereunder, and an Affidavit of Wages Paid and/or other or additional documentation required by federal law must be received or verified by the City prior to final Contract payment. In the event any dispute arises as to what are the prevailing rates of wages for work of a similar nature and such 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 State of Washington, Department of Labor and industries whose decision shall be final, conclusive and binding on all parties involved in the dispute.

3.09 COPELAND ANTI-KICKBACK ACT

For contracts subject to Davis Bacon Act the following clauses will be incorporated into the Contract:

A. Contractor. The contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.

B. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.

C. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.

3.10 CHANGES

A. In Plans or Quantities

The City of Tacoma, without invalidating this Contract, or any part of this Contract, may order extra work or make reasonable changes by altering, adding to or deducting from the materials, work and labor and the Contract sum will be adjusted accordingly. All such work and labor shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change. When work or bid items are deducted, reduced or eliminated, it is agreed that no payment will be made to Contractor for anticipated profit.

B. Extra Work

Any claim or order for extra materials, work and labor made necessary by alterations or additions to the plans or by other reasons for which no price is provided in this Contract, shall not be valid unless the Contractor and Engineer administering the Contract have agreed upon a price prior to commencing extra work, and the agreement has been signed by the Contractor and approved by the Superintendent or his/her designee, and approved by the payment and performance bond surety.

C. Extra Work - No Agreed Price

If it is impracticable to fix an increase in price definitely in advance, the order may fix a maximum price which shall not under any circumstances, be exceeded, and subject to such limitation, such alteration, modification, or extra shall be paid for at the actual necessary cost as determined by the City of Tacoma, which cost (including an allowance for profit) shall be determined as the sum of the following items (1) to (7) inclusive:

- (1) Labor, computed at regular wage scale, including premium on compensation insurance and charge for social security taxes, and other taxes, pertaining to labor; no charge for premium pay shall be allowed unless authorized by the Engineer administering the Contract;
- (2) The proportionate cost of premiums on comprehensive general liability and other insurance applicable to the extra work involved and required under this Contract;
- (3) Material, including sales taxes pertaining to materials;
- (4) Plant and equipment rental, to be agreed upon in writing before the work is begun; no charge for the cost of repairs to plant or equipment will be allowed;
- (5) Superintendence, general expense and profit computed at 20 percent of the total of paragraphs (1) to (4) inclusive;
- (6) The proportionate cost of premiums on bonds required by this Contract, computed by 1 1/2 percent of the total of paragraphs (1) to (5) inclusive.
- (7) The City of Tacoma reserves the right to furnish such materials as it may deem expedient, and no allowance will be made for profit thereon.

Whenever any extra work is in progress, for which the definite price has not been agreed on in advance, the Contractor shall each day, report to the Engineer the amount and cost of the labor and material used, and any other expense incurred in such extra work on the preceding day, and no claim for compensation for such extra work will be allowed unless such report shall have been made.

The above-described methods of determining the payment for work and materials shall not apply to the performance of any work or the furnishing of any material, which, in the judgment of the Engineer administering the Contract, may properly be classified under items for which prices are established in the Contract.

D. Claims for Extra Work

If the Contractor claims that any instructions by drawings or otherwise, involve extra cost under this Contract, he/she shall give the City of Tacoma written notice thereof within 30 days after receipt of such instruction, and in any event before proceeding to execute the work, except in an emergency endangering life or property, and the procedures governing the same shall be as provided for immediately above in this paragraph. The method in these paragraphs is the only method available to the Contractor for payment of claims for extra work performed under the terms of this Contract.

3.11 CLEANING UP

The Contractor shall at all times, at his/her own expense, keep the premises free from accumulation of waste materials or debris caused by any workers or the work, at the completion of the work the Contractor shall remove all his waste materials from and about the site and all his/her equipment, sanitary facilities and surplus materials. In the case of dispute, the City of Tacoma may remove the debris and charge the cost to the Contractor as the City of Tacoma shall determine to be just. All material that is deposited or placed elsewhere than in places designated or approved by the Engineer administering the Contract will not be paid for and the Contractor may be required to remove such material and deposit or place it where directed.

3.12 PROGRESS PAYMENT

Progress payments will be made up to the amount of ninety-five percent (95%) of the actual work completed as shall be determined by the Engineer administering the Contract.

The Contractor may request that an escrow account be established as permitted by law, in which event the Contractor will earn interest on the retained funds.

When the time for construction, services and/or installation will exceed thirty (30) days, the Contractor may request, by invoice, to be paid a progress payment based on percentage of work completed. The Engineer will review and approve the progress payment request on a monthly basis.

3.13 FINAL PAYMENT

The final payment of five percent (5%) of the Contract price shall be approved on final acceptance of the work under this Contract by the Superintendent or his/her designee. In addition, before final payment is made, the Contractor shall be required to:

- A. Provide a certificate from the Washington State Department of Revenue that all taxes due from the Contractor have been paid or are collectible in accordance with the provisions of Chapter 60.28 and Title 82 of the Revised Code of Washington;
- B. Provide the General Release to the City of Tacoma on the form set forth in these Contract documents;
- C. Provide a release of any outstanding liens that have been otherwise filed against any monies held or retained by the City of Tacoma;
- D. File with the City Director of Finance, and with the Director of the Washington State Department of Labor and Industries, on the state form to be provided, an affidavit of wages paid;
- E. File with the City Director of Finance, on the state form to be provided, a statement from the State of Washington, Department of Labor and Industries, certifying that the prevailing wage requirements have been satisfied.
- F. File with the City Director of Finance, on the state form to be provided, a statement of release from the Public Works Contracts Division of the State of Washington, Department of Labor and Industries, verifying that all industrial insurance and medical aid premiums have been paid.

If there is a fee assessed to the City for any certificate, release or other form required by law, the contractor agrees that the fee amount may be passed on to the Contractor and deducted from the monies paid to the Contractor.

3.14 FAILURE TO COMPLETE THE WORK ON TIME

Should the completion of the work required under the Contract be delayed beyond the expiration of the period herein set for the completion of said work, or such extension of said period as may be allowed by reason of unavoidable delays, there shall be deducted from the total Contract price of work, for each calendar day by which such completion shall be delayed beyond said period of such extension thereof the sum of \$300 or a sum of money as set forth hereinafter in these Specifications, as the amount of such deduction per calendar day.

Said sum shall be considered not as a penalty, but as liquidated damages, which the City will suffer by reason of the failure of the Contractor to perform and complete the work within the period, herein fixed or such extensions of said period as may be allowed by reason of unavoidable delays.

Any money due or to become due the Contractor may be retained by the City to cover said liquidated damages, and should such money not be sufficient to cover such damages, the City shall have the right to recover the balance from the Contractor or his/her Sureties.

The filing of any bid for the work herein contemplated shall constitute acknowledgment by the Respondent that he/she understands, agrees and has ascertained that the City will actually suffer damages to the amount hereinabove fixed for each and every calendar day during which the completion of the work herein required shall be delayed beyond the expiration of the period herein fixed for such completion or such extension of said period as may be allowed by reason of unavoidable delays.

3.15 CITY RESERVES RIGHT TO USE FACILITIES PRIOR TO ACCEPTANCE

The City of Tacoma hereby reserves the right to use the facilities herein contracted prior to final acceptance under this Contract. The use of said facilities, as mentioned herein, shall not be construed as a waiver or relinquishment of any rights that the City of Tacoma has under this Contract.

3.16 LIST OF SUBCONTRACTORS

Bid proposals for construction, alteration or repair of any building or other public works that may exceed \$1,000,000 including tax shall satisfy the following requirement: Respondent shall submit as part of the bid, the names of the subcontractors, with whom the respondent, if awarded the contract, will subcontract performance of the work of heating, ventilation and air conditioning, plumbing as described in chapter 18.106 RCW, and electrical as described in chapter 19.28 RCW, or to name itself for the work. The respondent shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the respondent must indicate which subcontractor will be used for which alternate. Failure to comply with this provision or the naming of two or more subcontractors to perform the same work shall require the City (pursuant to state law RCW 39.30.060) to determine that respondent's bid is nonresponsive; therefore, the bid will be rejected.

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GENERAL CONDITIONS FOR WASHINGTON STATE FACILITY CONSTRUCTION**

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**CITY OF TACOMA MODIFICATIONS TO THE
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PART 1 GENERAL PROVISIONS

1.01 DEFINITIONS

Replace the following article in Section 1.01:

- Q. "Owner" means the City or its authorized representative with the authority to enter into, administer, and/or terminate the Work in accordance with the Contract Documents and make related determinations and findings.

Add the following articles to Section 1.01:

- AC. "Abbreviations" refer to trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the specifications or other contract documents, they mean recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.
- AD. "Alternate Bid" (or Alternate) is an amount stated in the Bid to be added or deducted from the amount of the base Bid if the corresponding change in project scope or materials or methods of construction described in the Bidding Documents is accepted.
- AE. "Base Bid" is the sum stated in the Bid for which the Bidder offers to perform the work described as the base, to which work may be added or deducted for sums stated in Alternate Bids and Unit Prices. The base bid does not include Allowances, Force Account work and Washington State Sales taxes. Owner shall pay Contractor the Contract Sum plus state sales tax for performance of the Work, in accordance with the Contract Documents.
- AF. "Contracting Agency" (or Owner) is the City of Tacoma.
- AG. "Contract Provisions" is the publication addressing the work required for an individual project. At the time of the call for bids, the contract provisions may include, for a specific individual project, the general conditions, supplements to the general conditions, the special provisions, a listing of the applicable standard plans, the prevailing minimum hourly wage rates, contract forms, LEAP and EIC requirements.
- AH. "Furnish" is used to mean supply and deliver to the project site, ready for unloading, unpacking, assembly, installation and other.
- AI. "Indicated" refers to graphic representations, notes or schedules on the drawings, or other paragraphs or schedules in the specifications, and similar requirements in the contract documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help the reader locate the reference; no limit on location is intended.
- AJ. "Install" is used to describe operations at the project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

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- AK. “Installer” is the contractor or an entity engaged by the contractor, either as an employee, subcontractor, or contractor of lower tier for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
- AL. “Provide” means to furnish and install, complete and ready for intended use.
- AN. “Unit Price” is an amount stated in the Bid as a price per unit of measurement for materials or services as described in the Contract Documents.

1.03 EXECUTION AND INTENT

Add the following to Section 1.03:

The intent of the contract is to be prescribing a complete work. Omissions from the contract of details of work, which are necessary to carry out the contract, shall not relieve the Contractor from performing the omitted work.

1.04 OBJECTIONS TO APPLICATION OF PRODUCTS

Add the following new Section 1.04:

Bidders for this project are required to thoroughly familiarize themselves with specified products and installation procedures and submit to the Senior Buyer any questions or objections (in writing) no later than **the date specified on the “Bidder Question Form.”** Submittal of Bid constitutes acceptance of products and procedures specified.

1.05 DISQUALIFICATION OF BIDDERS

Add the following new Section 1.05:

A bidder may be deemed not responsible, and the proposal rejected by the Owner for any of the following:

- A. More than one bid proposal is submitted for the same project from a bidder under the same or different names;
- B. Evidence of collusion exists with any other bidder. Participants in collusion will be restricted from submitting future bids;
- C. A bidder is not pre-qualified for the work or to the full extent of the bid;
- D. An unsatisfactory performance record exists based on past or current work;
- E. There is incomplete work which may hinder or prevent the prompt completion of the work bid upon;
- F. The bidder failed to settle bills for labor or materials on past or current contracts;
- G. The bidder has failed to complete a written public contract or has been convicted of a crime arising from a previous public contract;
- H. The bidder is unable, financially or otherwise, to perform the work;
- I. A bidder is not authorized to do business in the state of Washington;
- J. Failure by the contractor to properly review the project documents and/or site;

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- K. The bid proposal was not received by the submittal deadline;
- L. The contractor fails to meet the LEAP or EIC requirements as described in these documents;
- M. Receipt of addenda is not acknowledged; or
- N. There are any other reasons deemed proper by the Owner.

1.06 PRE-AWARD INFORMATION

Add the following new Section 1.06:

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

1. A complete statement of the origin, composition, and manufacture of any or all materials to be used,
2. Samples of these materials for quality and fitness tests,
3. A progress schedule (in a form the Owner requires) showing the order of and time required for the various phases of the work,
4. A breakdown of costs assigned to any bid item,
5. Attendance at a conference with the Engineer or representatives of the Engineer,
6. Bid evaluation submittals related to the contractors ability to perform the work including experience on similar projects, project personnel and equipment, and financial resources, or
7. Any other information or action taken that is deemed necessary to ensure that the bidder is the lowest responsible bidder.

PART 2 INSURANCE AND BONDS

2.01 CONTRACTOR'S LIABILITY INSURANCE

Replace the entire Section 2.01 with the following:

Insurance shall be per the City's standard "City of Tacoma Insurance Requirements" provided in the Contract Forms section of the Project Manual.

2.02 COVERAGE LIMITS

Replace the entire Section 2.02 with the following:

Insurance shall be per the City's standard "City of Tacoma Insurance Requirements" provided in the Contract Forms section of the Project Manual.

**CITY OF TACOMA MODIFICATIONS TO THE
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2.03 INSURANCE COVERAGE CERTIFICATES

Replace the entire Section 2.03 with the following:

Insurance shall be per the City's standard "City of Tacoma Insurance Requirements" provided in the Contract Forms section of the Project Manual.

2.04 PAYMENT AND PERFORMANCE BONDS

Add the following to Section 2.04:

For contracts of \$150,000 or less, the Contractor may, at the Contractor's option authorize the Contracting Agency to retain 10% of the contract amount in lieu of furnishing a performance and/or payment bond. For contracts over \$150,000, a Payment Bond and Performance Bond shall be obtained by the Contractor utilizing the forms entitled "Payment Bond to the City of Tacoma" and "Performance Bond to the City of Tacoma" as found at the front of the Project Manual under "Contract Forms".

2.06 BUILDER'S RISK

Replace the entire Section 2.06 with the following:

Insurance shall be per the City's standard "City of Tacoma Insurance Requirements" provided in the Contract Forms section of the Project Manual.

PART 3 TIME AND SCHEDULE

3.07 DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION

Delete Section 3.07 B – Actual Damages.

PART 5 PERFORMANCE

5.04 PREVAILING WAGES

Replace Section 5.04 G with the following.

- G. Certified Payrolls: Consistent with WAC 296-127-320, the contractor and any subcontractor shall submit a certified copy of payroll records monthly. All certified payrolls must be filled with L&I's online reporting system consistent with RCW 31.12.120 with a copy of such fillings being provided to the City of Tacoma per and in accordance with the project documents unless specified by owner in writing. Any contractor or subcontractor failing to comply with this requirement will be in violation of RCW 39.12.050.

5.14 AVAILABILITY AND USE OF UTILITY SERVICES

Delete Section 5.14 A – Owner to provide and charge for utilities.

**CITY OF TACOMA MODIFICATIONS TO THE
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5.15 TESTS AND INSPECTIONS

Replace Section 5.15 A with the following.

A. Testing and inspection of work:

Contractor shall maintain an adequate testing and inspection program and perform such tests and inspections as are necessary or required to ensure that the Work conforms to the requirements of the Contract Documents. Contractor shall be responsible for inspection and quality surveillance of all its Work and all Work performed by any Subcontractor. Unless otherwise provided, Contractor shall make arrangements for such tests, inspections, and approvals or entity acceptable to Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. Contractor shall give Owner timely notice of when and where tests and inspections are to be made. Contractor shall maintain complete inspection records and make them available to Owner.

Owner will contract separately with an independent testing laboratory for code required special inspections, if applicable. Contractor shall give Owner timely notice of when and where special inspections are to be made.

5.20 SUBCONTRACTORS AND SUPPLIERS

Delete Section 5.20 E – Automatic assignment of subcontracts.

PART 10 MISCELLANEOUS PROVISIONS

10.11 DIVERSE BUSINESS PARTICIPATION

Replace Section 10.11 with the following:

The City of Tacoma requires participation by Diverse Businesses in its' contracts as supported by the City's Equity in Contracting office, Municipal code TMC 1.07.040, RCW chapters 39, 43, and WAC326. Refer to the City Programs section of the contract documents for specific project requirements.

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PART 1 - GENERAL PROVISIONS

1.01 DEFINITIONS

- A. "Application for Payment" means a written request submitted by Contractor to A/E for payment of Work completed in accordance with the Contract Documents and approved Schedule of Values, supported by such substantiating data as Owner or A/E may require.
- B. "Architect," "Engineer," or "A/E" means a person or entity lawfully entitled to practice architecture or engineering, representing Owner within the limits of its delegated authority.
- C. "Change Order" means a written instrument signed by Owner and Contractor stating their agreement upon all of the following: (1) a change in the Work; (2) the amount of the adjustment in the Contract Sum, if any, and (3) the extent of the adjustment in the Contract Time, if any.
- D. "Claim" means Contractor's exclusive remedy for resolving disputes with Owner regarding the terms of a Change Order or a request for equitable adjustment, as more fully set forth in Part 8.
- E. "Contract Award Amount" is the sum of the Base Bid and any accepted Alternates.
- F. "Contract Documents" means the Advertisement for Bids, Instructions for Bidders, completed Bid Form, General Conditions, Modifications to the General Conditions, Supplemental Conditions, Public Works Contract, other Special Forms, Drawings and Specifications, and all addenda and modifications thereof.
- G. "Contract Sum" is the total amount payable by Owner to Contractor, for performance of the Work in accordance with the Contract Documents, including all taxes imposed by law and properly chargeable to the Work, except Washington State sales tax.
- H. "Contract Time" is the number of calendar days allotted in the Contract Documents for achieving Substantial Completion of the Work.
- I. "Contractor" means the person or entity who has agreed with Owner to perform the Work in accordance with the Contract Documents.
- J. "Day(s):" Unless otherwise specified, day(s) shall mean calendar day(s)."
- K. "Drawings" are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, and may include plans, elevations, sections, details, schedules, and diagrams.
- L. "Final Acceptance" means the written acceptance issued to Contractor by Owner after Contractor has completed the requirements of the Contract Documents, as more fully set forth in Section 6.09 B.
- M. "Final Completion" means that the Work is fully and finally complete in accordance with the Contract Documents, as more fully set forth in Section 6.09 A.
- N. "Force Majeure" means those acts entitling Contractor to request an equitable adjustment in the Contract Time, as more fully set forth in paragraph 3.05A.
- O. "Notice" means a written notice that has been delivered to the authorized representative or officer of the addressed party by registered or certified mail, or by email as a PDF attachment. Notices should clearly identify the project number and date of notice.

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- P. "Notice to Proceed" means a notice from Owner to Contractor that defines the date on which the Contract Time begins to run.
- Q. "Owner" means the state agency, institution, or its authorized representative with the authority to enter into, administer, and/or terminate the Work in accordance with the Contract Documents and make related determinations and findings.
- R. "Person" means a corporation, partnership, business association of any kind, trust, company, or individual.
- S. "Prior Occupancy" means Owner's use of all or parts of the Project before Substantial Completion, as more fully set forth in Section 6.08 A.
- T. "Progress Schedule" means a schedule of the Work, in a form satisfactory to Owner, as further set forth in Section 3.02.
- U. "Project" means the total construction of which the Work performed in accordance with the Contract Documents may be the whole or a part and which may include construction by Owner or by separate contractors.
- V. "Project Record" means the separate set of Drawings and Specifications as further set forth in paragraph 4.02A.
- W. "Schedule of Values" means a written breakdown allocating the total Contract Sum to each principal category of Work, in such detail as requested by Owner.
- X. "Specifications" are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.
- Y. "Subcontract" means a contract entered into by Subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind for or in connection with the Work.
- Z. "Subcontractor" means any person, other than Contractor, who agrees to furnish or furnishes any supplies, materials, equipment, or services of any kind in connection with the Work.
- AA. "Substantial Completion" means that stage in the progress of the Work when the construction is sufficiently complete, as more fully set forth in Section 6.07.
- AB. "Work" means the construction and services required by the Contract Documents, and includes, but is not limited to, labor, materials, supplies, equipment, services, permits, and the manufacture and fabrication of components, performed, furnished, or provided in accordance with the Contract Documents.

1.02 ORDER OF PRECEDENCE

Any conflict or inconsistency in the Contract Documents shall be resolved by giving the documents precedence in the following order:

1. Signed Public Works Contract, including any Change Orders.
2. Supplemental Conditions.
3. Modifications to the General Conditions.
4. General Conditions.
5. Specifications. Provisions in Division 1 shall take precedence over provisions of any other Division.

6. Drawings. In case of conflict within the Drawings, large-scale drawings shall take precedence over small-scale drawings.
7. Signed and Completed Bid Form.
8. Instructions to Bidders.
9. Advertisement for Bids.

1.03 **EXECUTION AND INTENT**

Contractor Representations: Contractor makes the following representations to Owner:

1. Contract Sum reasonable: The Contract Sum is reasonable compensation for the Work and the Contract Time is adequate for the performance of the Work, as represented by the Contract Documents;
2. Contractor familiar with project: Contractor has carefully reviewed the Contract Documents, visited and examined the Project site, become familiar with the local conditions in which the Work is to be performed, and 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, as well as the surface and subsurface conditions and other matters that may be encountered at the Project site or affect performance of the Work or the cost or difficulty thereof;
3. Contractor financially capable: Contractor is financially solvent, able to pay its debts as they mature, and possesses sufficient working capital to complete the Work and perform Contractor's obligations required by the Contract Documents; and
4. Contractor can complete Work: Contractor is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the Work and perform the obligations required by the Contract Documents and has sufficient experience and competence to do so.

PART 2 – INSURANCE AND BONDS

2.01 **CONTRACTOR'S LIABILITY INSURANCE**

General insurance requirements: Prior to commencement of the Work, Contractor shall obtain all the insurance required by the Contract Documents and provide evidence satisfactory to Owner that such insurance has been procured. Review of the Contractor's insurance by Owner shall not relieve or decrease the liability of Contractor. Companies writing the insurance to be obtained by this part shall be licensed to do business under Chapter 48 RCW or comply with the Surplus Lines Law of the State of Washington. Contractor shall include in its bid the cost of all insurance and bond costs required to complete the base bid work and accepted alternates. Insurance carriers providing insurance in accordance with the Contract Documents shall be acceptable to Owner, and its A.M. Best rating shall be indicated on the insurance certificates.

- A. Term of insurance coverage: Contractor shall maintain the following insurance coverage during the Work and for one year after Final Acceptance. Contractor shall also maintain the following insurance coverage during the performance of any corrective Work required by Section 5.16.
 1. General Liability Insurance: Commercial General Liability (CGL) on an Occurrence Form. Coverage shall include, but not be limited to:
 - a. Completed operations/products liability;
 - b. Explosion, collapse, and underground; and
 - c. Employer's liability coverage.

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2. Automobile Liability Insurance: Automobile liability
- B. Industrial Insurance compliance: Contractor shall comply with the Washington State Industrial Insurance Act and, if applicable, the Federal Longshoremen's and Harbor Workers' Act and the Jones Act.
- C. Insurance to protect for the following: All insurance coverages shall protect against claims for damages for personal and bodily injury or death, as well as claims for property damage, which may arise from operations in connection with the Work whether such operations are by Contractor or any Subcontractor.
- D. Owner as Additional Insured: All insurance coverages shall be endorsed to include Owner as an additional named insured for Work performed in accordance with the Contract Documents, and all insurance certificates shall evidence the Owner as an additional insured.

2.02 COVERAGE LIMITS

A. Insurance Coverage Certificates and Policies

The Contractor shall furnish acceptable proof of insurance coverage on the state of Washington Certificate of Insurance form SF500A, dated 07/02/92 or ACORD form, as well as copies of insurance policies.

B. Required Insurance Coverages

1. For a contract less than \$100,000.00, the coverage required is:

- a. Comprehensive General Liability Insurance – The Contractor shall at all times during the term of this contract, at its cost and expense, carry and maintain general public liability insurance, including contractual liability, against claims for bodily injury, personal injury, death or property damage occurring or arising out of services provided under this contract. This insurance shall cover claims caused by any act, omission, or negligence of the Contractor or its officers, agents, representatives, assigns or servants. The limits of liability insurance, which may be increased as deemed necessary by the contracting parties, shall be:

Each Occurrence	\$1,000,000.00
General Aggregate Limits (other than products – commercial operations)	\$1,000,000.00
Products – Commercial Operations Limit	\$1,000,000.00
Personal and Advertising Injury Limit	\$1,000,000.00
Fire Damage Limit (any one fire)	\$50,000.00
Medical Expense Limit (any one person)	\$5,000.00

- b. If the contract is for underground utility work, then the Contractor shall provide proof of insurance for that above in the form of Explosion, Collapse and Underground (XCU) coverage.
- c. Employers Liability on an occurrence basis in an amount not less than \$1,000,000.00 per occurrence.
2. For contracts over \$100,000.00 but less than \$5,000,000.00 the contractor shall obtain the coverage limits as listed for contracts below \$100,000.00 and General Aggregate and Products – Commercial Operations Limit of not less than \$2,000,000.00.

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3. Coverage for Comprehensive General Bodily Injury Liability Insurance for a contract over \$5,000,000.00 is:

Each Occurrence	\$2,000,000.00
General Aggregate Limits (other than products – commercial operations)	\$4,000,000.00
Products – Commercial Operations limit	\$4,000,000.00
Personal and Advertising Injury Limit	\$2,000,000.00
Fire Damage Limit (any one fire)	\$50,000.00
Medical Expense Limit (any one Person)	\$5,000.00

4. For all Contracts – Automobile Liability: in the event that services delivered pursuant to this contract involve the use of vehicles or the transportation of clients, automobile liability insurance shall be required. If Contractor-owned personal vehicles are used, a Business Automobile Policy covering at a minimum Code 2 “owned autos only” must be secured. If Contractor employee’s vehicles are used, the Contractor must also include under the Business Automobile Policy Code 9, coverage for non-owned autos. The minimum limits for automobile liability is: \$1,000,000.00 per occurrence, using a combined single limit for bodily injury and property damage.
5. For Contracts for Hazardous Substance Removal (Asbestos Abatement, PCB Abatement, etc.)
- a. In addition to providing insurance coverage for the project as outlined above, the Contractor shall provide Pollution Liability insurance for the hazardous substance removal as follows:

<u>EACH OCCURRENCE</u>	<u>AGGREGATE</u>
\$500,000.00	\$1,000,000.00

or \$1,000,000.00 each occurrence/aggregate bodily injury and property damage combined single limit.

- i. Insurance certificate must state that the insurer is covering hazardous substance removal.
- ii. Should this insurance be secured on a “claims made” basis, the coverage must be continuously maintained for one year following the project’s “final completion” through official completion of the project, plus one year following.

For Contracts where hazardous substance removal is a subcomponent of contracted work, the general contractor shall provide to the Owner a certificate of insurance for coverage as defined in 5a. above. The State of Washington must be listed as an additional insured. This certificate of insurance must be provided to the Owner prior to commencing work.

2.03 INSURANCE COVERAGE CERTIFICATES

- A. Certificate required: Prior to commencement of the Work, Contractor shall furnish to Owner a completed certificate of insurance coverage.
- B. List Project info: All insurance certificates shall name Owner’s Project number and Project title.
- C. Cancellation provisions: All insurance certificates shall specifically require 45 Days prior notice to Owner of cancellation or any material change, except 30 Days for surplus line insurance.

2.04 PAYMENT AND PERFORMANCE BONDS

Conditions for bonds: Payment and performance bonds for 100% of the Contract Award Amount, plus state sales tax, shall be furnished for the Work, using the Payment Bond and Performance Bond form published by and available from the American Institute of Architects (AIA) – form A312. Prior to execution of a Change Order that, cumulatively with previous Change Orders, increases the Contract Award Amount by 15% or more, the Contractor shall provide either new payment and performance bonds for the revised Contract Sum, or riders to the existing payment and performance bonds increasing the amount of the bonds. The Contractor shall likewise provide additional bonds or riders when subsequent Change Orders increase the Contract Sum by 15% or more.

No payment or performance bond is required if the Contract Sum is \$150,000 or less and the Contractor or General Contractor/Construction Manager agrees that Owner may, in lieu of the bond, retain 10% of the Contract Sum for the period allowed by RCW 39.08.010.

2.05 ALTERNATIVE SURETY

When alternative surety required: Contractor shall promptly furnish payment and performance bonds from an alternative surety as required to protect Owner and persons supplying labor or materials required by the Contract Documents if:

- A. Owner has a reasonable objection to the surety; or
- B. Any surety fails to furnish reports on its financial condition if required by Owner.

2.06 BUILDER'S RISK

- A. Contractor to buy Property Insurance: Contractor shall purchase and maintain property insurance in the amount of the Contract Sum including all Change Orders for the Work on a replacement cost basis until Substantial Completion. For projects not involving New Building Construction, "Installation Floater" is an acceptable substitute for the Builder's Risk Insurance. The insurance shall cover the interest of Owner, Contractor, and any Subcontractors, as their interests may appear.
- B. Losses covered: Contractor property insurance shall be placed on an "all risk" basis and insure against the perils of fire and extended coverage and physical loss or damage including theft, vandalism, malicious mischief, collapse, false work, temporary buildings, debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for A/E's services and expenses required as a result of an insured loss.
- C. Waiver of subrogation rights: Owner and Contractor waive all subrogation rights against each other, any Subcontractors, A/E, A/E's subconsultants, separate contractors described in Section 5.20, if any, and any of their subcontractors, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to this section or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by Owner as fiduciary. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

PART 3 – TIME AND SCHEDULE

3.01 PROGRESS AND COMPLETION

Contractor to meet schedule: Contractor shall diligently prosecute the Work, with adequate forces, achieve Substantial Completion within the Contract Time, and achieve Final Completion within a reasonable period thereafter.

3.02 CONSTRUCTION SCHEDULE

- A. Preliminary Progress Schedule: Unless otherwise provided in Division 1, Contractor shall, within 14 Days after issuance of the Notice to Proceed, submit a preliminary Progress Schedule. The Progress Schedule shall show the sequence in which Contractor proposes to perform the Work, and the dates on which Contractor plans to start and finish major portions of the Work, including dates for shop drawings and other submittals, and for acquiring materials and equipment.
- B. Form of Progress Schedule: The Progress Schedule shall be in the form of a Critical Path Method (CPM) logic network or, with the approval of the Owner, a bar chart schedule may be submitted. The scheduling of construction is the responsibility of the Contractor and is included in the contract to assure adequate planning and execution of the work. The schedule will be used to evaluate progress of the work for payment based on the Schedule of Values. The schedule shall show the Contractor's planned order and interdependence of activities, and sequence of work. As a minimum the schedule shall include:
1. Date of Notice to Proceed;
 2. Activities (resources, durations, individual responsible for activity, early starts, late starts, early finishes, late finishes, etc.);
 3. Utility Shutdowns;
 4. Interrelationships and dependence of activities;
 5. Planned vs. actual status for each activity;
 6. Substantial completion;
 7. Punch list;
 8. Final inspection;
 9. Final completion, and
 10. Float time

The Schedule Duration shall be based on the Contract Time of Completion listed on the Bid Form. The Owner shall not be obligated to accept any Early Completion Schedule suggested by the Contractor. The Contract Time for Completion shall establish the Schedule Completion Date.

If the Contractor feels that the work can be completed in less than the Specified Contract Time, then the Surplus Time shall be considered Project Float. This Float time shall be shown on the Project Schedule. It shall be available to accommodate changes in the work and unforeseen conditions.

Neither the Contractor nor the Owner have exclusive right to this Float Time. It belongs to the project.

- C. Owner comments on Progress Schedule: Owner shall return comments on the preliminary Progress Schedule to Contractor within 14 Days of receipt. Review by Owner of Contractor's schedule does not constitute an approval or acceptance of Contractor's construction means, methods, or sequencing, or its ability to complete the Work within the Contract Time. Contractor shall revise and resubmit its schedule, as necessary. Owner may withhold a portion of progress payments until a Progress Schedule has been submitted which meets the requirements of this section.

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- D. Monthly updates and compliance with Progress Schedule: Contractor shall utilize and comply with the Progress Schedule. On a monthly basis, or as otherwise directed by Owner, Contractor shall submit an updated Progress Schedule at its own expense to Owner indicating actual progress. If, in the opinion of Owner, Contractor is not in conformance with the Progress Schedule for reasons other than acts of Force Majeure as identified in Section 3.05, Contractor shall take such steps as are necessary to bring the actual completion dates of its work activities into conformance with the Progress Schedule, and if directed by Owner, Contractor shall submit a corrective action plan or revise the Progress Schedule to reconcile with the actual progress of the Work.
- E. Contractor to notify Owner of delays: Contractor shall promptly notify Owner in writing of any actual or anticipated event which is delaying or could delay achievement of any milestone or performance of any critical path activity of the Work. Contractor shall indicate the expected duration of the delay, the anticipated effect of the delay on the Progress Schedule, and the action being or to be taken to correct the problem. Provision of such notice does not relieve Contractor of its obligation to complete the Work within the Contract Time.

3.03 OWNER'S RIGHT TO SUSPEND THE WORK FOR CONVENIENCE

- A. Owner may suspend Work: Owner may, at its sole discretion, order Contractor, in writing, to suspend all or any part of the Work for up to 90 Days, or for such longer period as mutually agreed.
- B. Compliance with suspension; Owner's options: Upon receipt of a written notice suspending the Work, Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of cost of performance directly attributable to such suspension. Within a period up to 90 Days after the notice is delivered to Contractor, or within any extension of that period to which the parties shall have agreed, Owner shall either:
1. Cancel the written notice suspending the Work; or
 2. Terminate the Work covered by the notice as provided in the termination provisions of Part 9.
- C. Resumption of Work: If a written notice suspending the Work is cancelled or the period of the notice or any extension thereof expires, Contractor shall resume Work.
- D. Equitable Adjustment for suspensions: Contractor shall be entitled to an equitable adjustment in the Contract Time, or Contract Sum, or both, for increases in the time or cost of performance directly attributable to such suspension, provided Contractor complies with all requirements set forth in Part 7.

3.04 OWNER'S RIGHT TO STOP THE WORK FOR CAUSE

- A. Owner may stop Work for Contractor's failure to perform: If Contractor fails or refuses to perform its obligations in accordance with the Contract Documents, Owner may order Contractor, in writing, to stop the Work, or any portion thereof, until satisfactory corrective action has been taken.
- B. No Equitable Adjustment for Contractor's failure to perform: Contractor shall not be entitled to an equitable adjustment in the Contract Time or Contract Sum for any increased cost or time of performance attributable to Contractor's failure or refusal to perform or from any reasonable remedial action taken by Owner based upon such failure.

3.05 DELAY

- A. Force Majeure actions not a default; Force Majeure defined: Any delay in or failure of performance by Owner or Contractor, other than the payment of money, shall not constitute a default hereunder if and to the extent the cause for such delay or failure of performance was unforeseeable and beyond the control of the party ("Force Majeure"). Acts of Force Majeure include, but are not limited to:
1. Acts of God or the public enemy;
 2. Acts or omissions of any government entity;
 3. Fire or other casualty for which Contractor is not responsible;
 4. Quarantine or epidemic;
 5. Strike or defensive lockout;
 6. Unusually severe weather conditions which could not have been reasonably anticipated; and
 7. Unusual delay in receipt of supplies or products which were ordered and expedited and for which no substitute reasonably acceptable to Owner was available.
- B. Contract Time adjustment for Force Majeure: Contractor shall be entitled to an equitable adjustment in the Contract Time for changes in the time of performance directly attributable to an act of Force Majeure, provided it makes a request for equitable adjustment according to Section 7.03. Contractor shall not be entitled to an adjustment in the Contract Sum resulting from an act of Force Majeure.
- C. Contract Time or Contract Sum adjustment if Owner at fault: Contractor shall be entitled to an equitable adjustment in Contract Time, and may be entitled to an equitable adjustment in Contract Sum, if the cost or time of Contractor's performance is changed due to the fault or negligence of Owner, provided the Contractor makes a request according to Sections 7.02 and 7.03.
- D. No Contract Time or Contract Sum adjustment if Contractor at fault: Contractor shall not be entitled to an adjustment in Contract Time or in the Contract Sum for any delay or failure of performance to the extent such delay or failure was caused by Contractor or anyone for whose acts Contractor is responsible.
- E. Contract Time adjustment only for concurrent fault: To the extent any delay or failure of performance was concurrently caused by the Owner and Contractor, Contractor shall be entitled to an adjustment in the Contract Time for that portion of the delay or failure of performance that was concurrently caused, provided it makes a request for equitable adjustment according to Section 7.03, but shall not be entitled to an adjustment in Contract Sum.
- F. Contractor to mitigate delay impacts: Contractor shall make all reasonable efforts to prevent and mitigate the effects of any delay, whether occasioned by an act of Force Majeure or otherwise.

3.06 NOTICE TO OWNER OF LABOR DISPUTES

- A. Contractor to notify Owner of labor disputes: If Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay timely performance in accordance with the Contract Documents, Contractor shall immediately give notice, including all relevant information, to Owner.

- B. Pass through notification provisions to Subcontractors: Contractor agrees to insert a provision in its Subcontracts and to require insertion in all sub-subcontracts, that in the event timely performance of any such contract is delayed or threatened by delay by any actual or potential labor dispute, the Subcontractor or Sub-subcontractor shall immediately notify the next higher tier Subcontractor or Contractor, as the case may be, of all relevant information concerning the dispute.

3.07 DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION

A. Liquidated Damages

1. Reason for Liquidated Damages: Timely performance and completion of the Work is essential to Owner and time limits stated in the Contract Documents are of the essence. Owner will incur serious and substantial damages if Substantial Completion of the Work does not occur within the Contract Time. However, it would be difficult if not impossible to determine the exact amount of such damages. Consequently, provisions for liquidated damages are included in the Contract Documents.
2. Calculation of Liquidated Damages amount: The liquidated damage amounts set forth in the Contract Documents will be assessed not as a penalty, but as liquidated damages for breach of the Contract Documents. This amount is fixed and agreed upon by and between the Contractor and Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain. This amount shall be construed as the actual amount of damages sustained by the Owner, and may be retained by the Owner and deducted from periodic payments to the Contractor.
3. Contractor responsible even if Liquidated Damages assessed: Assessment of liquidated damages shall not release Contractor from any further obligations or liabilities pursuant to the Contract Documents.

B. Actual Damages

Calculation of Actual Damages: Actual damages will be assessed for failure to achieve Final Completion within the time provided. Actual damages will be calculated on the basis of direct architectural, administrative, and other related costs attributable to the Project from the date when Final Completion should have been achieved, based on the date Substantial Completion is actually achieved, to the date Final Completion is actually achieved. Owner may offset these costs against any payment due Contractor.

PART 4 – SPECIFICATIONS, DRAWINGS, AND OTHER DOCUMENTS

4.01 DISCREPANCIES AND CONTRACT DOCUMENT REVIEW

- A. Specifications and Drawings are basis of the Work: The intent of the Specifications and Drawings is to describe a complete Project to be constructed in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, tools, transportation, permits, and supplies, and perform the Work required in accordance with the Drawings, Specifications, and other provisions of the Contract Documents.
- B. Parts of the Contract Documents are complementary: The Contract Documents are complementary. What is required by one part of the Contract Documents shall be binding as if required by all. Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both.

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- C. Contractor to report discrepancies in Contract Documents: Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Owner. If, during the performance of the Work, Contractor finds a conflict, error, inconsistency, or omission in the Contract Documents, it shall promptly and before proceeding with the Work affected thereby, report such conflict, error, inconsistency, or omission to A/E in writing.
- D. Contractor knowledge of discrepancy in documents – responsibility: Contractor shall do no Work without applicable Drawings, Specifications, or written modifications, or Shop Drawings where required, unless instructed to do so in writing by Owner. If Contractor performs any construction activity, and it knows or reasonably should have known that any of the Contract Documents contain a conflict, error, inconsistency, or omission, Contractor shall be responsible for the performance and shall bear the cost for its correction.
- E. Contractor to perform Work implied by Contract Documents: Contractor shall provide any work or materials the provision of which is clearly implied and is within the scope of the Contract Documents even if the Contract Documents do not mention them specifically.
- F. Interpretation questions referred to A/E: Questions regarding interpretation of the requirements of the Contract Documents shall be referred to the A/E.

4.02 PROJECT RECORD

- A. Contractor to maintain Project Record Drawings and Specifications: Contractor shall legibly mark in ink on a separate set of the Drawings and Specifications all actual construction, including depths of foundations, horizontal and vertical locations of internal and underground utilities and appurtenances referenced to permanent visible and accessible surface improvements, field changes of dimensions and details, actual suppliers, manufacturers and trade names, models of installed equipment, and Change Order Proposals (COP). This separate set of Drawings and Specifications shall be the "Project Record."
- B. Update Project Record weekly and keep on site: The Project Record shall be maintained on the project site throughout the construction and shall be clearly labeled "PROJECT RECORD." The Project Record shall be updated at least weekly noting all changes and shall be available to Owner at all times.
- C. Final Project Record to A/E before Final Acceptance: Contractor shall submit the completed and finalized Project Record to A/E prior to Final Acceptance.

4.03 SHOP DRAWINGS

- A. Definition of Shop Drawings: "Shop Drawings" means documents and other information required to be submitted to A/E by Contractor pursuant to the Contract Documents, showing in detail: the proposed fabrication and assembly of structural elements; and the installation (i.e. form, fit, and attachment details) of materials and equipment. Shop Drawings include, but are not limited to, drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, samples, and similar materials furnished by Contractor to explain in detail specific portions of the Work required by the Contract Documents. For materials and equipment to be incorporated into the Work, Contractor submittal shall include the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the item. When directed, Contractor shall submit all samples at its own expense. Owner may duplicate, use, and disclose Shop Drawings provided in accordance with the Contract Documents.
- B. Approval of Shop Drawings by Contractor and A/E: Contractor shall coordinate all Shop Drawings, and review them for accuracy, completeness, and compliance with the Contract Documents and shall indicate its approval thereon as evidence of such coordination and review.

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Where required by law, Shop Drawings shall be stamped by an appropriate professional licensed by the state of Washington. Shop Drawings submitted to A/E without evidence of Contractor's approval shall be returned for resubmission. Contractor shall review, approve, and submit Shop Drawings with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of Owner or separate contractors. Contractor's submittal schedule shall allow a reasonable time for A/E review. A/E will review, approve, or take other appropriate action on the Shop Drawings. Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings until the respective submittal has been reviewed and the A/E has approved or taken other appropriate action. Owner and A/E shall respond to Shop Drawing submittals with reasonable promptness. Any Work by Contractor shall be in accordance with reviewed Shop Drawings. Submittals made by Contractor which are not required by the Contract Documents may be returned without action.

- C. Contractor not relieved of responsibility when Shop Drawings approved: Approval, or other appropriate action with regard to Shop Drawings, by Owner or A/E shall not relieve Contractor of responsibility for any errors or omissions in such Shop Drawings, nor from responsibility for compliance with the requirements of the Contract Documents. Unless specified in the Contract Documents, review by Owner or A/E shall not constitute an approval of the safety precautions employed by Contractor during construction, or constitute an approval of Contractor's means or methods of construction. If Contractor fails to obtain approval before installation and the item or work is subsequently rejected, Contractor shall be responsible for all costs of correction.
- D. Variations between Shop Drawings and Contract Documents: If Shop Drawings show variations from the requirements of the Contract Documents, Contractor shall describe such variations in writing, separate from the Shop Drawings, at the time it submits the Shop Drawings containing such variations. If A/E approves any such variation, an appropriate Change Order will be issued. If the variation is minor and does not involve an adjustment in the Contract Sum or Contract Time, a Change Order need not be issued; however, the modification shall be recorded upon the Project Record.
- E. Contractor to submit 5 copies of Shop Drawings: Unless otherwise provided in Division 1, Contractor shall submit to A/E for approval 5 copies of all Shop Drawings. Unless otherwise indicated, 3 sets of all Shop Drawings shall be retained by A/E and 2 sets shall be returned to Contractor.

4.04 ORGANIZATION OF SPECIFICATIONS

Specification organization by trade: Specifications are prepared in sections which conform generally with trade practices. These sections are for Owner and Contractor convenience and shall not control Contractor in dividing the Work among the Subcontractors or in establishing the extent of the Work to be performed by any trade.

4.05 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS

- A. A/E, not Contractor, owns Copyright of Drawings and Specifications: The Drawings, Specifications, and other documents prepared by A/E are instruments of A/E's service through which the Work to be executed by Contractor is described. Neither Contractor nor any Subcontractor shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by A/E, and A/E shall be deemed the author of them and will, along with any rights of Owner, retain all common law, statutory, and other reserved rights, in addition to the copyright. All copies of these documents, except Contractor's set, shall be returned or suitably accounted for to A/E, on request, upon completion of the Work.
- B. Drawings and Specifications to be used only for this Project: The Drawings, Specifications, and other documents prepared by the A/E, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any Subcontractor

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on other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner and A/E. Contractor and Subcontractors are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications, and other documents prepared by A/E appropriate to and for use in the execution of their Work.

- C. Shop Drawing license granted to Owner: Contractor and all Subcontractors grant a non-exclusive license to Owner, without additional cost or royalty, to use for its own purposes (including reproduction) all Shop Drawings, together with the information and diagrams contained therein, prepared by Contractor or any Subcontractor. In providing Shop Drawings, Contractor and all Subcontractors warrant that they have authority to grant to Owner a license to use the Shop Drawings, and that such license is not in violation of any copyright or other intellectual property right. Contractor agrees to defend and indemnify Owner pursuant to the indemnity provisions in Section 5.03 and 5.22 from any violations of copyright or other intellectual property rights arising out of Owner's use of the Shop Drawings hereunder, or to secure for Owner, at Contractor's own cost, licenses in conformity with this section.
- D. Shop Drawings to be used only for this Project: The Shop Drawings and other submittals prepared by Contractor, Subcontractors of any tier, or its or their equipment or material suppliers, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any Subcontractor of any tier, or material or equipment supplier, on other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner. The Contractor, Subcontractors of any tier, and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Shop Drawings and other submittals appropriate to and for use in the execution of their Work under the Contract Documents.

PART 5 – PERFORMANCE

5.01 CONTRACTOR CONTROL AND SUPERVISION

- A. Contractor responsible for Means and Methods of construction: Contractor shall supervise and direct the Work, using its best skill and attention, and shall perform the Work in a skillful manner. Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work, unless the Contract Documents give other specific instructions concerning these matters. Contractor shall disclose its means and methods of construction when requested by Owner.
- B. Competent Superintendent required: Performance of the Work shall be directly supervised by a competent superintendent who has authority to act for Contractor. The superintendent must be satisfactory to the Owner and shall not be changed without the prior written consent of Owner. Owner may require Contractor to remove the superintendent from the Work or Project site, at no cost to the Owner for delay or any other claim, if Owner reasonably deems the superintendent incompetent, negligent, or otherwise objectionable, provided Owner has first notified Contractor in writing and allowed a reasonable period for transition. Noncompliance with the Owner's request to remove and replace the superintendent for a material reason shall also be grounds for terminating the Contract for cause.
- C. Contractor responsible for acts and omissions of self and agents: Contractor shall be responsible to Owner for acts and omissions of Contractor, Subcontractors, and their employees and agents.
- D. Contractor to employ competent and disciplined workforce: Contractor shall enforce strict discipline and good order among all of the Contractor's employees and other persons performing the Work. Contractor shall not permit employment of persons not skilled in tasks assigned to them. Contractor's employees shall at all times conduct business in a manner which assures fair, equal, and nondiscriminatory treatment of all persons. Owner may, by written notice, require

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Contractor to remove from the Work or Project site, at no cost to the Owner for delay or any other claim, any employee Owner reasonably deems incompetent, negligent, or otherwise objectionable. Noncompliance with the Owner's request to remove and replace personnel at any level for a material reason shall also be grounds for terminating the Contract for cause.

- E. Contractor to keep project documents on site: Contractor shall keep on the Project site a copy of the Drawings, Specifications, addenda, reviewed Shop Drawings, and permits and permit drawings.
- F. Contractor to comply with ethical standards: Contractor shall ensure that its owner(s) and employees, and those of its Subcontractors, comply with the Ethics in Public Service Act RCW 42.52, which, among other things, prohibits state employees from having an economic interest in any public works contract that was made by, or supervised by, that employee. Contractor shall remove, at its sole cost and expense, any of its, or its Subcontractors' employees, if they are in violation of this act.

5.02 PERMITS, FEES, AND NOTICES

- A. Contractor to obtain and pay for permits: Unless otherwise provided in the Contract Documents, Contractor shall pay for and obtain all permits, licenses, and inspections necessary for proper execution and completion of the Work. Prior to Final Acceptance, the approved, signed permits shall be delivered to Owner.
- B. Allowances for permit fees: The actual cost of the general building permit (only) and the public utility hook-up fees will be a direct reimbursement to the Contractor or paid directly to the permitting agency by the Owner. ***Fees for these permits should not be included by the Contractor in his bid amount.***
- C. Contractor to comply with all applicable laws: Contractor shall comply with and give notices required by all federal, state, and local laws, ordinances, rules, regulations, and lawful orders of public authorities applicable to performance of the Work.
- D. Contractor to submit copies: The General Contractor shall submit copies of each valid permit required on the project to the Owner's representative. Nothing in this part shall be construed as imposing a duty upon the Owner or A/E to secure permits.

5.03 PATENTS AND ROYALTIES

Payment, indemnification, and notice: Contractor is responsible for, and shall pay, all royalties and license fees. Contractor shall defend, indemnify, and hold Owner harmless from any costs, expenses, and liabilities arising out of the infringement by Contractor of any patent, copyright, or other intellectual property right used in the Work; however, provided that Contractor gives prompt notice, Contractor shall not be responsible for such defense or indemnity when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents. If Contractor has reason to believe that use of the required design, process, or product constitutes an infringement of a patent or copyright, it shall promptly notify Owner of such potential infringement.

5.04 PREVAILING WAGES

- A. Contractor to pay Prevailing Wages or applicable Federal Wages: Contractor shall pay the prevailing rate of wages to all workers, laborers, or mechanics employed in the performance of any part of the Work in accordance with RCW 39.12 and the rules and regulations of the Department of Labor and Industries (L&I). The schedule of prevailing wage rates for the locality or localities of the Work, is determined by the Industrial Statistician of the Department of Labor and Industries. It is the Contractor's responsibility to verify the applicable prevailing wage rate. If applicable, the Contractor shall comply with all Federal Funding requirements of the Davis

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Bacon Act that will be addressed in a separate "DIVISION 00 SPECIAL CONDITIONS" specification section that will be based on the specific requirements of the funding source.

- B. Statement of Intent to Pay Prevailing Wages: Before payment is made by the Owner to the Contractor for any work performed by the Contractor and subcontractors whose work is included in the application for payment, the Contractor shall submit, or shall have previously submitted to the Owner for the Project, a Statement of Intent to Pay Prevailing Wages, approved by the L&I, certifying the rate of hourly wage paid and to be paid each classification of laborers, workers, or mechanics employed upon the Work by Contractor and Subcontractors. Such rates of hourly wage shall not be less than the prevailing wage rate.
- C. Affidavit of Wages Paid: Prior to release of retainage, the Contractor shall submit to the Owner an Affidavit of Wages Paid, approved by the L&I, for the Contractor and every subcontractor, of any tier, that performed work on the Project.
- D. Disputes: Disputes regarding prevailing wage rates shall be referred for arbitration to the Director of the L&I. The arbitration decision shall be final and conclusive and binding on all parties involved in the dispute as provided for by RCW 39.12.060.
- E. Statement with pay application; Post Statements of Intent at job site: Each Application for Payment submitted by Contractor shall state that prevailing wages have been paid in accordance with the prefiled statement(s) of intent, as approved. Copies of the approved intent statement(s) shall be posted on the job site with the address and telephone number of the Industrial Statistician of the L&I where a complaint or inquiry concerning prevailing wages may be made.
- F. Contractor to pay for Statements of Intent and Affidavits: In compliance with chapter 296-127 WAC, Contractor shall pay to the L&I the currently established fee(s) for each statement of intent and/or affidavit of wages paid submitted to the L&I for certification.
- G. Certified Payrolls: Consistent with RCW 31.12.120, contractors, subcontractors, or employers shall file a copy of its certified payroll records using the L&I' online system at least once per month. If the L&I' online system is not used, a contractor, subcontractor, or employer shall file a copy of its certified payroll records directly with the L&I in a format approved by the L&I at least once per month. A contractor, subcontractor, or employer's noncompliance with this section constitutes a violation of RCW 39.12.050.
- H. Compliance with Federal Funding requirements: If applicable, the Contractor shall comply with all Federal Funding requirements of the Davis Bacon Act that will be addressed in a separate "DIVISION 00 SPECIAL CONDITIONS" specification section that will be based on the specific requirements of the funding source.

5.05 HOURS OF LABOR

- A. Overtime: Contractor shall comply with all applicable provisions of RCW 49.28 and they are incorporated herein by reference. Pursuant to that statute, no laborer, worker, or mechanic employed by Contractor, any Subcontractor, or any other person performing or contracting to do the whole or any part of the Work, shall be permitted or required to work more than eight hours in any one calendar day, provided, that in cases of extraordinary emergency, such as danger to life or property, the hours of work may be extended, but in such cases the rate of pay for time employed in excess of eight hours of each calendar day shall be not less than one and one-half times the rate allowed for this same amount of time during eight hours of service.
- B. 4-10 Agreements: Notwithstanding the preceding paragraph, RCW 49.28 permits a contractor or subcontractor in any public works contract subject to those provisions, to enter into an agreement with its employees in which the employees work up to ten hours in a calendar day. No such agreement may provide that the employees work ten-hour days for more than four

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calendar days a week. Any such agreement is subject to approval by the employees. The overtime provisions of RCW 49.28 shall not apply to the hours, up to forty hours per week, worked pursuant to any such agreement.

5.06 NONDISCRIMINATION

- A. Discrimination prohibited by applicable laws: The Contractor and all Subcontractors shall comply with all applicable federal and state non-discrimination laws, regulations, and policies. No person shall, on the grounds of age, race, creed, color, sex, sexual orientation, religion, national origin, marital status, honorably discharged veteran or military status, or disability (physical, mental, or sensory) be denied the benefits of, or otherwise be subjected to discrimination under any project, program, or activity, funded, in whole or in part, under this Agreement
- B. During performance of the Work:
1. Protected Classes: Contractor shall not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, marital status, or the presence of any physical, sensory, or mental disability, Vietnam era veteran status, or disabled veteran status, nor commit any other unfair practices as defined in RCW 49.60.
 2. Advertisements to state nondiscrimination: Contractor shall, in all solicitations or advertisements for employees placed by or for it, state that all qualified applicants will be considered for employment, without regard to race, creed, color, national origin, sex, age, marital status, or the presence of any physical, sensory, or mental disability.
 3. Contractor to notify unions and others of nondiscrimination: Contractor shall send to each labor union, employment agency, or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising the labor union, employment agency, or workers' representative of Contractor's obligations according to the Contract Documents and RCW 49.60.
 4. Owner and State access to Contractor records: Contractor shall permit access to its books, records, and accounts, and to its premises by Owner, and by the Washington State Human Rights Commission, for the purpose of investigation to ascertain compliance with this section of the Contract Documents.
 5. Pass through provisions to Subcontractors: Contractor shall include the provisions of this section in every Subcontract.

5.07 SAFETY PRECAUTIONS

- A. In performing this contract, the Contractor shall provide for protecting the lives and health of employees and other persons; preventing damage to property, materials, supplies, and equipment; and avoid work interruptions. For these purposes, the Contractor shall:
1. Follow Washington Industrial Safety and Health Act (WISHA) regional directives and provide a site-specific safety program that will require an accident prevention and hazard analysis plan for the contractor and each subcontractor on the work site. The Contractor shall submit a site-specific safety plan to the Owner's representative prior to the initial scheduled construction meeting.
 2. Provide adequate safety devices and measures including, but not limited to, the appropriate safety literature, notice, training, permits, placement and use of barricades, signs, signal lights, ladders, scaffolding, staging, runways, hoist, construction elevators, shoring, temporary lighting, grounded outlets, wiring, hazardous materials, vehicles, construction

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processes, and equipment required by all applicable state, federal, and local laws and regulations.

3. Comply with the State Environmental Policy Act (SEPA), Clean Air Act, Shoreline Management Act, and other applicable federal, state, and local statutes and regulations dealing with the prevention of environmental pollution and the preservation of public natural resources.
 4. Post all permits, notices, and/or approvals in a conspicuous location at the construction site.
 5. Provide any additional measures that the Owner determines to be reasonable and necessary for ensuring a safe environment in areas open to the public. Nothing in this part shall be construed as imposing a duty upon the Owner or A/E to prescribe safety conditions relating to employees, public, or agents of the Contractors.
- B. Contractor safety responsibilities: In carrying out its responsibilities according to the Contract Documents, Contractor shall protect the lives and health of employees performing the Work and other persons who may be affected by the Work; prevent damage to materials, supplies, and equipment whether on site or stored off-site; and prevent damage to other property at the site or adjacent thereto. Contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss; shall erect and maintain all necessary safeguards for such safety and protection; and shall notify owners of adjacent property and utilities when prosecution of the Work may affect them.
- C. Contractor to maintain safety records: Contractor shall maintain an accurate record of exposure data on all incidents relating to the Work resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment. Contractor shall immediately report any such incident to Owner. Owner shall, at all times, have a right of access to all records of exposure.
- D. Contractor to provide HazMat training: Contractor shall provide all persons working on the Project site with information and training on hazardous chemicals in their work at the time of their initial assignment, and whenever a new hazard is introduced into their work area.
1. Information. At a minimum, Contractor shall inform persons working on the Project site of:
 - a. WAC: The requirements of chapter 296-62 WAC, General Occupational Health Standards;
 - b. Presence of hazardous chemicals: Any operations in their work area where hazardous chemicals are present; and
 - c. Hazard communications program: The location and availability of written hazard communication programs, including the required list(s) of hazardous chemicals and material safety data sheets required by chapter 296-62 WAC.
 2. Training. At a minimum, Contractor shall provide training for persons working on the Project site which includes:
 - a. Detecting hazardous chemicals: Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

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- b. Hazards of chemicals: The physical and health hazards of the chemicals in the work area;
 - c. Protection from hazards: The measures such persons can take to protect themselves from these hazards, including specific procedures Contractor, or its Subcontractors, or others have implemented to protect those on the Project site from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and
 - d. Hazard communications program: The details of the hazard communications program developed by Contractor, or its Subcontractors, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.
- E. Hazardous, toxic or harmful substances: Contractor's responsibility for hazardous, toxic, or harmful substances shall include the following duties:
- 1. Illegal use of dangerous substances: Contractor shall not keep, use, dispose, transport, generate, or sell on or about the Project site, any substances now or hereafter designated as, or which are subject to regulation as, hazardous, toxic, dangerous, or harmful by any federal, state or local law, regulation, statute or ordinance (hereinafter collectively referred to as "hazardous substances"), in violation of any such law, regulation, statute, or ordinance, but in no case shall any such hazardous substance be stored more than 90 Days on the Project site.
 - 2. Contractor notifications of spills, failures, inspections, and fines: Contractor shall promptly notify Owner of all spills or releases of any hazardous substances which are otherwise required to be reported to any regulatory agency and pay the cost of cleanup. Contractor shall promptly notify Owner of all failures to comply with any federal, state, or local law, regulation, or ordinance; all inspections of the Project site by any regulatory entity concerning the same; all regulatory orders or fines; and all responses or interim cleanup actions taken by or proposed to be taken by any government entity or private party on the Project site.
- F. Public safety and traffic: All Work shall be performed with due regard for the safety of the public. Contractor shall perform the Work so as to cause a minimum of interruption of vehicular traffic or inconvenience to pedestrians. All arrangements to care for such traffic shall be Contractor's responsibilities. All expenses involved in the maintenance of traffic by way of detours shall be borne by Contractor.
- G. Contractor to act in an emergency: In an emergency affecting the safety of life or the Work or of adjoining property, Contractor is permitted to act, at its discretion, to prevent such threatened loss or injury, and Contractor shall so act if so authorized or instructed.
- H. No duty of safety by Owner or A/E: Nothing provided in this section shall be construed as imposing any duty upon Owner or A/E with regard to, or as constituting any express or implied assumption of control or responsibility over, Project site safety, or over any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public.

5.08 OPERATIONS, MATERIAL HANDLING, AND STORAGE AREAS

- A. Limited storage areas: Contractor shall confine all operations, including storage of materials, to Owner-approved areas.
- B. Temporary buildings and utilities at Contractor expense: Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be provided by Contractor only with the consent of Owner

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and without expense to Owner. The temporary buildings and utilities shall be removed by Contractor at its expense upon completion of the Work.

- C. Roads and vehicle loads: Contractor shall use only established roadways or temporary roadways authorized by Owner. When materials are transported in prosecuting the Work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by federal, state, or local law or regulation.
- D. Ownership and reporting by Contractor of demolished materials: Ownership and control of all materials or facility components to be demolished or removed from the Project site by Contractor shall immediately vest in Contractor upon severance of the component from the facility or severance of the material from the Project site. Contractor shall be responsible for compliance with all laws governing the storage and ultimate disposal. Contractor shall provide Owner with a copy of all manifests and receipts evidencing proper disposal when required by Owner or applicable law.
- E. Contractor responsible for care of materials and equipment on-site: Contractor shall be responsible for the proper care and protection of its materials and equipment delivered to the Project site. Materials and equipment may be stored on the premises subject to approval of Owner. When Contractor uses any portion of the Project site as a shop, Contractor shall be responsible for any repairs, patching, or cleaning arising from such use.
- F. Contractor responsible for loss of materials and equipment: Contractor shall protect and be responsible for any damage or loss to the Work, or to the materials or equipment until the date of Substantial Completion, and shall repair or replace without cost to Owner any damage or loss that may occur, except damages or loss caused by the acts or omissions of Owner. Contractor shall also protect and be responsible for any damage or loss to the Work, or to the materials or equipment, after the date of Substantial Completion, and shall repair or replace without cost to Owner any such damage or loss that might occur, to the extent such damages or loss are caused by the acts or omissions of Contractor, or any Subcontractor.

5.09 PRIOR NOTICE OF EXCAVATION

- A. Excavation defined; Use of locator services: "Excavation" means an operation in which earth, rock, or other material on or below the ground is moved or otherwise displaced by any means, except the tilling of soil less than 12 inches in depth for agricultural purposes, or road ditch maintenance that does not change the original road grade or ditch flow line. Before commencing any excavation, Contractor shall provide notice of the scheduled commencement of excavation to all owners of underground facilities or utilities, through locator services.

5.10 UNFORESEEN PHYSICAL CONDITIONS

- A. Notice requirement for concealed or unknown conditions: If Contractor encounters conditions at the site which are subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature which 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, then Contractor shall give written notice to Owner promptly and in no event later than 7 Days after the first observance of the conditions. Conditions shall not be disturbed prior to such notice.
- B. Adjustment in Contract Time and Contract Sum: If such conditions differ materially and cause a change in Contractor's cost of, or time required for, performance of any part of the Work, the Contractor may be entitled to an equitable adjustment in the Contract Time or Contract Sum, or both, provided it makes a request therefore as provided in Part 7.

5.11 PROTECTION OF EXISTING STRUCTURES, EQUIPMENT, VEGETATION, UTILITIES AND IMPROVEMENTS

- A. Contractor to protect and repair property: Contractor shall protect from damage all existing structures, equipment, improvements, utilities, and vegetation: at or near the Project site; and on adjacent property of a third party, the locations of which are made known to or should be known by Contractor. Contractor shall repair any damage, including that to the property of a third party, resulting from failure to comply with the requirements of the Contract Documents or failure to exercise reasonable care in performing the Work. If Contractor fails or refuses to repair the damage promptly, Owner may have the necessary work performed and charge the cost to Contractor.
- B. Tree and vegetation protection: Contractor shall only remove trees when specifically authorized to do so, and shall protect vegetation that will remain in place.

5.12 LAYOUT OF WORK

- A. Advanced planning of the Work: Contractor shall plan and lay out the Work in advance of operations so as to coordinate all work without delay or revision.
- B. Layout responsibilities: Contractor shall lay out the Work from Owner-established baselines and bench marks indicated on the Drawings, and shall be responsible for all field measurements in connection with the layout. Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the Work. Contractor shall be responsible for executing the Work to the lines and grades that may be established. Contractor shall be responsible for maintaining or restoring all stakes and other marks established.

5.13 MATERIAL AND EQUIPMENT

- A. Contractor to provide new and equivalent equipment and materials: All equipment, material, and articles incorporated into the Work shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in the Contract Documents. References in the Specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard quality and shall not be construed as limiting competition. Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of A/E, is equal to that named in the specifications, unless otherwise specifically provided in the Contract Documents.
- B. Use of asbestos-containing building materials: The use of asbestos-containing building materials in new construction or renovation work is strictly prohibited. For the determination of asbestos-containing building materials, the following shall apply:
 - 1. Until January 1, 2025, asbestos deliberately added in any concentration that contains more than one percent asbestos by weight or area as determined using the United States environmental protection agency method for the determination of asbestos in bulk building materials, EPA/600/R-93/116, July 1993.
 - 2. Following January 1, 2025, asbestos building material deliberately added in any concentration that contains more than 1/10th of one percent asbestos by weight or area for the determination of asbestos in bulk building materials, EPA/600/R-93/116, July 1993.
- C. Contractor responsible for fitting parts together: Contractor shall do all cutting, fitting, or patching that may be required to make its several parts fit together properly, or receive or be received by work of others set forth in, or reasonably implied by, the Contract Documents. Contractor shall

not endanger any work by cutting, excavating, or otherwise altering the Work and shall not cut or alter the work of any other contractor unless approved in advance by Owner.

- D. Owner may reject defective Work: Should any of the Work be found defective, or in any way not in accordance with the Contract Documents, this work, in whatever stage of completion, may be rejected by Owner.

5.14 AVAILABILITY AND USE OF UTILITY SERVICES

- A. Owner to provide and charge for utilities: Owner shall make all reasonable utilities available to Contractor from existing outlets and supplies, as specified in the Contract Documents. Unless otherwise provided in the Contract Documents, the utility service consumed shall be charged to or paid for by Contractor at prevailing rates charged to Owner or, where the utility is produced by Owner, at reasonable rates determined by Owner. Contractor will carefully conserve any utilities furnished.
- B. Contractor to install temporary connections and meters: Contractor shall, at its expense and in a skillful manner satisfactory to Owner, install and maintain all necessary temporary connections and distribution lines, together with appropriate protective devices, and all meters required to measure the amount of each utility used for the purpose of determining charges. Prior to the date of Final Acceptance, Contractor shall remove all temporary connections, distribution lines, meters, and associated equipment and materials.

5.15 TESTS AND INSPECTION

- A. Contractor to provide for all testing and inspection of Work: Contractor shall maintain an adequate testing and inspection program and perform such tests and inspections as are necessary or required to ensure that the Work conforms to the requirements of the Contract Documents. Contractor shall be responsible for inspection and quality surveillance of all its Work and all Work performed by any Subcontractor. Unless otherwise provided, Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. Contractor shall give Owner timely notice of when and where tests and inspections are to be made. Contractor shall maintain complete inspection records and make them available to Owner.
- B. Owner may conduct tests and inspections: Owner may, at any reasonable time, conduct such inspections and tests as it deems necessary to ensure that the Work is in accordance with the Contract Documents. Owner shall promptly notify Contractor if an inspection or test reveals that the Work is not in accordance with the Contract Documents. Unless the subject items are expressly accepted by Owner, such Owner inspection and tests are for the sole benefit of Owner and do not:
1. Constitute or imply acceptance;
 2. Relieve Contractor of responsibility for providing adequate quality control measures;
 3. Relieve Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment;
 4. Relieve Contractor of its responsibility to comply with the requirements of the Contract Documents; or
 5. Impair Owner's right to reject defective or nonconforming items, or to avail itself of any other remedy to which it may be entitled.

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- C. Inspections or inspectors do not modify Contract Documents: Neither observations by an inspector retained by Owner, the presence or absence of such inspector on the site, nor inspections, tests, or approvals by others, shall relieve Contractor from any requirement of the Contract Documents, nor is any such inspector authorized to change any term or condition of the Contract Documents.
- D. Contractor responsibilities on inspections: Contractor shall promptly furnish, without additional charge, all facilities, labor, material and equipment reasonably needed for performing such safe and convenient inspections and tests as may be required by Owner. Owner may charge Contractor any additional cost of inspection or testing when Work is not ready at the time specified by Contractor for inspection or testing, or when prior rejection makes reinspection or retest necessary. Owner shall perform its inspections and tests in a manner that will cause no undue delay in the Work.

5.16 CORRECTION OF NONCONFORMING WORK

- A. Work covered by Contractor without inspection: If a portion of the Work is covered contrary to the requirements in the Contract Documents, it must, if required in writing by Owner, be uncovered for Owner's observation and be replaced at the Contractor's expense and without change in the Contract Time.
- B. Payment provisions for uncovering covered Work: If, at any time prior to Final Completion, Owner desires to examine the Work, or any portion of it, which has been covered, Owner may request to see such Work and it shall be uncovered by Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an adjustment in the Contract Sum for the costs of uncovering and replacement, and, if completion of the Work is thereby delayed, an adjustment in the Contract Time, provided it makes such a request as provided in Part 7. If such Work is not in accordance with the Contract Documents, the Contractor shall pay the costs of examination and reconstruction.
- C. Contractor to correct and pay for non-conforming Work: Contractor shall promptly correct Work found by Owner not to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed, or completed. Contractor shall bear all costs of correcting such nonconforming Work, including additional testing and inspections.
- D. Contractor's compliance with warranty provisions: If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or within one year after the date for commencement of any system warranties established under Section 6.08, or within the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, Contractor shall correct it promptly after receipt of written notice from Owner to do so. Owner shall give such notice promptly after discovery of the condition. This period of one year shall be extended, with respect to portions of Work first performed after Substantial Completion, by the period of time between Substantial Completion and the actual performance of the Work. Contractor's duty to correct with respect to Work repaired or replaced shall run for one year from the date of repair or replacement. Obligations under this paragraph shall survive Final Acceptance.
- E. Contractor to remove non-conforming Work: Contractor shall remove from the Project site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by Contractor nor accepted by Owner.
- F. Owner may charge Contractor for non-conforming Work: If Contractor fails to correct nonconforming Work within a reasonable time after written notice to do so, Owner may replace, correct, or remove the nonconforming Work and charge the cost thereof to the Contractor.

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- G. Contractor to pay for damaged Work during correction: Contractor shall bear the cost of correcting destroyed or damaged Work, whether completed or partially completed, caused by Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.
- H. No Period of limitation on other requirements: Nothing contained in this section shall be construed to establish a period of limitation with respect to other obligations which Contractor might have according to the Contract Documents. Establishment of the time period of one year as described in Section 5.16D relates only to the specific obligation of Contractor to correct the Work, and has no relationship to the time within which the Contractor's obligation to comply with the Contract Documents may be sought to be enforced, including the time within which such proceedings may be commenced.
- I. Owner may accept non-conforming Work and charge Contractor: If Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, Owner may do so instead of requiring its removal and correction, in which case the Contract Sum may be reduced as appropriate and equitable.

5.17 CLEAN UP

Contractor to keep site clean and leave it clean: Contractor shall at all times keep the Project site, including hauling routes, infrastructures, utilities, and storage areas, free from accumulations of waste materials. Before completing the Work, Contractor shall remove from the premises its rubbish, tools, scaffolding, equipment, and materials. Upon completing the Work, Contractor shall leave the Project site in a clean, neat, and orderly condition satisfactory to Owner. If Contractor fails to clean up as provided herein, and after reasonable notice from Owner, Owner may do so and the cost thereof shall be charged to Contractor.

5.18 ACCESS TO WORK

Owner and A/E access to Work site: Contractor shall provide Owner and A/E access to the Work in progress wherever located.

5.19 OTHER CONTRACTS

Owner may award other contracts; Contractor to cooperate: Owner may undertake or award other contracts for additional work at or near the Project site. Contractor shall reasonably cooperate with the other contractors and with Owner's employees and shall carefully adapt scheduling and perform the Work in accordance with these Contract Documents to reasonably accommodate the other work.

5.20 SUBCONTRACTORS AND SUPPLIERS

- A. Subcontractor Responsibility: The Contractor shall include the language of this paragraph in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this paragraph apply to all subcontractors regardless of tier. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:
1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;
 2. Have a current Washington Unified Business Identifier (UBI) number;

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3. If applicable, have:
 - a. Industrial Insurance (workers' compensation) coverage for the subcontractor's employees working in Washington, as required in Title 51 RCW;
 - b. A Washington Employment Security Department number, as required in Title 50 RCW;
 - c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
 - d. An electrical contractor license, if required by Chapter 19.28 RCW;
 - e. An elevator contractor license, if required by Chapter 70.87 RCW.
 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3).
 5. On a project subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the date of the Owner's first advertisement of the project.
 6. Within the three-year period immediately preceding the date of the bid solicitation, not have been determined by a final and binding citation and notice of assessment issued by the L&I or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48, or 49.52 RCW.
- B. Provide names of Subcontractors and use qualified firms: Contractor shall utilize Subcontractors and suppliers which are experienced and qualified, and meet the requirements of the Contract Documents, if any. Contractor shall not utilize any Subcontractor or supplier to whom the Owner has a reasonable objection, and shall obtain Owner's written consent before making any substitutions or additions. Substitutions of subcontractors listed on Forms A and B are only allowable according to RCW 39.30.060.
- C. Subcontracts in writing and pass through provision: All Subcontracts must be in writing. By appropriate written agreement, Contractor shall require each Subcontractor, so far as applicable to the Work to be performed by the Subcontractor, to be bound to Contractor by terms of the Contract Documents, and to assume toward Contractor all the obligations and responsibilities which Contractor assumes toward Owner in accordance with the Contract Documents. Each Subcontract shall preserve and protect the rights of Owner in accordance with the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. However, nothing in this paragraph shall be construed to alter the contractual relations between Contractor and its Subcontractors with respect to insurance or bonds.
- D. Coordination of Subcontractors; Contractor responsible for Work: Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors. No Subcontracting of any of the Work shall relieve Contractor from its responsibility for the performance of the Work in accordance with the Contract Documents or any other obligations of the Contract Documents.
- E. Automatic assignment of subcontracts: Each subcontract agreement for a portion of the Work is hereby assigned by Contractor to Owner provided that:

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1. Effective only after termination and Owner approval: The assignment is effective only after termination by Owner for cause pursuant to Section 9.01 and only for those Subcontracts which Owner accepts by notifying the Subcontractor in writing; and
2. Owner assumes Contractor's responsibilities: After the assignment is effective, Owner will assume all future duties and obligations toward the Subcontractor which Contractor assumed in the Subcontract.
3. Impact of bond: The assignment is subject to the prior rights of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.

5.21 WARRANTY OF CONSTRUCTION

- A. Contractor warranty of Work: In addition to any special warranties provided elsewhere in the Contract Documents, Contractor warrants that all Work conforms to the requirements of the Contract Documents and is free of any defect in equipment, material, or design furnished, or workmanship performed by Contractor.
- B. Contractor responsibilities: With respect to all warranties, express or implied, for Work performed or materials furnished according to the Contract Documents, Contractor shall:
1. Obtain warranties: Obtain all warranties that would be given in normal commercial practice;
 2. Warranties for benefit of Owner: Require all warranties to be executed, in writing, for the benefit of Owner;
 3. Enforcement of warranties: Enforce all warranties for the benefit of Owner, if directed by Owner; and
 4. Contractor responsibility for subcontractor warranties: Be responsible to enforce any subcontractor's, manufacturer's, or supplier's warranties should they extend beyond the period specified in the Contract Documents.
- C. Warranties beyond Final Acceptance: The obligations under this section shall survive Final Acceptance.

5.22 INDEMNIFICATION

- A. Contractor to indemnify Owner: Contractor shall defend, indemnify, and hold Owner and A/E harmless from and against all claims, demands, losses, damages, or costs, including but not limited to damages arising out of bodily injury or death to persons and damage to property, caused by or resulting from:
1. Sole negligence of Contractor: The sole negligence of Contractor or any of its Subcontractors;
 2. Concurrent negligence: The concurrent negligence of Contractor, or any Subcontractor, but only to the extent of the negligence of Contractor or such Subcontractor; and
 3. Patent infringement: The use of any design, process, or equipment which constitutes an infringement of any United States patent presently issued, or violates any other proprietary interest, including copyright, trademark, and trade secret.
- B. Employee action and RCW Title 51: In any action against Owner and any other entity indemnified in accordance with this section, by any employee of Contractor, its Subcontractors, Sub-subcontractors, agents, or anyone directly or indirectly employed by any of them, the indemnification obligation of this section shall not be limited by a limit on the amount or type of damages, compensation, or benefits payable by or for Contractor or any Subcontractor under RCW Title 51, the Industrial Insurance Act, or any other employee benefit acts. In addition, Contractor waives immunity as to Owner and A/E only, in accordance with RCW Title 51.

PART 6 – PAYMENTS AND COMPLETION

6.01 CONTRACT SUM

Owner shall pay Contract Sum: Owner shall pay Contractor the Contract Sum plus state sales tax for performance of the Work, in accordance with the Contract Documents.

6.02 SCHEDULE OF VALUES

Contractor to submit Schedule of Values: Before submitting its first Application for Payment, Contractor shall submit to Owner for approval a breakdown allocating the total Contract Sum to each principal category of work, in such detail as requested by Owner ("Schedule of Values"). The approved Schedule of Values shall include appropriate amounts for demobilization, record drawings, O&M manuals, and any other requirements for Project closeout, and shall be used by Owner as the basis for progress payments. Payment for Work shall be made only for and in accordance with those items included in the Schedule of Values.

6.03 APPLICATION FOR PAYMENT

- A. Monthly Application for Payment with substantiation: At monthly intervals, unless determined otherwise by Owner, Contractor shall submit to Owner an itemized Application for Payment for Work completed in accordance with the Contract Documents and the approved Schedule of Values. Each application shall be supported by such substantiating data as Owner may require.
- B. Contractor certifies Subcontractors paid: By submitting an Application for Payment, Contractor is certifying that all Subcontractors have been paid, less earned retainage in accordance with RCW 60.28.011, as their interests appeared in the last preceding certificate of payment. By submitting an Application for Payment, Contractor is recertifying that the representations set forth in Section 1.03, are true and correct, to the best of Contractor's knowledge, as of the date of the Application for Payment.
- C. Reconciliation of Work with Progress Schedule: At the time it submits an Application for Payment, Contractor shall analyze and reconcile, to the satisfaction of Owner, the actual progress of the Work with the Progress Schedule.
- D. Payment for material delivered to site or stored off-site: If authorized by Owner, the Application for Payment may include request for payment for material delivered to the Project site and suitably stored, or for completed preparatory work. Payment may similarly be requested for material stored off the Project site, provided Contractor complies with or furnishes satisfactory evidence of the following:
 - 1. Suitable facility or location: The material will be placed in a facility or location that is structurally sound, dry, lighted and suitable for the materials to be stored;
 - 2. Facility or location within 10 miles of Project: The facility or location is located within a 10-mile radius of the Project. Other locations may be utilized, if approved in writing, by Owner;
 - 3. Facility or location exclusive to Project's materials: Only materials for the Project are stored within the facility or location (or a secure portion of a facility or location set aside for the Project);
 - 4. Insurance provided on materials in facility or location: Contractor furnishes Owner a certificate of insurance extending Contractor's insurance coverage for damage, fire, and theft to cover the full value of all materials stored, or in transit;

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5. Facility or location locked and secure: The facility or location (or secure portion thereof) is continuously under lock and key, and only Contractor's authorized personnel shall have access;
6. Owner right of access to facility or location: Owner shall at all times have the right of access in company of Contractor;
7. Contractor assumes total responsibility for stored materials: Contractor and its surety assume total responsibility for the stored materials; and
8. Contractor provides documentation and Notice when materials moved to site: Contractor furnishes to Owner certified lists of materials stored, bills of lading, invoices, and other information as may be required, and shall also furnish Notice to Owner when materials are moved from storage to the Project site.

6.04 PROGRESS PAYMENTS

- A. Owner to pay within 30 Days: Owner shall make progress payments, in such amounts as Owner determines are properly due, within 30 Days after receipt of a properly executed Application for Payment. Owner shall notify Contractor in accordance with chapter 39.76 RCW if the Application for Payment does not comply with the requirements of the Contract Documents.
- B. Withholding retainage; Options for retainage: Owner shall retain 5% of the amount of each progress payment until 45 Days after Final Acceptance and receipt of all documents required by law or the Contract Documents, including, at Owner's request, consent of surety to release of the retainage. In accordance with chapter 60.28 RCW, Contractor may request that monies reserved be retained in a fund by Owner, deposited by Owner in a bank or savings and loan, or placed in escrow with a bank or trust company to be converted into bonds and securities to be held in escrow with interest to be paid to Contractor. Owner may permit Contractor to provide an appropriate bond in lieu of the retained funds.
- C. Title passes to Owner upon payment: Title to all Work and materials covered by a progress payment shall pass to Owner at the time of such payment free and clear of all liens, claims, security interests, and encumbrances. Passage of title shall not, however, relieve Contractor from any of its duties and responsibilities for the Work or materials, or waive any rights of Owner to insist on full compliance by Contractor with the Contract Documents.
- D. Interest on unpaid balances: Payments due and unpaid in accordance with the Contract Documents shall bear interest as specified in chapter 39.76 RCW.

6.05 PAYMENTS WITHHELD

- A. Owner's right to withhold payment: Owner may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any payment to such extent as may be necessary to protect Owner from loss or damage for reasons including but not limited to:
 1. Non-compliant Work: Work not in accordance with the Contract Documents;
 2. Remaining Work to cost more than unpaid balance: Reasonable evidence that the Work required by the Contract Documents cannot be completed for the unpaid balance of the Contract Sum;
 3. Owner correction or completion Work: Work by Owner to correct defective Work or complete the Work in accordance with Section 5.16;

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4. Contractor's failure to perform: Contractor's failure to perform in accordance with the Contract Documents; or
 5. Contractor's negligent acts or omissions: Cost or liability that may occur to Owner as the result of Contractor's fault or negligent acts or omissions.
- B. Owner to notify Contractor of withholding for unsatisfactory performance: In any case where part or all of a payment is going to be withheld for unsatisfactory performance, Owner shall notify Contractor in accordance with chapter 39.76 RCW.

6.06 RETAINAGE AND BOND CLAIM RIGHTS

Chapters 39.08 RCW and 60.28 RCW incorporated by reference: Chapters 39.08 RCW and 60.28 RCW, concerning the rights and responsibilities of Contractor and Owner with regard to the performance and payment bonds and retainage, are made a part of the Contract Documents by reference as though fully set forth herein.

6.07 SUBSTANTIAL COMPLETION

Substantial Completion defined: Substantial Completion is the stage in the progress of the Work (or portion thereof designated and approved by Owner) when the construction is sufficiently complete, in accordance with the Contract Documents, so Owner has full and unrestricted use and benefit of the facilities (or portion thereof designated and approved by Owner) for the use for which it is intended. All Work other than incidental corrective or punch list work shall be completed. Substantial Completion shall not have been achieved if all systems and parts are not functional, if utilities are not connected and operating normally, if all required occupancy permits have not been issued, or if the Work is not accessible by normal vehicular and pedestrian traffic routes. The date Substantial Completion is achieved shall be established in writing by Owner. Contractor may request an early date of Substantial Completion which must be approved by Change Order. Owner's occupancy of the Work or designated portion thereof does not necessarily indicate that Substantial Completion has been achieved.

6.08 PRIOR OCCUPANCY

- A. Prior Occupancy defined; Restrictions: Owner may, upon written notice thereof to Contractor, take possession of or use any completed or partially completed portion of the Work ("Prior Occupancy") at any time prior to Substantial Completion. Unless otherwise agreed in writing, Prior Occupancy shall not: be deemed an acceptance of any portion of the Work; accelerate the time for any payment to Contractor; prejudice any rights of Owner provided by any insurance, bond, guaranty, or the Contract Documents; relieve Contractor of the risk of loss or any of the obligations established by the Contract Documents; establish a date for termination or partial termination of the assessment of liquidated damages; or constitute a waiver of claims.
- B. Damage; Duty to repair and warranties: Notwithstanding anything in the preceding paragraph, Owner shall be responsible for loss of or damage to the Work resulting from Prior Occupancy. Contractor's one year duty to repair any system warranties shall begin on building systems activated and used by Owner as agreed in writing by Owner and Contractor.

6.09 FINAL COMPLETION, ACCEPTANCE, AND PAYMENT

- A. Final Completion defined: Final Completion shall be achieved when the Work is fully and finally complete in accordance with the Contract Documents. The date Final Completion is achieved shall be established by Owner in writing, but in no case shall constitute Final Acceptance which is a subsequent, separate, and distinct action.

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- B. Final Acceptance defined: Final Acceptance shall be achieved when the Contractor has completed the requirements of the Contract Documents. The date Final Acceptance is achieved shall be established by Owner in writing. Prior to Final Acceptance, Contractor shall, in addition to all other requirements in the Contract Documents, submit to Owner a written notice of any outstanding disputes or claims between Contractor and any of its Subcontractors, including the amounts and other details thereof. Neither Final Acceptance, nor final payment, shall release Contractor or its sureties from any obligations of these Contract Documents or the payment and performance bonds, or constitute a waiver of any claims by Owner arising from Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Final payment waives Claim rights: Acceptance of final payment by Contractor, or any Subcontractor, shall constitute a waiver and release to Owner of all claims by Contractor, or any such Subcontractor, for an increase in the Contract Sum or the Contract Time, and for every act or omission of Owner relating to or arising out of the Work, except for those Claims made in accordance with the procedures, including the time limits, set forth in Part 8.

PART 7 – CHANGES

7.01 CHANGE IN THE WORK

- A. Changes in Work, Contract Sum, and Contract Time by Change Order: Owner may, at any time and without notice to Contractor's surety, order additions, deletions, revisions, or other changes in the Work. These changes in the Work shall be incorporated into the Contract Documents through the execution of Change Orders. If any change in the Work ordered by Owner causes an increase or decrease in the Contract Sum or the Contract Time, an equitable adjustment shall be made as provided in Section 7.02 or 7.03, respectively, and such adjustment(s) shall be incorporated into a Change Order.
- B. Owner may request COP from Contractor: If Owner desires to order a change in the Work, it may request a written Change Order Proposal (COP) from Contractor. Contractor shall submit a Change Order Proposal within 14 Days of the request from Owner, or within such other period as mutually agreed. Contractor's Change Order Proposal shall be full compensation for implementing the proposed change in the Work, including any adjustment in the Contract Sum or Contract Time, and including compensation for all delays in connection with such change in the Work and for any expense or inconvenience, disruption of schedule, or loss of efficiency or productivity occasioned by the change in the Work.
- C. COP negotiations: Upon receipt of the Change Order Proposal, or a request for equitable adjustment in the Contract Sum or Contract Time, or both, as provided in Sections 7.02 and 7.03, Owner may accept or reject the proposal, request further documentation, or negotiate acceptable terms with Contractor. Pending agreement on the terms of the Change Order, Owner may direct Contractor to proceed immediately with the Change Order Work. Contractor shall not proceed with any change in the Work until it has obtained Owner's approval. All Work done pursuant to any Owner-directed change in the Work shall be executed in accordance with the Contract Documents.
- D. Change Order as full payment and final settlement: If Owner 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. 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.
- E. Failure to agree upon terms of Change Order; Final offer and Claims: If Owner and Contractor are unable to reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, Contractor may at any time in writing, request a final offer from

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Owner. Owner shall provide Contractor with its written response within 30 Days of Contractor's request. Owner may also provide Contractor with a final offer at any time. If Contractor rejects Owner's final offer, or the parties are otherwise unable to reach agreement, Contractor's only remedy shall be to file a Claim as provided in Part 8.

- F. Field Authorizations: The Owner may direct the Contractor to proceed with a change in the work through a written Field Authorization (also referred to as a Field Order) when the time required to price and execute a Change Order would impact the Project.

The Field Authorization shall describe and include the following:

1. The scope of work
2. An agreed upon maximum not-to-exceed amount
3. Any estimated change to the Contract Time
4. The method of final cost determination in accordance with the requirements of Part 7 of the General Conditions
5. The supporting cost data to be submitted in accordance with the requirements of Part 7 of the General Conditions

Upon satisfactory submittal by the Contractor and approval by the Owner of supporting cost data, a Change Order will be executed. The Owner will not make payment to the Contractor for Field Authorization work until that work has been incorporated into an executed Change Order.

7.02 CHANGE IN THE CONTRACT SUM

A. General Application

1. Contract Sum changes only by Change Order: The Contract Sum shall only be changed by a Change Order. Contractor shall include any request for a change in the Contract Sum in its Change Order Proposal.
2. Owner fault or negligence as basis for change in Contract Sum: If the cost of Contractor's performance is changed due to the fault or negligence of Owner, or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Sum in accordance with the following procedure. No change in the Contract Sum shall be allowed to the extent: Contractor's changed cost of performance is due to the fault or negligence of Contractor, or anyone for whose acts Contractor is responsible; the change is concurrently caused by Contractor and Owner; or the change is caused by an act of Force Majeure as defined in Section 3.05.
 - (a) Notice and record keeping for equitable adjustment: A request for an equitable adjustment in the Contract Sum shall be based on written notice delivered to Owner within 7 Days of the occurrence of the event giving rise to the request. For purposes of this part, "occurrence" means when Contractor knew, or in its diligent prosecution of the Work should have known, of the event giving rise to the request. If Contractor believes it is entitled to an adjustment in the Contract Sum, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such records and, if requested shall promptly furnish copies of such records to Owner.
 - (b) Content of notice for equitable adjustment; Failure to comply: Contractor shall not be entitled to any adjustment in the Contract Sum for any occurrence of events or costs that

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occurred more than 7 Days before Contractor's written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the Contract Sum; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Sum requested. Failure to properly give such written notice shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.

- (c) Contractor to provide supplemental information: Within 30 Days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with subparagraph a. above with additional supporting data. Such additional data shall include, at a minimum: the amount of compensation requested, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the damages claimed, but that the damages claimed were actually a result of the act, event, or condition complained of and that the Contract Documents provide entitlement to an equitable adjustment to Contractor for such act, event, or condition; and documentation sufficiently detailed to permit an informed analysis of the request by Owner. When the request for compensation relates to a delay, or other change in Contract Time, Contractor shall demonstrate the impact on the critical path, in accordance with Section 7.03C. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.
 - (d) Contractor to proceed with Work as directed: Pending final resolution of any request made in accordance with this paragraph, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.
 - (e) Contractor to combine requests for same event together: Any requests by Contractor for an equitable adjustment in the Contract Sum and in the Contract Time that arise out of the same event(s) shall be submitted together.
3. Methods for calculating Change Order amount: The value of any Work covered by a Change Order, or of any request for an equitable adjustment in the Contract Sum, shall be determined by one of the following methods:
- (a) Fixed Price: On the basis of a fixed price as determined in paragraph 7.02B.
 - (b) Unit Prices: By application of unit prices to the quantities of the items involved as determined in paragraph 7.02C.
 - (c) Time and Materials: On the basis of time and material as determined in paragraph 7.02D.
4. Fixed price method is default; Owner may direct otherwise: When Owner has requested Contractor to submit a Change Order Proposal, Owner may direct Contractor as to which method in subparagraph 3 above to use when submitting its proposal. Otherwise, Contractor shall determine the value of the Work, or of a request for an equitable adjustment, on the basis of the fixed price method.

B. Change Order Pricing – Fixed Price

Procedures: When the fixed price method is used to determine the value of any Work covered by a Change Order, or of a request for an equitable adjustment in the Contract Sum, the following procedures shall apply:

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1. Breakdown and itemization of details on COP: Contractor's Change Order Proposal, or request for adjustment in the Contract Sum, shall be accompanied by a complete itemization of the costs, including labor, material, subcontractor costs, and overhead and profit. The costs shall be itemized in the manner set forth below, and shall be submitted on breakdown sheets in a form approved by Owner.
2. Use of industry standards in calculating costs: All costs shall be calculated based upon appropriate industry standard methods of calculating labor, material quantities, and equipment costs.
3. Costs contingent on Owner's actions: If any of Contractor's pricing assumptions are contingent upon anticipated actions of Owner, Contractor shall clearly state them in the proposal or request for an equitable adjustment.
4. Markups on additive and deductive Work: The cost of any additive or deductive changes in the Work shall be calculated as set forth below, except that overhead and profit shall not be included on deductive changes in the Work. Where a change in the Work involves additive and deductive work by the same Contractor or Subcontractor, small tools, overhead, profit, bond and insurance markups will apply to the net difference.
5. Breakdown not required if change less than \$1,000: If the total cost of the change in the Work or request for equitable adjustment does not exceed \$1,000, Contractor shall not be required to submit a breakdown if the description of the change in the Work or request for equitable adjustment is sufficiently definitive for Owner to determine fair value.
6. Breakdown required if change between \$1,000 and \$2,500: If the total cost of the change in the Work or request for equitable adjustment is between \$1,000 and \$2,500, Contractor may submit a breakdown in the following level of detail if the description of the change in the Work or if the request for equitable adjustment is sufficiently definitive to permit the Owner to determine fair value:
 - a. lump sum labor;
 - b. lump sum material;
 - c. lump sum equipment usage;
 - d. overhead and profit as set forth below; and
 - e. insurance and bond costs as set forth below.
7. Components of increased cost: Any request for adjustment of Contract Sum based upon the fixed price method shall include only the following items:
 - a. Craft labor costs: These are the labor costs determined by multiplying the estimated or actual additional number of craft hours needed to perform the change in the Work by the hourly labor costs. Craft hours should cover direct labor, as well as indirect labor due to trade inefficiencies. The hourly costs shall be based on the following:
 - (1) Basic wages and benefits: Hourly rates and benefits as stated on the L&I approved "statement of intent to pay prevailing wages" or a higher amount if approved by the Owner. Direct supervision shall be a reasonable percentage not to exceed 15% of the cost of direct labor. No supervision markup shall be allowed for a working supervisor's hours.
 - (2) Worker's insurance: Direct contributions to the state of Washington for industrial insurance; medical aid; and supplemental pension, by the class and rates established by the L&I.

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- (3) Federal insurance: Direct contributions required by the Federal Insurance Compensation Act; Federal Unemployment Tax Act; and the State Unemployment Compensation Act.
 - (4) Travel allowance: Travel allowance and/or subsistence, if applicable, not exceeding those allowances established by regional labor union agreements, which are itemized and identified separately.
 - (5) Safety: Cost incurred due to the Washington Industrial Safety and Health Act, which shall be a reasonable percentage not to exceed 2% of the sum of the amounts calculated in (1), (2), and (3) above.
- b. Material costs: This is an itemization of the quantity and cost of materials needed to perform the change in the Work. Material costs shall be developed first from actual known costs, second from supplier quotations or if these are not available, from standard industry pricing guides. Material costs shall consider all available discounts. Freight costs, express charges, or special delivery charges, shall be itemized.
- c. Equipment costs: This is an itemization of the type of equipment and the estimated or actual length of time the construction equipment appropriate for the Work is or will be used on the change in the Work. Costs will be allowed for construction equipment only if used solely for the changed Work, or for additional rental costs actually incurred by the Contractor. Equipment charges shall be computed on the basis of actual invoice costs or if owned, from the current edition of one of the following sources:
- (1) The National Electrical Contractors Association for equipment used on electrical work.
 - (2) The Mechanical Contractors Association of America for equipment used on mechanical work.
 - (3) The EquipmentWatch Fleet Manager Estimator Package (digital). The maximum rate for standby equipment shall not exceed that shown in the Associated General Contractors Washington State Department of Transportation (AGC WSDOT) Equipment Rental Agreement, current edition on the Contract execution date.
- The EquipmentWatch Rental Rate Blue Book shall be used as a basis for establishing rental rates of equipment not listed in the above sources. The maximum rate for standby equipment shall not exceed that shown in the AGC WSDOT Equipment Rental Agreement, current edition on the Contract execution date.
- d. Allowance for small tools, expendables & consumable supplies: Small tools consist of tools which cost \$250 or less and are normally furnished by the performing contractor. The maximum rate for small tools shall not exceed the following:
- (1) 3% for Contractor: For Contractor, 3% of direct labor costs.
 - (2) 5% for Subcontractors: For Subcontractors, 5% of direct labor costs.
- Expendables and consumables supplies directly associated with the change in Work must be itemized.
- e. Subcontractor costs: This is defined as payments Contractor makes to Subcontractors for changed Work performed by Subcontractors of any tier. The Subcontractors' cost of Work shall be calculated and itemized in the same manner as prescribed herein for Contractor.

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- f. Allowance for overhead: This is defined as costs of any kind attributable to direct and indirect delay, acceleration, or impact, added to the total cost to Owner of any change in the Contract Sum. If the Contractor is compensated under Section 7.03D, the amount of such compensation shall be reduced by the amount Contractor is otherwise entitled to under this subsection (f). This allowance shall compensate Contractor for all noncraft labor, temporary construction facilities, field engineering, schedule updating, as-built drawings, home office cost, B&O taxes, office engineering, estimating costs, additional overhead because of extended time, and any other cost incidental to the change in the Work. It shall be strictly limited in all cases to a reasonable amount, mutually acceptable, or if none can be agreed upon to an amount not to exceed the rates below:
- (1). Projects less than \$3 million: For projects where the Contract Award Amount is under \$3 million, the following shall apply:
- (a) Contractor markup on Contractor Work: For Contractor, for any Work actually performed by Contractor's own forces, 16% of the first \$50,000 of the cost, and 4% of the remaining cost, if any.
 - (b) Subcontractor markup for Subcontractor Work: For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 16% of the first \$50,000 of the cost, and 4% of the remaining cost, if any.
 - (c) Contractor markup for Subcontractor Work: For Contractor, for any work performed by its Subcontractor(s) 6% of the first \$50,000 of the amount due each Subcontractor, and 4% of the remaining amount if any.
 - (d) Subcontractor markup for lower tier Subcontractor Work: For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, 4% of the first \$50,000 of the amount due the sub-Subcontractor, and 2% of the remaining amount if any.
 - (e) Basis of cost applicable for markup: The cost to which overhead is to be applied shall be developed in accordance with Section 7.02B 7a. – e.
- (2). Projects more than \$3 million: For projects where the Contract Award Amount is equal to or exceeds \$3 million, the following shall apply:
- (a) Contractor markup on Contractor Work: For Contractor, for any Work actually performed by Contractor's own forces, 12% of the first \$50,000 of the cost, and 4% of the remaining cost, if any.
 - (b) Subcontractor markup for Subcontractor Work: For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 12% of the first \$50,000 of the cost, and 4% of the remaining cost, if any.
 - (c) Contractor markup for Subcontractor Work: For Contractor, for any Work performed by its Subcontractor(s), 4% of the first \$50,000 of the amount due each Subcontractor, and 2% of the remaining amount if any.
 - (d) Subcontractor markup for lower tier Subcontractor Work: For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, 4% of the first \$50,000 of the amount due the sub-Subcontractor, and 2% of the remaining amount if any.

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- (e) Basis of cost applicable for markup: The cost to which overhead is to be applied shall be developed in accordance with Section 7.02B 7a. – e.
- g. Allowance for profit: Allowance for profit is an amount to be added to the cost of any change in contract sum, but not to the cost of change in Contract Time for which contractor has been compensated pursuant to the conditions set forth in Section 7.03. It shall be limited to a reasonable amount, mutually acceptable, or if none can be agreed upon, to an amount not to exceed the rates below:
- (1) Contractor / Subcontractor markup for self-performed Work: For Contractor or Subcontractor of any tier for work performed by their forces, 6% of the cost developed in accordance with Section 7.02B 7a. – e.
 - (2) Contractor / Subcontractor markup for Work performed at lower tier: For Contractor or Subcontractor of any tier for work performed by a subcontractor of a lower tier, 4% of the subcontract cost developed in accordance with Section 7.02B 7a. – h.
- h. Insurance and bond premiums: Cost of change in insurance or bond premium: This is defined as:
- (1) Contractor's liability insurance: The cost of any changes in Contractor's liability insurance arising directly from execution of the Change Order; and
 - (2) Payment and Performance Bond: The cost of the additional premium for Contractor's bond arising directly from the changed Work.

The cost of any change in insurance or bond premium shall be added after overhead and allowance for profit are calculated in accordance with subparagraph f. and g above.

C. Change Order Pricing – Unit Prices

1. Content of Owner authorization: Whenever Owner authorizes Contractor to perform Work on a unit-price basis, Owner's authorization shall clearly state:
 - a. Scope: Scope of work to be performed;
 - b. Reimbursement basis: Type of reimbursement including pre-agreed rates for material quantities; and
 - c. Reimbursement limit: Cost limit of reimbursement.
2. Contractor responsibilities: Contractor shall:
 - a. Cooperate with Owner and assist in monitoring the Work being performed. As requested by Owner, Contractor shall identify workers assigned to the Change Order Work and areas in which they are working;
 - b. Leave access as appropriate for quantity measurement; and
 - c. Not exceed any cost limit(s) without Owner's prior written approval.
3. Cost breakdown consistent with Fixed Price requirements: Contractor shall submit costs in accordance with paragraph 7.02B and satisfy the following requirements:

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- a. Unit prices must include overhead, profit, bond and insurance premiums: Unit prices shall include reimbursement for all direct and indirect costs of the Work, including overhead, profit, bond, and insurance costs; and
- b. Owner verification of quantities: Quantities must be supported by field measurement statements signed by Owner.

D. Change Order Pricing – Time-and-Material Prices

- 1. Content of Owner authorization: Whenever Owner authorizes Contractor to perform Work on a time-and-material basis, Owner's authorization shall clearly state:
 - a. Scope: Scope of Work to be performed;
 - b. Reimbursement basis: Type of reimbursement including pre-agreed rates, if any, for material quantities or labor; and
 - c. Reimbursement limit: Cost limit of reimbursement.
- 2. Contractor responsibilities: Contractor shall:
 - a. Identify workers assigned: Cooperate with Owner and assist in monitoring the Work being performed. As requested by Owner, identify workers assigned to the Change Order Work and areas in which they are working;
 - b. Provide daily timesheets: Identify on daily time sheets all labor performed in accordance with this authorization. Submit copies of daily time sheets within 2 working days for Owner's review.
 - c. Allow Owner to measure quantities: Leave access as appropriate for quantity measurement;
 - d. Perform Work efficiently: Perform all Work in accordance with this section as efficiently as possible; and
 - e. Not exceed Owner's cost limit: Not exceed any cost limit(s) without Owner's prior written approval.
- 3. Cost breakdown consistent with Fixed Price requirements: Contractor shall submit costs in accordance with paragraph 7.02B and additional verification supported by:
 - a. Timesheets: Labor detailed on daily time sheets; and
 - b. Invoices: Invoices for material.

7.03 CHANGE IN THE CONTRACT TIME

- A. COP requests for Contract Time: The Contract Time shall only be changed by a Change Order. Contractor shall include any request for a change in the Contract Time in its Change Order Proposal.
- B. Time extension permitted if not Contractor's fault: If the time of Contractor's performance is changed due to an act of Force Majeure, or due to the fault or negligence of Owner or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Time in accordance with the following procedure. No adjustment in the Contract Time shall be allowed to the extent Contractor's changed time of

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performance is due to the fault or negligence of Contractor, or anyone for whose acts Contractor is responsible.

1. Notice and record keeping for Contract Time request: A request for an equitable adjustment in the Contract Time shall be based on written notice delivered within 7 Days of the occurrence of the event giving rise to the request. If Contractor believes it is entitled to adjustment of Contract Time, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such record and if requested, shall promptly furnish copies of such record to Owner.
 2. Timing and content of Contractor's Notice: Contractor shall not be entitled to an adjustment in the Contract Time for any events that occurred more than 7 Days before Contractor's written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the Contract Time; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Time requested. Failure to properly give such written notice shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.
 3. Contractor to provide supplemental information: Within 30 Days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with subparagraph 7.03B.2 with additional supporting data. Such additional data shall include, at a minimum: the amount of delay claimed, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the delay claimed, but that the delay claimed was actually a result of the act, event, or condition complained of, and that the Contract Documents provide entitlement to an equitable adjustment in Contract Time for such act, event, or condition; and supporting documentation sufficiently detailed to permit an informed analysis of the request by Owner. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.
 4. Contractor to proceed with Work as directed: Pending final resolution of any request in accordance with this paragraph, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.
- C. Contractor to demonstrate impact on critical path of schedule: Any change in the Contract Time covered by a Change Order, or based on a request for an equitable adjustment in the Contract Time, shall be limited to the change in the critical path of Contractor's schedule attributable to the change of Work or event(s) giving rise to the request for equitable adjustment. Any Change Order Proposal or request for an adjustment in the Contract Time shall demonstrate the impact on the critical path of the schedule. Contractor shall be responsible for showing clearly on the Progress Schedule that the change or event: had a specific impact on the critical path, and except in case of concurrent delay, was the sole cause of such impact; and could not have been avoided by resequencing of the Work or other reasonable alternatives.
- D. Cost of change in Contract Time: Contractor may request compensation for the cost of a change in Contract Time in accordance with this paragraph, 7.03D, subject to the following conditions:
1. Must be solely fault of Owner or A/E: The change in Contract Time shall solely be caused by the fault or negligence of Owner or A/E;
 2. Procedures: Contractor shall follow the procedure set forth in paragraph 7.03B;

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3. Demonstrate impact on critical path: Contractor shall establish the extent of the change in Contract Time in accordance with paragraph 7.03C; and
4. Limitations on daily costs: The daily cost of any change in Contract Time shall be limited to the items below, less the amount of any change in the Contract Sum the Contractor may otherwise be entitled to pursuant to Section 7.02B 7f for any change in the Work that contributed to this change in Contract Time:
 - a. Non-productive supervision or labor: cost of nonproductive field supervision or labor extended because of delay;
 - b. Weekly meetings and indirect activities: cost of weekly meetings or similar indirect activities extended because of the delay;
 - c. Temporary facilities or equipment rental: cost of temporary facilities or equipment rental extended because of the delay;
 - d. Insurance premiums: cost of insurance extended because of the delay;
 - e. Overhead: general and administrative overhead in an amount to be agreed upon, but not to exceed 3% of the Contract Award Amount divided by the originally specified Contract Time for each Day of the delay.

PART 8 – CLAIMS AND DISPUTE RESOLUTION

8.01 CLAIMS PROCEDURE

- A. Claim is Contractor's remedy: If the parties fail to reach agreement on the terms of any Change Order for Owner-directed Work as provided in Section 7.01, or on the resolution of any request for an equitable adjustment in the Contract Sum as provided in Section 7.02 or the Contract Time as provided in Section 7.03, Contractor's only remedy shall be to file a Claim with Owner as provided in this section.
- B. Claim filing deadline for Contractor: Contractor shall file its Claim within 120 Days from Owner's final offer made in accordance with paragraph 7.01E, or by the date of Final Acceptance, whichever occurs first.
- C. Claim must cover all costs and be documented: The Claim shall be deemed to cover all changes in cost and time (including direct, indirect, impact, and consequential) to which Contractor may be entitled. It shall be fully substantiated and documented. At a minimum, the Claim shall contain the following information:
 1. Factual statement of Claim: A detailed factual statement of the Claim for additional compensation and time, if any, providing all necessary dates, locations, and items of Work affected by the Claim;
 2. Dates: The date on which facts arose which gave rise to the Claim;
 3. Owner and A/E employee's knowledgeable about Claim: The name of each employee of Owner or A/E knowledgeable about the Claim;
 4. Support from Contract Documents: The specific provisions of the Contract Documents which support the Claim;

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5. Identification of other supporting information: The identification of any documents and the substance of any oral communications that support the Claim;
 6. Copies of supporting documentation: Copies of any identified documents, other than the Contract Documents, that support the Claim;
 7. Details on Claim for Contract Time: If an adjustment in the Contract Time is sought: the specific days and dates for which it is sought; the specific reasons Contractor believes an extension in the Contract Time should be granted; and Contractor's analysis of its Progress Schedule to demonstrate the reason for the extension in Contract Time;
 8. Details on Claim for adjustment of Contract Sum: If an adjustment in the Contract Sum is sought, the exact amount sought and a breakdown of that amount into the categories set forth in, and in the detail as required by Section 7.02; and
 9. Statement certifying Claim: A statement certifying, under penalty of perjury, that the Claim 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 by the accompanying data, and that the amount requested accurately reflects the adjustment in the Contract Sum or Contract Time for which Contractor believes Owner is liable.
- D. Owner's response to Claim filed: After Contractor has submitted a fully documented Claim that complies with all applicable provisions of Parts 7 and 8, Owner shall respond, in writing, to Contractor as follows:
1. Response time for Claim less than \$50,000: If the Claim amount is less than \$50,000, with a decision within 60 Days from the date the Claim is received; or
 2. Response time for Claim of \$50,000 or more: If the Claim amount is \$50,000 or more, with a decision within 60 Days from the date the Claim is received, or with notice to Contractor of the date by which it will render its decision. Owner will then respond with a written decision in such additional time.
- E. Owner's review of Claim and finality of decision: To assist in the review of Contractor's Claim, Owner may visit the Project site, or request additional information, in order to fully evaluate the issues raised by the Claim. Contractor shall proceed with performance of the Work pending final resolution of any Claim. Owner's written decision as set forth above shall be final and conclusive as to all matters set forth in the Claim, unless Contractor follows the procedure set forth in Section 8.02.
- F. Waiver of Contractor rights for failure to comply with this Section: Any Claim of the Contractor against the Owner for damages, additional compensation, or additional time, shall be conclusively deemed to have been waived by the Contractor unless made in accordance with the requirements of this Section.

8.02 ARBITRATION

- A. Timing of Contractor's demand for arbitration: If Contractor disagrees with Owner's decision rendered in accordance with paragraph 8.01D, Contractor shall provide Owner with a written demand for arbitration. No demand for arbitration of any such Claim shall be made later than 30 Days after the date of Owner's decision on such Claim; failure to demand arbitration within said 30 Day period shall result in Owner's decision being final and binding upon Contractor and its Subcontractors.
- B. Filing of Notice for arbitration: Notice of the demand for arbitration shall be filed with the American Arbitration Association (AAA), with a copy provided to Owner. The parties shall negotiate or

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mediate under the Voluntary Construction Mediation Rules of the AAA, or mutually acceptable service, before seeking arbitration in accordance with the Construction Industry Arbitration Rules of AAA as follows:

1. Claims less than \$30,000: Disputes involving \$30,000 or less shall be conducted in accordance with the Northwest Region Expedited Commercial Arbitration Rules; or
 2. Claims greater than \$30,000: Disputes over \$30,000 shall be conducted in accordance with the Construction Industry Arbitration Rules of the AAA, unless the parties agree to use the expedited rules.
- C. Arbitration is forum for resolving Claims: All Claims arising out of the Work shall be resolved by arbitration. The judgment upon the arbitration award may be entered, or review of the award may occur, in the superior court having jurisdiction thereof. No independent legal action relating to or arising from the Work shall be maintained.
- D. Owner may combine Claims into same arbitration: Claims between Owner and Contractor, Contractor and its Subcontractors, Contractor and A/E, and Owner and A/E shall, upon demand by Owner, be submitted in the same arbitration or mediation.
- E. Settlement outside of arbitration to be documented in Change Order: If the parties resolve the Claim prior to arbitration judgment, the terms of the resolution shall be incorporated in a Change Order. The Change Order shall constitute full payment and final settlement of the Claim, including all claims for time and for direct, indirect, or consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity.

8.03 CLAIMS AUDITS

- A. Owner may audit Claims: All Claims filed against Owner shall be subject to audit at any time following the filing of the Claim. Failure of Contractor, or Subcontractors of any tier, to maintain and retain sufficient records to allow Owner to verify all or a portion of the Claim or to permit Owner access to the books and records of Contractor, or Subcontractors of any tier, shall constitute a waiver of the Claim and shall bar any recovery.
- B. Contractor to make documents available: In support of Owner audit of any Claim, Contractor shall, upon request, promptly make available to Owner the following documents:
1. Daily time sheets and supervisor's daily reports;
 2. Collective bargaining agreements;
 3. Insurance, welfare, and benefits records;
 4. Payroll registers;
 5. Earnings records;
 6. Payroll tax forms;
 7. Material invoices, requisitions, and delivery confirmations;
 8. Material cost distribution worksheet;
 9. Equipment records (list of company equipment, rates, etc.);
 10. Vendors', rental agencies', Subcontractors', and agents' invoices;

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11. Contracts between Contractor and each of its Subcontractors, and all lower-tier Subcontractor contracts and supplier contracts;
 12. Subcontractors' and agents' payment certificates;
 13. Cancelled checks (payroll and vendors);
 14. Job cost report, including monthly totals;
 15. Job payroll ledger;
 16. Planned resource loading schedules and summaries;
 17. General ledger;
 18. Cash disbursements journal;
 19. Financial statements for all years reflecting the operations on the Work. In addition, the Owner may require, if it deems it appropriate, additional financial statements for 3 years preceding execution of the Work;
 20. Depreciation records on all company equipment whether these records are maintained by the company involved, its accountant, or others;
 21. If a source other than depreciation records is used to develop costs for Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents;
 22. All nonprivileged documents which relate to each and every Claim together with all documents which support the amount of any adjustment in Contract Sum or Contract Time sought by each Claim;
 23. Work sheets or software used to prepare the Claim establishing the cost components for items of the Claim including but not limited to labor, benefits and insurance, materials, equipment, Subcontractors, all documents which establish the time periods, individuals involved, the hours for the individuals, and the rates for the individuals; and
 24. Work sheets, software, and all other documents used by Contractor to prepare its bid.
- C. Contractor to provide facilities for audit and shall cooperate: The audit may be performed by employees of Owner or a representative of Owner. Contractor, and its Subcontractors, shall provide adequate facilities acceptable to Owner, for the audit during normal business hours. Contractor, and all Subcontractors, shall make a good faith effort to cooperate with Owner's auditors.

PART 9 – TERMINATION OF THE WORK

9.01 TERMINATION BY OWNER FOR CAUSE

- A. 7 Day Notice to Terminate for Cause: Owner may, upon 7 Days written notice to Contractor and to its surety, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for cause upon the occurrence of any one or more of the following events:

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1. Contractor fails to prosecute Work: Contractor fails to prosecute the Work or any portion thereof with sufficient diligence to ensure Substantial Completion of the Work within the Contract Time;
 2. Contractor bankrupt: Contractor is adjudged bankrupt, makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency;
 3. Contractor fails to correct Work: Contractor fails in a material way to replace or correct Work not in conformance with the Contract Documents;
 4. Contractor fails to supply workers or materials: Contractor repeatedly fails to supply skilled workers or proper materials or equipment;
 5. Contractor failure to pay Subcontractors or labor: Contractor repeatedly fails to make prompt payment due to Subcontractors or for labor;
 6. Contractor violates laws: Contractor materially disregards or fails to comply with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction; or
 7. Contractor in material breach of Contract: Contractor is otherwise in material breach of any provision of the Contract Documents.
- B. Owner's actions upon termination: Upon termination, Owner may at its option:
1. Take possession of Project site: Take possession of the Project site and take possession of or use all materials, equipment, tools, and construction equipment and machinery thereon owned by Contractor to maintain the orderly progress of, and to finish, the Work;
 2. Accept assignment of Subcontracts: Accept assignment of subcontracts pursuant to Section 5.20; and
 3. Finish the Work: Finish the Work by whatever other reasonable method it deems expedient.
- C. Surety's role: Owner's rights and duties upon termination are subject to the prior rights and duties of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.
- D. Contractor's required actions: When Owner terminates the Work in accordance with this section, Contractor shall take the actions set forth in paragraph 9.02B, and shall not be entitled to receive further payment until the Work is accepted.
- E. Contractor to pay for unfinished Work: If the unpaid balance of the Contract Sum exceeds the cost of finishing the Work, including compensation for A/E's services and expenses made necessary thereby and any other extra costs or damages incurred by Owner in completing the Work, or as a result of Contractor's actions, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner. These obligations for payment shall survive termination.
- F. Contractor and Surety still responsible for Work performed: Termination of the Work in accordance with this section shall not relieve Contractor or its surety of any responsibilities for Work performed.
- G. Conversion of "Termination for Cause" to "Termination for Convenience": If Owner terminates Contractor for cause and it is later determined that none of the circumstances set forth in paragraph 9.01A exist, then such termination shall be deemed a termination for convenience pursuant to Section 9.02.

9.02 TERMINATION BY OWNER FOR CONVENIENCE

- A. Owner Notice of Termination for Convenience: Owner may, upon written notice, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for the convenience of Owner.
- B. Contractor response to termination Notice: Unless Owner directs otherwise, after receipt of a written notice of termination for either cause or convenience, Contractor shall promptly:
1. Cease Work: Stop performing Work on the date and as specified in the notice of termination;
 2. No further orders or Subcontracts: Place no further orders or subcontracts for materials, equipment, services or facilities, except as may be necessary for completion of such portion of the Work as is not terminated;
 3. Cancel orders and Subcontracts: Cancel all orders and subcontracts, upon terms acceptable to Owner, to the extent that they relate to the performance of Work terminated;
 4. Assign orders and Subcontracts to Owner: Assign to Owner all of the right, title, and interest of Contractor in all orders and subcontracts;
 5. Take action to protect the Work: Take such action as may be necessary or as directed by Owner to preserve and protect the Work, Project site, and any other property related to this Project in the possession of Contractor in which Owner has an interest; and
 6. Continue performance not terminated: Continue performance only to the extent not terminated
- C. Terms of adjustment in Contract Sum if Contract terminated: If Owner terminates the Work or any portion thereof for convenience, Contractor shall be entitled to make a request for an equitable adjustment for its reasonable direct costs incurred prior to the effective date of the termination, plus reasonable allowance for overhead and profit on Work performed prior to termination, plus the reasonable administrative costs of the termination, but shall not be entitled to any other costs or damages, whatsoever, provided however, the total sum payable upon termination shall not exceed the Contract Sum reduced by prior payments. Contractor shall be required to make its request in accordance with the provisions of Part 7.
- D. Owner to determine whether to adjust Contract Time: If Owner terminates the Work or any portion thereof for convenience, the Contract Time shall be adjusted as determined by Owner.

PART 10 – MISCELLANEOUS PROVISIONS

10.01 GOVERNING LAW

Applicable law and venue: The Contract Documents and the rights of the parties herein shall be governed by the laws of the state of Washington. Venue shall be in the county in which Owner's principal place of business is located, unless otherwise specified.

10.02 SUCCESSORS AND ASSIGNS

Bound to successors; Assignment of Contract: Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party shall assign the Work without written consent of the other, except that Contractor may assign the Work for security

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purposes, to a bank or lending institution authorized to do business in the state of Washington. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations set forth in the Contract Documents.

10.03 MEANING OF WORDS

Meaning of words used in Specifications: Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the code of any governmental authority, whether such reference be specific or by implication, shall be to the latest standard specification, manual, or code in effect on the date for submission of bids, except as may be otherwise specifically stated. Wherever in these Drawings and Specifications an article, device, or piece of equipment is referred to in the singular manner, such reference shall apply to as many such articles as are shown on the drawings, or required to complete the installation.

10.04 RIGHTS AND REMEDIES

No waiver of rights: No action or failure to act by Owner or A/E shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall action or failure to act constitute approval or an acquiescence in a breach therein, except as may be specifically agreed in writing.

10.05 CONTRACTOR REGISTRATION

Contractor must be registered or licensed: Pursuant to RCW 39.06, Contractor shall be registered or licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27.

10.06 TIME COMPUTATIONS

Computing time: When computing any period of time, the day of the event from which the period of time begins shall not be counted. The last day is counted unless it falls on a weekend or legal holiday, in which event the period runs until the end of the next day that is not a weekend or holiday. When the period of time allowed is less than 7 days, intermediate Saturdays, Sundays, and legal holidays are excluded from the computation.

10.07 RECORDS RETENTION

Six year records retention period: The wage, payroll, and cost records of Contractor, and its Subcontractors, and all records subject to audit in accordance with Section 8.03, shall be retained for a period of not less than 6 years after the date of Final Acceptance.

10.08 THIRD-PARTY AGREEMENTS

No third party relationships created: The Contract Documents shall not be construed to create a contractual relationship of any kind between: A/E and Contractor; Owner and any Subcontractor; or any persons other than Owner and Contractor.

10.09 ANTITRUST ASSIGNMENT

Contractor assigns overcharge amounts to Owner: Owner and Contractor recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by the purchaser. Therefore, Contractor hereby assigns to Owner any and all claims for such overcharges as to goods, materials, and equipment purchased in connection with the Work performed in accordance with the Contract Documents, except as to overcharges which result from antitrust violations commencing after the Contract Sum is established and which are not passed on to Owner

under a Change Order. Contractor shall put a similar clause in its Subcontracts, and require a similar clause in its sub-Subcontracts, such that all claims for such overcharges on the Work are passed to Owner by Contractor.

10.10 HEADINGS AND CAPTIONS

Headings for convenience only: All headings and captions used in these General Conditions are only for convenience of reference, and shall not be used in any way in connection with the meaning, effect, interpretation, construction, or enforcement of the General Conditions, and do not define the limit or describe the scope or intent of any provision of these General Conditions.

10.11 DIVERSE BUSINESS PARTICIPTION

The state of Washington encourages participation in all of its contracts by Diverse Businesses as found in RCW Chapters 39, 43, and WAC 326. The voluntary Diverse Business goal of 26%, which is an aggregate of: 10% Minority Business Enterprises (MBE), 6% Women Business Enterprises (WBE), 5% Veteran-owned Business, and 5% Washington Small Businesses self-identified in the Washington Electronic Business Solution (WEBS). Contractors are encouraged to meet or exceed the project goals in the advertisement by any level of participation, regardless of category.

DES reserves the right to adjust the voluntary participation goals.

Businesses are encouraged to register in WEBS, as well as registering as a state certified M/WBE/Veteran Business.

For reporting, Contractor is required to register and create an account in the DES Public Works Diversity Tracking & Management System powered by B2GNow.

Every month for the duration of your contract, and while your contract is active in the DES Public Works Diversity Tracking & Management System, submit and accurately maintain the following information:

1. Payments received by the prime contractor from the Agency
2. Payments paid to each first tier subcontractor
3. Payments paid to each first tier supplier

You must also ensure the following information is reported in the DES Public Works Diversity Tracking & Management System by your first tier subcontractors and suppliers for the duration of your contract:

1. Confirmation of payments from the prime contractor to the first tier subcontractor
2. Confirmation of payments from the prime contractor to first tier suppliers

10.12 MINIMUM LEVELS OF APPRENTICESHIP PARTICIPATION

In accordance with RCW 39.04.320, the State of Washington requires 15% apprenticeship participation for projects estimated to cost one million dollars or more. Contractors who meet or exceed minimum participation requirement are eligible for monetary incentive. Contractors failing to meet minimum apprenticeship participation requirement are subject to monetary penalty.

- A. 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).
- B. Bidders may contact the L&I to obtain more information about apprenticeship programs.

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- C. No changes to the required percentage (%) of apprentice participation shall be allowed without written approval of the Owner. In any request for the change, the Contractor shall clearly demonstrate a good faith effort to comply with the requirements for apprentice participation.
- D. Any substantive violation of the mandatory requirements of this part of the contract may be a material breach of the contract by the Contractor. The Owner may withhold payment pursuant to Part 6.05, stop the work for cause pursuant to Part 3.04, and terminate the contract for cause pursuant to Part 9.01.

10.13 SPECIAL CONDITIONS

The Owner may have Federal Funding or other special requirements for this project. If applicable, the Contractor will be required to comply with the "DIVISION 00 SPECIAL CONDITIONS" section in the specifications that will be based on the specific requirements of the funding source.

DIVISION 1 GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. The provisions and intent of the Contract, including the General Conditions and General Requirements, apply to this work as if specified in this section.

1.02 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.
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 Contractor shall design the Asphalt Storage and Handling system including but not limited to mechanical, electrical, structural, seismic, and health and safety. Contractor is also responsible for design of equipment anchorage to the foundation or other supporting structure.
 3. The Contractor shall prepare and submit all required Deferred Submittals to the City of Tacoma for review and approval prior to procurement of materials and fabrication of components.
 4. The Asphalt Batch Plant Storage Tanks project generally consists of:
 - a. The selective demolition of pavements and miscellaneous utilities and site features.
 - b. The construction of a Liquid Asphalt Storage Facility that will include the following:
 - (a) Concrete Foundation and Containment
 - (b) Vertical Asphalt Storage Tanks (2)
 - (c) Asphalt Pumps and Controls (2)
 - (d) Piping and Valves
 - (e) Insulation and Heat Tracing
 - (f) Piping and Equipment Supports and Anchorage
 - (g) Mechanical Identification and Placards
 - (h) Stairs, Ladders, Catwalk, and Safety Devices and Anchorage
 - (i) Electrical Distribution
 - (j) Lighting
 - c. The installation of two (2) 12,500 GAL vertical liquid asphalt storage tanks including anchoring and associated foundations.
 - d. The construction of freestanding pipe/conduit support frames
 - e. Construction of a liquid asphalt storage, conveyance, and pumping system.

1.03 LOCATION

- A. The work is located at the City of Tacoma's Asphalt Batch Plant located at 3201 Center Street, Tacoma, Washington, 98409.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 1010 – SUMMARY OF WORK

1.1 PROJECT DESCRIPTION

The Asphalt Batch Plant is located in the City of Tacoma at 3201 Center Street.

This project includes procuring, delivering, and installing all items described in Section 01 10 00 - SUMMARY.

In all cases, the City's contract is with one (1) General Contractor (Contractor) and it is the General Contractor's responsibility to ensure all work required to provide a complete and operational facility is included in their bid. When possible, the City has attempted to reference work that should be coordinated with various trades, but it is the contractor's responsibility to coordinate and schedule the work of all subcontractors, trades, and suppliers to assure the proper and timely prosecution and completion of all items of work.

Major components of work under this contract include, but are not limited to, the following:

Installation of two (2) new vertical asphalt storage tanks and associated liquid asphalt handling system.: The Contractor shall be responsible for the design, permitting, fabrication, procuring, assembling, delivering, placing, and connecting the tanks, pumps, piping, insulation and heat trace, supports, stairs, ladders, and catwalk, and for construction of the concrete foundation and containment to support the facility.

Site work: Selective demolition of pavement, installing new power and controls to the new facility, and asphalt paving.

Work described is a brief summary of the bid package; refer to the drawings and specifications for complete scope for the bid package. Work to include coordination with other contractors on site. The bid package contains the complete project and bidder shall provide all labor and materials necessary to accomplish this task.

1.2 PROJECT LOCATION

The project is located at the City of Tacoma Batch Plant located in the City of Tacoma at 3201 Center Street.

1.3 SITE SHOWING

The bidder will be responsible for examining the site and to have compared the site with the specifications and contract drawings contained in this specification, and be satisfied as to the facilities and difficulties attending the execution of the proposed contract (such as uncertainty of weather, floods, nature and condition of materials to be handled and all other conditions, special work conditions including work schedules, obstacles and contingencies) before the delivery of their proposal.

No allowance will be subsequently made by the City on behalf of the bidder by reason of any error or neglect on the bidder's part, for such uncertainties as aforesaid.

A pre-bid site showing will be conducted on site September 19th, 2023 at 10:00 AM prospective bidders are urged to attend. Due to the nature of this project, the bidder is responsible for examining the site prior to placing a bid. If the contractor cannot make the listed showing, they may be able to coordinate a visit to the site on their own. Failure to examine the site may be grounds to reject the bid. City shall make no adjustment to the price or provide any compensation to the contractor for impacts relating to the contractor's failure to consider the potential impacts of not only the site conditions observed, but changes in the observed conditions that could have been foreseen by the contractor.

By entering into the contract, the bidder represents that they have inspected in detail the project site and has become familiar with all the physical and local conditions affecting the project and/or the project site. Any information provided by the City to the contractor, relating to existing conditions on, under, or to the project and/or site including, but not limited to information pertaining to hazardous material abatement and other conditions affecting the project site, represents only the opinion of the City as to the location, character, or quantity of such conditions and is provided only for the convenience of the contractor. The contractor shall draw their own conclusions from such information and make such tests, review and analyses as the contractor deems necessary to understand such conditions and to prepare their proposal.

The City assumes no responsibility whatsoever with respect to the sufficiency or accuracy of such information and there is no guarantee, either expressed or implied, that the conditions indicated or otherwise found by the contractor as a result of any examination or exploration are representative of those existing throughout the work and/or project site.

The contractor shall carefully study and compare the contract documents with each other and shall at once report to the City errors, inconsistencies or omissions discovered. If the contractor performs any construction activity knowing it involves a recognized error, inconsistency or omission in the contract documents without such notice to the City, the contractor shall assume the risk and responsibility for such performance and shall bear an appropriate amount of the attributable costs for correction.

The contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the contractor with the contract documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the City at once.

1.4 COMMENCEMENT, PROSECUTION AND COMPLETION

The contractor will be required to complete the contract documents and to provide surety and payment bonds within ten (10) calendar days after the award of the contract. The contractor shall begin the work to be performed in the contract within ten (10) calendar days after the date of notification to commence work. Notification to commence work may either be by letter or, if no letter is issued, by agreement at the preconstruction conference (or if no letter is issued, by the date the contract is executed by the City).

The contractor shall be required to complete work in 220 working days.

1.5 SPECIFICATION FORMAT

This specification is written and formatted for use with Public Works specifications and is numbered to be consistent with other specifications, including Construction Specifications Institute (CSI) format, as modified by the City. It is not intended to indicate what work is to be accomplished by various subcontractors on the project. In all cases, the City's contract is with one (1) general contractor and it is the general contractor's responsibility to insure all work required to provide a complete and operational facility is included in their bid.

When possible, the City has tried to reference work which should be included with various trades, but it is the contractor's responsibility to ensure all work is properly coordinated. The numbering system in the Special Provisions Section reflects standard provisions written by the City and assigned constant numbers. Thus, gaps will appear when specific sections are not used.

References to Washington State Department of Transportation (WSDOT) Standard Specifications are from the 2023 edition.

1.6 CONTRACT WORK TIMES

Contract work times shall be Monday through Friday, 7:00 AM to 4:00 PM, excluding holidays. Work shall be done between and coordinated with the Tacoma Batch Plant.

The contractor shall submit a two week look ahead schedule weekly. The plan shall show required inspections for the following week two-week period. This work plan shall be given to the Engineer for approval by 11:00 AM every Friday.

Work not specifically detailed on the weekly work plan as requiring inspection or building system shutdown shall not be performed unless approved by the engineer. The contractor shall reimburse the City for all inspection of work not previously scheduled or approved by the engineer. Work requiring inspection shall be determined solely by the engineer.

Directions of the engineer and/or inspector shall be followed at all times.

1.7 QUALIFICATION OF CONTRACTORS

A. QUALIFIED CONTRACTORS

Only contractors with management, employees, and staff experienced in the type of work required by this specification, and with a record of successful completion of projects of similar scope, complexity, and overall cost will be considered. The City will be the sole judge of the bidder's ability to meet the requirements of this paragraph. Bidders past work will be judged in complexity of job, time of completion, organization, and other factors that may indicate the abilities of the contractor.

Submit to the engineer within ten (10) calendar days following execution of the contract documents, a list of all subcontractors, including each subcontractor's address, telephone number, and contact person to be used on this project.

1.8 SPECIFICATIONS AND DRAWINGS

The Drawings, attached to these specifications, are made a part of the contract. The Drawings are dated 06/26/2023 and include Sheets 1 through 14.

Plans and Specifications may be obtained at American Reprographics Company (ARC), 632 Broadway, Tacoma, Washington 98402, by telephoning 253-383-6363 or 1-800-337-8103, or fax to 253-274-8775, or e-mail Tacoma.bidservices@e-arc.com, or by going to American Reprographics Company website at www.e-arc.com/location/tacoma. Prospective bidders will be required to pay reproduction costs for the specifications and plans.

A maximum of six (6) set of specifications and six (6) sets of half-size reproducible drawings will be furnished to the successful bidder for construction purposes. It shall be the contractor's responsibility to provide sufficient sets of drawings for building purposes.

The contractor shall keep on the job site a full-size copy of the drawings and the specifications, and shall, at all times, give the engineer access thereto.

1.9 EVALUATION OF BIDS

The award of this contract will not be based on cost alone as other factors and features are equally important. The contract will be awarded to the lowest responsive and responsible bidder complying with the specifications; provided such bid is reasonable and it is in the best interests of the City to accept.

The City, however, reserves the right to reject any and all bids and to waive any informalities in bids received. The City reserves the right to award the contract to the lowest responsive and responsible bidder whose bid will be most advantageous to the City, price and any other factors considered.

All other elements or factors, whether or not specifically provided for in this contract, which would affect the final cost to and the benefits to be derived by the City will be considered in determining the award of the contract. In addition, the bid evaluation factors set forth in City Code Section 1.06.262 may be considered by the City. The conclusive award decision will be based on the best interests of the City. The engineer's decision as to which contractor best meets the City's need will be final.

In addition to General Provisions Section 1.08, the following factors will be used in bid evaluation:

- A. Experience of both company and superintendent completing at least five (5) projects of similar scope, complexity and overall cost.
- B. A minimum of five years (5) documented years experience in project supervision by superintendent.
- C. Proposal prices, base bid, and cost of any or all alternates listed.
- D. Review of all required submittals.
- E. Past record with the City (including satisfying safety requirements).
- F. Bidder's responsibility based on, but not limited to:
 - 1. Ability, capacity, organization, technical qualifications and skill to perform the contract or produce the services required.

2. Contractor's construction record including references, judgment, stability, adequacy of equipment proposed to be furnished.
3. Whether the contract can be performed within the time specified.
4. Quality of performance of previous contracts or services.

1.10 LIST OF SUBCONTRACTOR'S AND CONTRACTOR'S CATEGORIES OF WORK

Every invitation to bid on a prime contract that is expected to cost one million dollars or more for the construction, alteration, or repair of any public building or public work of the state or a state agency or municipality as defined under RCW 39.04.010 or an institution of higher education as defined under RCW 28B.10.016 shall require each prime contract bidder to submit:

A. Within one hour after the published bid submittal time, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of: HVAC (heating, ventilation, and air conditioning); plumbing as described in Chapter 18.106 RCW; and electrical as described in Chapter 19.28 RCW, or to name itself for the work; AND

B. Within forty-eight hours after the published bid submittal time, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of structural steel installation and rebar installation.

1.11 LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM (LEAP)

The LEAP goal for this project is 15% Local Employment Utilization Goal and 15% Apprentice Utilization Goal.

1.12 PREVAILING WAGES

In addition to the requirements of Section 3.08(B) of the General Provisions, the contractor shall be required to post on the job site a copy of the intent form to pay prevailing wages.

As identified in the General Provisions, the contractor shall comply with the law regarding prevailing wages. These rules apply to any contractor who does business with the City, including owner/operators.

A Statement of Intent to Pay Prevailing Wages **MUST** be filed with the Washington Department of Labor & Industries upon award of contract. An Affidavit of Wages Paid **MUST** be filed with the Washington Department of Labor & Industries upon job completion.

Payments cannot be released by the City until certification of these filings are received by the engineer. Additional information regarding these submittals can be obtained by calling the Department of Labor & Industries, Prevailing Wage at 360-902-5335, or by visiting their MY L&I account.

1.13 PERFORMANCE (SURETY), PAYMENT AND RETAINAGE BONDS

A. PERFORMANCE (SURETY) AND PAYMENT BONDS

The Contractor shall provide both a Performance Bond and Payment Bond for 100-percent of the total contract award within ten (10) calendar days after award of the contract in accordance with the General Provisions. These bonds shall be required for each contract awarded under this specification. The City's forms must be used.

B. RETAINAGE BOND

A 5-percent retainage bond may be provided in lieu of the City withholding five-percent retainage. If a retainage bond is not obtained, the City will withhold 5-percent retainage until the end of the contract. If a retainage bond is provided, the City form must be used.

1.14 WORK BY CITY

There is no other work awarded by the City related to this overall project.

END OF SECTION

SECTION 01 10 25 - MEASUREMENT AND PAYMENT

1.1 ADMINISTRATION

A. AUTHORITY

The City inspector or engineer in coordination with the contractor shall make all measurements and determine all quantities and amounts of work done for progress payments under the contract.

The engineer shall make an estimate of the work completed or done by the contractor, and such estimates will be made by measurement or approximation at the option of the engineer. The engineer's determination of progress payments shall be conclusive. The City will not pay for material not under City control.

Payment will be made monthly based on the schedule of values as described in this section. Percent completion will be calculated by the engineer based on schedule of values and material on hand. Material not on the project site will not be paid for. Once material is on hand, it will be considered part of the job and shall not be removed for any reason until the entire job is complete.

NOTE: All questions regarding contract status or payments (after award) should be directed to the Engineer.

B. UNIT QUANTITIES SPECIFIED

Quantities indicated in the proposal are for bidding and contract purposes only. Quantities and measurements supplied or placed in the work and verified by the engineer and contractor to determine payment.

Adjustments to contract prices due to changes in quantity shall be in accordance with the latest edition of the WSDOT Standard Specifications, unless otherwise modified by this specification.

The City reserves the right to delete any bid item from the contract by notifying the contractor in writing of its intent. In the event of deleted work, the contractor's sole compensation shall be the money due the contractor for materials that had been purchased and obtained by the contractor prior to the deletion of the work.

C. CONTRACT PRICE

The lump sum and unit bid prices shall be full and complete compensation for the contract work stated, together with all appurtenances incidental thereto, including materials, equipment, tools, labor, and all the costs to the contractor for completing the contract in accordance with the plans, specifications, and instructions of the engineer.

All work not specifically described or mentioned in these specifications, but are required to be constructed to achieve complete and operable systems, structures or amenities shall be considered incidental items of work, not separately compensable, and its price included in items of work specified in the specifications.

D. NON-PAYMENT FOR REJECTED OR SURPLUS PRODUCTS

Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable
2. Products determined as unacceptable before or after placement
3. Products not completely unloaded from the transporting vehicle
4. Products placed beyond the lines and levels of the required work
5. Products remaining on hand after completion of the work
6. Loading, hauling and disposing of rejected products

1.2 PROPOSAL ITEMS

See Section 01 20 00 – Price and Payment Procedures.

The contractor shall supply all necessary survey to construct the project. All costs for labor, equipment and materials for survey shall be included in the appropriate lump sum pay items.

1.3 SCHEDULE OF VALUES

Submit a detailed list of items to be included in the Schedule of Values within five (5) days of award of contract for approval by the engineer.

Submit a schedule of values within five (5) days after award of contract for all components of the construction. Schedule of values will be used by the engineer to calculate monthly payment for percent completion as indicated in Section 01 10 25 Paragraph 1.3.

Use the specification Table of Contents as a guide to establish the format for the Schedule of Values. Provide a breakdown of each lump sum item shown in Section 01 20 00 – Price and Payment Procedures for each component of work to include pricing such as to lump sum (LS), per each (EA), linear feet (LF), ton (TON), or cubic yard (CY) prices as approved by the engineer.

1. FORMAT

- A. Type Schedule on 8-1/2 x 11 in. bond paper.
- B. Round amounts to nearest whole dollar; the total shall equal the contract sum.
- C. Contractor's standard form or media-driven printout will be considered on request.
- D. For Specification Divisions 2 through 43 of the Project Manual, follow the Table of Contents for minimum listing of schedule of values. Identify each line item by number and title of each Specification section. Complex line items may be required to be listed in component parts of the line item.
- E. For Specification Division 1, as a minimum, include one (1) line item for each of the following: mobilization, General Conditions, bonds and insurance, punch list correction, "record" drawings, O&M
- F. manuals, operation instructions, and demobilization.

2. REQUIREMENTS

- A. Two (2) weeks prior to submission of first Application and Certificate for Payment, submit schedule of values to the engineer for review.
- B. List installed value of each major item of Work and each subcontracted item of Work as a separate line item to serve as a basis for computing values for Progress Payments. Round off values to nearest dollar.
- C. List guarantees/warranties as separate line items for each type of Work, such as roofing, painting, etc. Show the value of each of these on the Schedule of Values.
- D. For each major subcontract, list products and operations of that subcontract as separate line items.
- E. For each line item of installed value exceeding \$20,000, show breakdown by major products or operations as separate line items.
- F. Coordinate listings with Progress Schedule.
- G. All line-item listings shall each include a directly proportional amount of Contractor's overhead and profit.
- H. For items on which payments will be requested for stored products, list sub- values for cost of stored products.

- 3. Update and resubmit the Schedule of Values prior to the next application for payment or when change orders or engineering change directives result in a change in the contract sum as directed by the engineer.

1.4 FORCE ACCOUNT WORK

In certain circumstances, the contractor may be required to perform additional work. Where the work to be performed is determined to be extra and not attributed to the contractor's negligence, carelessness, or failure to install permanent controls, it shall be paid in accordance with the unit contract price or by force account.

Such additional work not covered by contract items will be paid for on a force account basis as a negotiated change order with lump sum or unit price items. There is no guarantee that there will be any force account work.

1.5 NON-PAYMENT FOR REJECTED OR SURPLUS PRODUCTS OR WORK

Payment will not be made for work rejected by the City. Products or work not meeting contract requirements shall be replaced by the contractor at no expense to the City, regardless of the impact to work, schedule or cost.

1.6 AS-BUILTS

The final retained portion of this contract shall not be released for any reasons until complete redline "AS-BUILT" plans are received and approved by the engineer. Redline "AS-BUILT" plans shall have all necessary information including make/model numbers, dimensions, and layout information necessary to properly draft changes in AutoCAD.

1.7 ALTERNATES

PART 1 - GENERAL

1.01 There are no bid alternates for this project.

END OF SECTION

SECTION 01 10 40 - PROJECT COORDINATION

1.1 PROJECT ENGINEER/LEAD

The project engineer/lead shall be herein referenced as engineer in these specifications. Construction management for this project with whom the contractor shall coordinate all their activities once the notice to commence work is issued will be Mike Slade, Construction Manager. Any changes to these specifications or plans shall be approved by this engineer prior to commencing any work. Bidder inquiries regarding general purchasing provisions or technical specifications may be directed to Brandon Snow, Senior Buyer, bsnow@cityoftacoma.org.

1.2 MEETINGS

A. PRE-BID EIC MEETING

Questions concerning the EIC may be answered at the pre-bid site showing. If you cannot attend the meeting or have further questions following the meeting regarding the EIC (Equity in Contracting) program and/or the LEAP (Local Employment and Apprenticeship Program) please call the office at 253-591-5826, for instructions in filling out the EIC/LEAP forms or for questions concerning these requirements.

B. PRE-BID SITE VISIT

All bidders are responsible for assessing the site for work conditions and clarifying information to form their bids during this site visit. **A pre-bid site showing will be conducted on site at 10:00 AM September 19th, 2023. Prospective bidders are urged to attend.**

C. PRE-CONSTRUCTION MEETING

Following award of the contract, the engineer will notify the selected bidder of the time and date of the pre-construction meeting to be held at the Tacoma Municipal Building, 747 Market Street, Tacoma, Washington.

Minutes of the pre-construction meeting will be sent to the contractor and all meeting attendees. Recipients of the pre-construction meeting minutes will be required to direct any comments or changes to these minutes to the engineer within seven (7) days from the date of receipt. If no changes or comments are received within the seven (7) days, the meeting minutes will be kept by the engineer and become part of the project file.

D. COORDINATION MEETING WITH THE BATCH PLANT

While this project is underway active Batch Plans operations will be ongoing. See Section 01 10 40 – Project Coordination, Paragraph 1.4.

1.3 PERMITS

The City has made application to the applicable authorities for the following permits: Site Development Permit – SDEV23-002678
Building Permit – BLDCN23-0004

The contractor shall apply for, obtain and pay for all other required permits as set forth in Section 3.02 of the General Provisions and Section 01 12 00 – Permits and Fees.

1.4 COORDINATION WITH OTHERS

A. OPERATION OF EXISTING FACILITIES

The facilities or portions of facilities within the project limits must be kept in continuous operation throughout the construction period. No interruption will be permitted which adversely affects the degree of service provided. Provided permission is obtained by the Batch Plant in advance, portions of the existing facilities may be taken out of service for short periods.

All construction activities shall be coordinated daily with the engineer or their designated representative. Changes to the schedule that will impact on dates shown as milestones on the schedule shall be coordinated with the engineer on a daily basis.

The contractor shall give a minimum of 72 hours' notice to the Batch Plant for all planned power or utility interruptions and all mechanical interruptions to occupied areas.

The Batch Plant will be using this facility for ongoing daily operations. See Section 01 10 40 – Project Coordination, Paragraph 1.12 for additional information.

The contractor shall become familiar with the ongoing operations and include all coordination required as part of the bid. The contractor shall follow all requirements of the City and the Batch Plant and do all coordination as part of the required work.

B. SCHEDULE AND COORDINATION OF WORK

The contractor shall coordinate scheduling, submittals, and all work specified herein to assure efficient and orderly sequence of the installation of interdependent construction elements with provisions for accommodating items installed later.

1.5 DIVISION OF WORK

A. MATERIAL FURNISHED AND INSTALLED BY CONTRACTOR

The contractor shall furnish and pay for all necessary materials (except City-furnished) and shall provide all labor, tools, equipment and superintendent, and perform all work incidental to the completion of the project as contemplated by this contract in accordance with the plans, specifications, and instructions of the engineer.

Each subcontractor shall furnish and install all materials and equipment unless otherwise specified.

Requests for use of alternate materials shall be submitted prior to bid opening in accordance with Section 01 13 00 – Submittals and Shop Drawings, Paragraph 1.3 – “Or Equal” Clause or Substitutions.

1.6 LIMITATION OF CONTRACTOR'S WORK AREA/OR CONTRACTOR'S USE OF PREMISES

A. BARRIERS

The contractor shall furnish barriers, cones, or candle sticks with caution tape, dividing work area from area in City use.

B. WORK BY OTHERS AND WORK BY CITY

Other contractors or the City may be working in the project area and other buildings at the site during the time of construction. It shall be the responsibility of this contractor to collaborate and coordinate its work with the City and/or contractors within the project area.

C. CONTRACTOR'S USE OF PREMISES

All requests for use of areas not designated for use by the contractor shall be made in writing to the engineer for approval at least four (4) days in advance of the need. The engineer shall approve those areas for use prior to use by the contractor. The contractor shall use the staging and work area shown in the plans.

1.7 HAZARDOUS MATERIALS

The City will test all excavated material prior to the project and supply the chemical analysis to assist the contractor in disposing of the material. The contractor is required to follow all local, state, and federal laws pertaining to the disturbance, removal, handling, storing, transporting, and disposal of all materials deemed hazardous by law. The contractor is to assume all soils are contaminated on the project site as described in Section 31 00 00 – Earthwork and Section 01 35 43 – Export Soil Management.

All work shall be performed by workers certified by Washington State Department of Labor and Industries as having successfully completed a state approved training course. All work shall be in accordance with EPA Title 40 CFR.

1.8 CONTRACT CHANGE FORMS

Section Not Used.

1.9 DIFFERING SITE CONDITION

Differing site conditions shall be administered in accordance with Sections 1.04.5, 1.04.7, and 1.09.11 of the Washington State Department of Transportation Standard Specifications except as stipulated in these Special and General Provisions. Contractor shall have no claim for additional costs or work, if it fails to submit a written RFI to the City immediately upon encountering any differing site condition, conflicts in the plans, specifications, or constructability issues.

The contractor shall promptly, and before conditions are disturbed, notify the engineer or their field representative of problems with subsurface conditions at the site, problems or conflicts in the plans or specifications or problems on constructability. A written **Request for Information (RFI)** shall be submitted by the contractor when such problems and direction are required.

The engineer shall promptly investigate the conditions, and if agreed upon with the contractor, adjustment shall be made on the appropriate details in writing to facilitate construction. No claim by the contractor under this differing site condition shall be allowed except as agreed upon in writing with the engineer. Whenever possible, the contractor shall submit in advance and in writing for changes in the scope of work and/or contract amount. This proposal shall be either accepted or rejected in writing by the project engineer prior to work commencing. When no agreement can be reached, the City may order extra work on force account.

When time is short, the contractor shall notify the City extra work is required or the City shall notify the contractor that extra work is needed and at a minimum, the engineer shall issue a handwritten **Engineering Change Directive**. In such cases, said handwritten **Directive** will not be considered as agreement that such work is extra. Within seven (7) days, the contractor shall submit a written **Change Order Proposal** for changes in the scope of work and/or contract amount.

1.10 CONSTRUCTION PROGRESS SCHEDULES

A. FORMAT

The contractor shall prepare schedules as a horizontal bar chart with separate bar for each major portion of work or operation, identifying the first work day of each week and include holidays and times when facility will not be available to contractor for City installed work.

B. CONTENT

This schedule shall be activity-oriented showing as nearly as can be determined the starting and completion dates of each event. The schedule shall show the materials delivery, structure erection, and installation. It will include the start and completion of each major civil, structural, mechanical, communications and electrical item of work critical to the general contractor's operation.

Show complete sequence of construction, by activity, with dates for beginning and completion of each element of construction.

Identify each task by the appropriate proposal bid item number and subcontractor responsible. As a minimum, the following tasks shall be included on the schedule:

1. Scope of Work identified – architectural, landscape, civil, structural, mechanical, electrical, and communications.
2. Phases of work where required.
3. Milestone dates Fueling Facility system testing and shut-down dates and times for existing systems.

C. SEQUENCE SCHEDULING

Progress schedules are required to be coordinated with the City and updated bi-monthly or when changes occur. Acceptance or approval of the progress schedule does not release the contractor from the responsibility to provide the necessary resources to meet the schedule.

D. SUBMITTALS

The contractor shall submit initial schedules at the preconstruction meeting or at a minimum of within five (5) working days after the contract award. After review, if the engineer requires changes, resubmit required revised data within five (5) working days.

The contractor shall use the attached Submittal Transmittal form (electronic version is available from the engineer) for all submittals.

Within twenty (20) days of the date of the contract, the contractor and the engineer will reach an agreement on all adjustments and all modifications to the submitted schedule, which are warranted. The schedule, thus modified, will become part of the contract.

The failure of the contractor to submit a schedule(s), or the inability of the contractor and the City to reach an agreement as to modifications to a schedule, shall not excuse the contractor's obligation to perform the work required by the specifications in the number of days required by the specification.

Twice a month, the City's and the contractor's site representatives will meet and perform a "Line-to-Line" review of items on the schedule, illustrating their plan for meeting the completion dates specified in this contract and the associated construction costs for each subcontractor.

The contractor shall be required to submit all color samples for the entire structure at one time. That shall include tile, grout, base, paint, fixtures, stain, etc. The contractor will make a color board for the building and submit to the engineer for approval. See Section 01 13 00 Paragraph 1.2 – Submittals and Shop Drawings.

1.11 PROTECTION OF EXISTING UTILITIES AND IMPROVEMENTS

In addition to Section 3.03 "Notification of Other Governmental Agencies and Utilities When Underground Work is Involved" and Section 3.07 "Protection of Workers and Property" of the General Provisions:

- The contractor shall protect from damage the utilities and all other existing improvements not provided for in the proposal or special provisions. The cost of labor, equipment and materials required to protect or replace said items shall be incorporated into the bid for this project.
- The City has attempted to locate and show on the contract drawings the locations of the existing underground utilities which may conflict with portions of this work, but cannot guarantee the accuracy or the completeness of the data shown.

1.12 CITY OCCUPANCY

The City reserves the right to use or to occupy any substantially completed part of the project, and to use equipment installed under the contract prior to the date of final acceptance. Such use of occupancy shall not constitute acceptance of the work, or any part thereof.

During construction, normal operations will be ongoing at the Batch Plant as stated in Section 1.4.

The Contractor shall coordinate with the Batch Plant while working on the project to coordinate work and access issues. The contractor will cooperate with the City to minimize conflict and to facilitate the City's operations. Occasional, shut downs of the Batch Plant operations will be allowed but the City shall be notified three weeks in advance to plan for these shutdowns. No shutdowns will be allowed without the City's written approval.

The contractor will schedule the work to accommodate this requirement.

1.13 SUPERINTENDENT

The contractor shall employ a competent superintendent who shall be present at the project site at all times during the entire progress of the work, except those times when the contractor is demobilized. The superintendent shall be on site even when only a subcontractor is working, unless otherwise approved by the engineer. The superintendent shall be satisfactory to the contractor, and shall have full authority to act on their behalf.

It will be the superintendent's responsibility to have a set of plans and specifications on the project site during the progress of the work. The superintendent shall mark or record on the plans all changes made during construction. Such redline "AS-BUILT" plans shall be available to the engineer at all times and shall be delivered to the engineer upon completion of the work.

The superintendent initially assigned to the project by the general contractor shall remain superintendent for the duration of the contract. If the superintendent is replaced, all work shall stop until an additional preconstruction meeting with the City is held. This work stoppage will be at the contractor's expense.

The completion date shall remain unchanged, regardless of any work stoppage.

1.14 CLEAN UP

In addition to General Provisions Section 3.11 - Cleaning Up of the

General Provisions A. DAILY

The contractor and the City inspector will walk the site daily and as required to determine the cleanup and restoration required.

All areas shall be left safe, clean and free of debris.

Clean up is considered incidental to the project and no payment will be allowed. Collect waste daily and when containers are full, legally dispose of waste off site.

Clean-up of any area impacted by the construction shall be done daily at the end of Contractor's workday or as directed/instructed by the engineer.

END OF SECTION

SECTION 01 12 00 – PERMITS AND FEES

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General Conditions and other Division-1 Specification sections, apply to work of this section.

1.2 PERMITS PAID FOR BY OWNER:

- A. The Owner has paid for the Site Development Permit and Building Permit to be issued by the City of Tacoma outside of the contract. Do not include the cost of these permits in the bid. Note that the Owner has previously submitted the construction documents to the City of Tacoma for plan review. If required the Contractor will attend permit acceptance meeting with the City of Tacoma and obtain final Site Development and Building Permits.
- B. Other permits necessary to complete the work such as deferred submittals for the asphalt tanks, stairs, and associated work, and electrical and plumbing, as examples, shall be the contractor's responsibility to procure.

1.3 PERMITS PAID FOR BY CONTRACTOR:

- A. Contractor is responsible to acquire and pay for all other permits and fees required by all other agencies having jurisdiction.

1.4 PERMIT RECORDS:

- A. Maintain notebook on site with copies of all permits and inspection reports. Include same in Maintenance and Operations Manuals furnished at conclusion of project.

1.5 UTILITY SERVICE CONNECTION FEES PAID FOR BY OWNER (PERMANENT):

- A. The Owner will pay directly for fees required for all permanent service connections to utilities (natural gas, electricity, water, sewer, telecommunications). Make all final connection application(s) required, advise Owner when connection fee is ready for payment, and notify Owner of all pertinent permit payment details so that payment can be made.

1.6 UTILITY SERVICE CONNECTION FEES PAID FOR BY CONTRACTOR (TEMPORARY):

- A. Pay for all utility service connection fees required by utility vendors that are required for temporary use during the course of construction.

END OF SECTION

SECTION 01 13 00 - SUBMITTALS AND SHOP DRAWINGS

1.1 DOCUMENTS REQUIRED AT PRECONSTRUCTION CONFERENCE

- A. Work Hazard Analysis Report as required in Paragraph 3.06(B) of the General Provisions.
- B. Construction Schedule as required in Section 01 10 40 – Project Coordination.
- C. List of Subcontractors, including each subcontractor's address, telephone number, and contact person on this project.
- D. Name of Job Superintendent.
- E. List of Number and Names of Workers, Equipment List, and Working Site Layout or Requirements.
- F. List of Products.
- G. List of Principal Suppliers and Fabricators.
- H. Schedule Of Values - See Section 01 10 25 – Measurement and Payment

1.2 SUBMITTALS AND SHOP DRAWINGS DURING CONSTRUCTION

Submittals and shop drawings submitted to the City as specified herein are intended to show compliance with the contract documents. Signatures, corrections or comments made on submittals do not relieve the contractor from compliance with requirements of the drawings and specifications. Neither does acceptance or approval of submittals by signature add to or delete from any contract requirements resulting from these specifications regardless of the wording of the submittals.

Submittals will not be reviewed or approved when the term "By Others" is used. Submittals are reviewed or approved for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, coordinating their work with that of other contractors and agencies, and performing their work in a safe and satisfactory manner. Piece-mealing of submittals will not be accepted.

A. SUBMITTALS PROCEDURES

- 1. Submittal Requirements: Submit as specified under individual sections. Submittals not requested will not be recognized or processed.
- 2. Transmittal Form: Accompany each submittal with transmittal letter, in triplicate. Transmittal form will be supplied by the engineer.
- 3. Submittal Numbering: Sequentially number transmittal forms in order submitted. Add alphabetic suffix to original submittal number of re-submittals.
- 4. Submittal Identification: Include project, contractor, subcontractor or supplier, pertinent drawing and detail number, specification section number, manufacturer, fabrication, product, material, and, as appropriate
- 5. Contractor's Certification: Apply contractor's stamp, signed or initialed, certifying that review, verification or products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the contract documents.
- 6. Contractor shall review submittals for adequate installation interface for all work prior to submitting them to the City.
- 7. Schedule of Submittals: Deliver to engineer, promptly, to meet critical path,

DIVISION 01 – GENERAL REQUIREMENTS
SECTION 01 13 00 – SUBMITTALS AND SHOP DRAWINGS

- and lead times as required to expedite the project.
8. Turn-Around Time: Allow from time of receipt twenty (20) working days for each submittal and each re-submittal to be reviewed by the engineer.
 9. Critical Issues: Prior to submittal, communicate with engineer reason for critical issue. Upon approval, allow five (5) working days turn-around time from time of receipt by engineer.
 10. Coordination and Consolidation of Submittals: Submit related items, sections or trades under one (1) submittal package for each unit of work or system where possible.
 11. Deviations on Submittals: Identify deviations, including products and systems, not conforming with contract documents.
 12. Product and System Limitations: Indicate conditions which may be detrimental to successful performance or completion of work.
 13. Substitutions to Specified Items: Submit for approval in accordance with Section 01 1300 Paragraph 1.3 "Or Equal" Clause or Substitution. Do not indicate or otherwise imply substitutions to specified items, except as approved.
 14. Job Site Office Records: Maintain one (1) copy of every submittal, regardless of status, along with a current submittal log. Ensure that the most current, architect, and engineer stamped shop drawings and product data are distributed and subsequently used in connection with the work.
 15. Re-Submittal Requirements: Revise initial submittal as directed and re-submit. Following procedures specified for the initial submittal. Make any corrections or changes in the submittals required by the engineer. Revise and make any further re- submittals until no exceptions are taken. Identify changes on re-submittal made since previous submittal.
 16. Other Pertinent Submittals: Provide templates, inserts, and as applicable in timely fashion to other trades.

B. SCHEDULE OF SUBMITTALS

1. Within five (5) days of notice to proceed, prepare schedule of submittals for shop drawings, product data, samples, and as specified for each section. Update as requested by engineer.
2. List submittals sequentially by project manual table of contents section numbers and titles.
3. Show submittal preparation time, field measurements and verification time, date submitted to engineer, date due back from engineer, item order dates, and delivery dates.
4. Identify individual delivery, long lead times, and critical ordering deadlines. Include ordering dates for each item including individual parts of major submittals.
5. Indicate specified time allocated for review, turn around and distribution.
6. Identify decision dates for selection of colors and finishes not scheduled or otherwise approved.
7. Within five (5) days after notice to proceed, and in accordance with the conditions of the contract, submit list of major products proposed for use with name of manufacturer, tradesman, and model number of each product.
8. For products specified only by reference standards, give manufacturer, tradesman, model or catalog designation and reference standards.

C. SHOP DRAWINGS

1. Number and Format: Submit one (1) opaque reproduction when larger than 11- inches by 17-inches.
2. Submittal Procedure: Submit for engineer's review in accordance with submittal procedures specified in this section. After approved drawings are returned, the contractor shall reproduce and distribute copies to subcontractors and other entities, as applicable. Maintain one (1) copy of each shop drawing at field office and one (1) for project record documents to be delivered to the engineer at project completion.
3. Maximum Sheet Size: 24-inches by 36-inches or other allowable sizes of 8-1/2-inches by 11-inches or 11-inches by 17-inches.
4. Identification: Reference shop drawing details same as reference on contract documents, including sheet and detail descriptions, schedules and room numbers. Indicate by whom materials, products, work, and installations are supplied, performed or installed. Do not use the expression "by others".
5. Presentation: Hand drafted or computer generated, delineated to present information in a clear and thorough manner. Freehand sketches are not acceptable.
6. Variations from Contract Documents due to Standard Shop Practices: Make transmittal outlining variation.
7. Engineer Changes to Submittals which affect Contract Sum or Contract Time: Do not distribute to being work related to submittal. Notify engineer immediately.
8. Mechanical and Electrical Utilities, Equipment and Appliance: Include electrical characteristics, connection requirements, rough-ins, location of outlets, wiring, piping diagrams, weight where significant, and as required to describe installation requirements.

D. PRODUCT DATA

1. Number of Copies: Submit two (2) copies to be retained by the engineer.
2. Submittal Procedures: Submit for engineer review in accordance with submittal procedures specified in this section. After review, distribute to subcontractors and other applicable entities. Maintain one (1) copy for project record documents to be delivered to engineer at project completion.
3. Identification: Mark each copy to identify specific products, models, options, tolerances, dimensions, and other pertinent data.
4. Manufacturer's Standard Data: Modify drawings and diagrams to delete inapplicable information. Supplement to provide pertinent information unique to project.
5. Mechanical and Electrical Utilities, Equipment, and Appliance: Where not shown by shop drawings, include electrical characteristics, connection requirements, rough-ins, location of outlets, wiring, piping diagrams, controls, weight where significant, and as required to describe installation requirements. Correct published product data to correlate with specific project requirements.

E. ELECTRONIC FILES OF MANUALS (FROM VENDORS):

1. Electronic manuals must be submitted in .PDF and compatible with the latest version of Adobe Professional.
2. Manuals should be scanned at 300 DPI.
3. Color originals should be scanned to color images if possible.
4. All .PDF files should be scanned using Optical Character Recognition (OCR)
5. A manual must be submitted as a single .PDF file; addendums and attachments (may or may not include drawings) should not be submitted separately, or in different file formats.
6. Manuals that consist of multiple volumes should be submitted as individual files.
7. Manuals comprised of several sections or chapters should be bookmarked by the vendor.
8. If a vendor wishes to include security settings (so that their documents are “read- only”), that is acceptable provided that the City can view and print from the file.

F. SAMPLES

1. Quantity or Number: Submit one (1) each to be retained by engineer, except as otherwise specified by individual specification sections. Submit additional as required by contractor for distribution.
2. Submittal Procedure: Submit for engineer’s review in accordance with submittal procedures specified in this section. After review, distribute to applicable entities.
3. Size and Completeness: As specified by individual sections. When not specified, submit samples of sufficient size and completeness to clearly illustrate product.
4. Identification: Label each sample with project title and complete product identification, including manufacturer, model number, descriptive name, supplier, and as applicable to sample identification.
5. Functional Characteristics: Include parts, attachments, and components as applicable. Coordinate with interfacing work.
6. Aesthetic Characteristics: As required for selection of colors, finishes, patterns, and as required or requested to finalize selection process. Furnish full range of manufacturer’s custom and standard selections. Where selection is specified, submit as required to show conformance to contract documents.

H. DESIGN DETAILS

All design details shall be submitted to the City by the contractor during the design phase for review and approval prior to commencing any construction. This includes designs, loads and computations on foundations, connections, columns, beams, and complete details of all structural members and structural connections. During this phase, the contractor shall be required to submit plans, calculations, and all required materials to the applicable authority to obtain all necessary permits for the project.

I. MANUFACTURER INSTRUCTIONS AND CERTIFICATES

Number: Submit one (1) copy of both the manufacturer instructions and certificates.

Content: Include manufacturer's printed instructions for delivery, storage, preparation, assembly, installation, start-up, adjusting, balancing, and finishing as specified for individual specification sections. Include special procedures, project conditions, and environmental criteria required for application or installation.

J. CODE COMPLIANCE CERTIFICATES

Submit information required as a condition of building permit issued by code authority.

1.3 "OR EQUAL" CLAUSE OR SUBSTITUTIONS

A. GENERAL

When the engineer approves a substitution, it is with the understanding that the contractor guarantees the substituted article to be equal to, or better than, the article specified. The engineer will judge the suitability, reliability, and service availability of a proposed substitute. To be considered by the engineer, the request for substitution shall be accompanied with complete physical and technical data, manufacturer's catalogue data, photographs, samples, and the address of the nearest authorized service representative, as applicable.

The decision of the engineer on "OR EQUALS" shall be final.

The requirements of General Provision 2.15 - Approved Equals also apply. B. PRIOR TO BID OPENING

Substitution approvals will be considered prior to the bid opening if the bidder submits their request for substitution not less than ten (10) working days prior to the date set for bid opening. All substitution requests shall be submitted using the "**Substitution Request Form**" included in the bid packet and shall be sent to the individual as noted at the top of the form. Substitution requests not received by the named individual will not be evaluated and not allowed as a substitution prior to bidding. Submit all requests and product data in triplicate.

Saturday, Sunday and holidays listed in Paragraph 2.13 of the General Provisions are excluded from the calculation of five (5) days. An addendum listing such approvals may/will be issued prior to bidding.

Bidders who do not receive prior written approvals of "OR EQUAL" by five (5) working days prior to bid submittal must base their bids on the items specified.

B. AFTER BID OPENING

Proposed substitution and deviation requests shall be reviewed during the time of submittal review.

Substitution and deviation requests will be received and considered only when one or more of following conditions are satisfied:

1. The specified product or method of construction cannot be provided within the contract period and the contractor submittal is submitted within time frame allowed.

2. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
3. The specified product or method of construction cannot be provided in a manner that is compatible with other materials.
4. A substantial advantage is offered to the Owner, in terms of cost, time, or other considerations of merit.
5. The product as specified includes the statement, “or equal” and one of the above conditions governs
6. The engineer’s decision on all substitution or deviation requests shall be final.

END OF SECTION

SECTION 01 14 00 - QUALITY CONTROL

1.1 REFERENCE STANDARDS

Reference to standards, specifications, manuals or codes of any technical society, organization, or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest Standard Specification manual, code, or laws or regulations in effect at the time of opening of bids (or on the effective date of the agreement if there were no bids), except as may be otherwise specifically stated. However, no provision of any referenced standard, specification, manual, or code (whether or not specifically incorporated by reference in the contract documents) shall be effective to change the duties and responsibilities of City, contractor, or engineer, or employees from those set forth in the contract documents.

1.2 INSPECTION, TESTING AND CERTIFICATION

A. INSPECTION

Construction inspection and testing for the City will be performed as the City may designate and as the construction situation may dictate. The City inspector will be responsible for insuring that the contractor is complying with the contract plans and specifications.

1. The City will prepare a construction inspection checklist to be presented to the contractor at the preconstruction meeting. The checklist will include all inspections typically required by local, city and county officials as well as other items as deemed important by the engineer.
2. The contractor shall be required to contact the City 24 hours in advance of all of the construction activities listed on the checklist, have the indicated activity inspected, and the City's inspector initial that the work was performed in accordance with the appropriate technical provision.
3. The checklist shall be posted near each structure and be available for review by the City at all times. These inspections shall be in addition to any required inspections by state or local jurisdictions. The City will prepare a suitable checklist for each structure to be constructed and present same to the contractor at the preconstruction meeting.
4. Pre-final Inspection: Contractor shall notify the engineer in writing when all work or portions of work are complete and ready for inspection. The engineer will make a "punch list" and forward the results of same to the contractor who shall promptly correct any deficiencies noted.
5. Final Inspection: Contractor shall notify the engineer in writing when all punch list deficiencies have been completed. The engineer will promptly set a time for final inspection at which time the engineer and contractor shall jointly inspect the work. The contractor will promptly correct any further deficiencies noted.

B. LABORATORY SERVICES

1. Testing for quality control certification or special inspections as required by the permitting authority will be conducted by an independent laboratory which will be furnished and paid for by the City. Subsequent sampling and testing of rejected material shall be paid for by the contractor.

2. Failure of the material to achieve the specified density or standards will be just cause for rejecting any portion of, and/or all of the material represented by the test. All costs associated with replacement materials or any delays caused by such failure shall be borne by the contractor.
3. It shall be the contractor's responsibility to prepare test specimens as required for special inspection as required by the permitting authority or the engineer and the cost shall be incidental to the contract.

C. PERMIT INSPECTIONS

The contractor shall comply with the requirements of all permits. It shall be the contractor's responsibility to contact the permitting authority and schedule all required inspections. The contractor shall notify the City inspector of all scheduled inspections.

D. QUALITY ASSURANCE – CONTROL OF INSTALLATION

1. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce Work of specified quality.
2. Comply with manufacturers' instructions, including each step in sequence.
3. Should manufacturers' instructions conflict with Contract Documents, request clarification from engineer before proceeding.
4. 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.
5. Perform Work by persons qualified to produce required and specified quality.
6. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
7. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, seismic, physical distortion, or disfigurement.

E. TOLERANCES

1. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
2. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from engineer before proceeding.
3. Adjust products to appropriate dimensions; position before securing products in place.

F. MOCK-UP

1. Tests will be performed under provisions identified in this Section and identified in the respective product specification sections.
2. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
3. Accepted mock-ups shall be a comparison standard for the remaining Work.
4. Where mock-up has been accepted by engineer and is specified in product specification sections to be removed, remove mock-up and clear area when directed to do so.

G. MANUFACTURERS' 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 of equipment, test, adjust, and balance of equipment, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

END OF SECTION

**SECTION 01 15 00 - CONSTRUCTION FACILITIES AND
TEMPORARY CONTROLS**

1.1 PARKING

A. PARKING

The City will not provide a designated parking area. The contractor is responsible for providing parking for its crews and subcontractors offsite.

1.2 LAYDOWN AREA

B. STORAGE AND LAYDOWN AREA

An area will be made available by the owner for material storage on site. This area will be made available for inspection prior to submittal of bids. This material storage area will be required to be used for storage of all construction material with lead time requirements that is required to be on hand at start of construction. The lay down area is as shown in the plans. Any modification of the storage area for the convenience of the contractor shall be at the contractor's expense and shall be pre-approved by the engineer. Contractor may use an alternate area for storage of lead time material providing it is at the contractor's expense and available to the engineer for inspection to verify availability.

1.3 SECURITY AND ACCESS

A. GENERAL

1. Contractor Operations: The City of Tacoma Batch Plant is a secure facility and following award the City and the contractor shall coordinate an access protocol to the site. Access shall be restricted to the immediate work area and an access route shall be identified to be used during construction. Contractor shall confine personnel to the immediate work vicinity while on site.
2. Emergency Site Access during Construction: Fire lanes must remain open during construction.

1.4 SAFETY

In addition to Section 3.06 "Safety" of the General Provisions, the contractor shall:

A. WORK HAZARD ANALYSIS

The contractor and their subcontractors shall thoroughly review the scope of work of the proposed project. The contractor will be responsible to indicate a work hazard analysis on the form of "Contractor's Work Hazard Analysis Report" attached with the proposal, i.e., any known or potential safety issues or phases of construction that may require specific safety procedures as identified by WISHA or OSHA regulations, and/or prudent construction practices; i.e., shoring, fall protection, scaffolding, hazardous materials, asbestos removal, etc.

This report shall be completed and submitted to the engineer before the preconstruction conference. A copy of this report will be forwarded to the City Safety Officer for review. A copy of this report shall be maintained at the work site (accessible to the supervisor).

The City will review the submitted report and may require the contractor to clarify their safety procedures submitted or detail their procedures for ensuring safe working conditions for other working conditions not listed in the original submitted report; and/or explain how the procedures meet current safety regulations. In no case, may the contractor commence work until the Job Hazard Analysis Report has been reviewed and approved by the engineer.

1.5 PROTECTION OF ADJACENT AREAS DURING CONSTRUCTION

The contractor shall take any measures, including but not limited to the ones listed below, to protect adjacent areas from the effects of construction.

Other work and barrier requirements as directed by the engineer to provide separation between the contractor's work area and ongoing City operations. The contractor shall take any measures, including but not limited to the ones listed below, to protect adjacent areas and quadrants from the effects of construction.

1.6 DUST CONTROL

The contractor shall take reasonable measures to prevent unnecessary dust. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical dust suppressant. Dusty materials in piles or in transit shall be covered when practicable to prevent blowing.

Buildings or operating facilities which may be affected adversely by dust shall be adequately protected from dust. Existing or new machinery, motors, instrument panels, or similar equipment shall be protected by suitable dust screens. Proper ventilation shall be included with dust screens

1.7 POLLUTION CONTROL

Contractor shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris, and other substances resulting for construction activities. No sanitary wastes will be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris, or other substances will be permitted to enter sanitary sewers and reasonable measures will be taken to prevent such materials for entering and drain or watercourse.

The contractor shall maintain oil absorption pads in the actual job site whenever any equipment is present to immediately catch and contain any oil and/or fuel leaks.

Nothing in this specification or contract shall be deemed to warrant to the contractor the quality, quantity or usefulness of the property designated for demolition, not designated as salvage, or designated to become the property of the contractor.

END OF SECTION

SECTION 01 16 00 - MATERIAL AND EQUIPMENT

1.1 QUALITY OF WORKMANSHIP AND MATERIAL

A. WORKMANSHIP

The contractor shall employ only competent, skillful, and orderly persons to do the work. If, in the engineer's opinion, a person is incompetent, disorderly or otherwise unsatisfactory, the engineer shall notify the contractor, in writing, of same. The contractor shall immediately discharge such personnel from the work and shall not again employ those person(s) on said contract again. Work shall conform to the highest industry standards.

See General Provisions, Paragraph 3.07 - Contractor - Supervision and Character of Employees for additional requirements.

B. MATERIALS

Materials shall be delivered to the project site in the manufacturer's original containers, bundles or packages unopened with the seals unbroken and the labels intact. Each type of material shall be of the same make and quality throughout. Manufactured articles, materials and equipment shall be installed in accordance with each manufacturer's written directions, unless otherwise specified.

All materials and equipment to be provided under this contract shall conform to the latest edition of the applicable codes, but in no case shall be contrary to the laws of the State of Washington and/or Federal Government.

The equipment supplied shall meet appropriate ANSI, OSHA, WISHA, and all Federal, state, and local standards for the type of equipment provided for its intended use.

Deliver, store and handle products according to manufacturer's written instructions, using means and methods that will prevent damage, deterioration, and loss, including theft.

1. Schedule delivery to minimize long-term storage and to prevent overcrowding construction spaces.
2. Deliver with labels and written instructions for handling, storing, protecting, and installing.
3. Inspect products at time of delivery for compliance with the contract documents and to ensure items are undamaged and properly protected.
4. Store heavy items in a manner that will not endanger supporting construction.
5. Store products subject to damage on platforms or pallets, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required.
6. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
7. Provide [bonded] off-site storage and protection when site does not permit on-site storage or protection.
8. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.2 SALVAGEABLE AND NON-SALVAGEABLE MATERIAL

A. PROPERTY OF CONTRACTOR

Demolition, not indicated for salvage, becomes property of contractor. Remove from site at contractor's expense to a legal waste site obtained by the contractor. Materials deemed to be non-salvageable by the engineer's representative shall be disposed by the contractor to a legal dump site obtained by him. All costs to dispose of non-salvageable materials shall be the contractor's responsibility. The contractor may, if approved by the City, furnish and install new items in lieu of those specified or indicated to be salvaged and reused, in which case such removed items will become the contractor's property. Existing materials and equipment removed by the contractor shall not be reused in the work except where so specified or indicated.

END OF SECTION

PART 1 - GENERAL

1.01 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. 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 measurement.
 - 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.
- C. Following the Engineers review, the Contractor shall prepare an original pay estimate, in a form approved by the Owner or with the Owner's supplied form, signed and complete with all supporting documentation attached and submit it electronically using Adobe PDF file format.
 - 1. With each payment application, the Contractor shall submit a list of all subcontractors (at all tiers) and suppliers on the Owner supplied form.
- D. An estimated cashflow statement projecting the Contractor's monthly billings on the project shall be submitted with each payment application.

1.02 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, materials, 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 but not limited to the safety and health requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA) and the Washington Department of Labor and Industries (L&I), Division of Occupational Safety and Health (DOSH).

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- 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. Indirect costs, such as supervision, overhead costs, profit, and compliance with general conditions, shall be allocated to each bid item as applicable for work defined in the bid item. No separate payment will be made to the Contractor for indirect costs.
- F. The Owner reserves the right to make changes should unforeseen conditions necessitate such changes. Where the work is on a unit price basis, the actual quantities occasioned by such changes shall govern.

1.03 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.

1.04 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. 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.

2. 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.
3. 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.
4. 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.
5. 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. 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.

1.05 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.

1.06 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 completion and submittal and approval of the following:
 - a. All bonds and insurance certificates (General Conditions Part 2, Contract Forms)
 - b. Schedule of Values (GC 6.02)
 - c. Detailed CPM progress schedule (GC 3.02)
 - d. Demolition Management Plan (02 41 13)
 - e. Establishing Contractor's Project Manager, Superintendent, and other required specified personnel on the Work site full time.
 - f. Furnishing and installing all temporary facilities and controls as needed for the safe and proper completion of the work, including utilities, sanitary facilities, barriers and enclosures, fences, staging and entrance areas, and field offices, as specified.
 - g. Mobilization onto the site required in support of the Contractor's first 30 days of operations.
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 all work on the project has been completed, including cleanup and issuance of Final Completion from the Engineer.

B. Item #2: Temporary Erosion and Sediment Control

1. Payment for all work and costs related to temporary erosion and sediment control shall be at the contract lump sum price which shall be full compensation for development of a temporary erosion and sediment control plan, managing temporary erosion and sediment control facilities, and for furnishing, installing, and maintaining temporary erosion and sediment control facilities. Work also includes the removal of temporary erosion and sediment control facilities upon completion of the project and as authorized by the Engineer.

C. Item #3: Site Preparation and Site Demolition

1. Payment for all work and costs related to general site preparation and site demolition shall be at the contract lump sum price, which shall be full compensation for utility locates, TESC, demolition of structures, utilities, pavement, and other site improvements. Site preparation and site demolition shall also include all costs related to disposal of demolition materials and securing demolition permits, including permit fees. Pavement work shall include furnishing, loading, hauling placing, shaping, compacting, proof rolling and other incidentals related to providing crushed surfacing complete in place. Pavement work shall also include furnishing, loading, hauling placing, shaping, compacting, and all other incidentals related to providing hot mix asphalt concrete pavement complete in place.

D. Item #4: Storage Tank Foundation and Containment Walls

1. Payment for all work and costs related to Storage Tank Foundation and Containment Walls shall be at the contract lump sum price, which shall be full compensation for constructing tank foundation and containment walls and drain, complete in place, including but not limited to furnishing, mixing, loading, hauling, placing, forming, finishing reinforced concrete.

E. Item #5: Liquid Asphalt Handling System

1. Payment for all work and costs related to Liquid Asphalt Handling System shall be at the contract lump sum price, which shall be full compensation for furnishing, installing, testing and commissioning a complete fuel receiving, storage and dispensing system including tank fill connections, filters, two (2) liquid asphalt storage tank with ladder, walkway and handrails, stairway and landing, piping, gauges, vents, level sensors, breathers, pumps and all other materials and components necessary and incidental to a complete system.

F. Item #6: Electrical System and Lighting

1. Payment for all work and costs related to Electrical System and Lighting shall be at the contract lump sum price, which shall be full compensation for furnishing, installing, testing, and commissioning a complete electrical system and lighting as indicated on the Contract Drawings.

G. Item #7: Disposal & Haul of Contaminated Materials

1. Payment for all work and costs to haul and dispose of contaminated excavation material shall be at the contract unit price per ton, which shall be full compensation for excavating, storing, protecting, loading, hauling, disposing, providing placement material, and all other incidentals related to providing disposal of contaminated materials.

H. Item #8: Force Account

1. A Force Account sum of \$20,000 has been established for this project as described in Specification Section 01 10 25 – Measurement and Payment, Paragraph 1.4 - Force Account Work.

PART 2 - PRODUCTS - NOT USED

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 General Conditions and General Requirements, apply to this work as if specified in this Section.

Work related to this Section is described in the following sections:

1. Section 02 41 13 – Selective Site Demolition
2. Section 31 00 00 – Earthwork

1.02 DESCRIPTION OF WORK

- A. Soils excavated on-site are anticipated to be exported to an off-site facility and must have a completed soil profile prior to export. Contractor is responsible for collecting the appropriate data that satisfies the requirements of the receiving facility.
- B. All soils excavated within the project area, as shown on the drawings, are considered regulated material requiring special handling and cannot be reused as part of the project.
1. 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)

1.03 DEFINITIONS

- A. **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).
- B. **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.
- C. **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.

- D. 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.
- E. 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.
- F. 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.
- G. 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.

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. **The Contractor shall not proceed with any excavation of any subsurface materials, prior to Owner approval of Soils Management Plan prepared by the Contractor.** The Contract will provide a minimum of 14 day for the submittal to be reviewed prior to excavation. 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.
 - 3. 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.
 - 4. Contingency for delivery and placement of Type C Regulated Soil at an on-site soil stockpile area.

5. Contingency for managing soil/debris encountered during excavation that may disqualify soil for disposal or recycle at the anticipated facilities.
 6. General description of how equipment operators, safety staff and other applicable on-site personnel will identify and respond to soil containing potentially regulated material.
 7. Contractor shall coordinate with the Engineer to facilitate handling of regulated soil in accordance with this specification.
 8. 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 City 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 City no less than 14 days notice to sample export soil prior to disposal offsite.
- 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 City.

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 on-site.
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 City 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 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 City. The City 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

SECTION 01 73 29 – CUTTING AND PATCHING

1.1 GENERAL

A. SUBMITTALS

1. Submit written request in advance of cutting or alteration which affects:
 - a. Structural integrity of any element of Project.
 - b. Integrity of weather exposed or moisture resistant element.
 - c. Efficiency, maintenance, or safety of any operational element.
 - d. Visual qualities of sight exposed elements.
 - e. Work of Owner or separate contractor.

B. INCLUDE IN REQUEST

1. Identification of Project.
2. Location and description of affected Work.
3. Necessity for cutting or alteration.
4. Description of proposed Work and products to be used.
5. Alternatives to cutting and patching.
6. Effect on work of Owner or separate contractor.
7. Written permission of affected separate contractor.
8. Date and time Work will be executed.

2.1 PRODUCTS

A. MATERIALS

1. Primary Products: Those required for original installation.
2. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 13 00 - Submittals and Shop Drawings.

3.1 EXECUTION

A. EXAMINATION

1. Examine existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.
2. After uncovering existing Work, assess conditions affecting performance of Work.
3. Beginning of cutting or patching means acceptance of existing conditions.

B. PREPARATION

1. Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.
2. Provide protection from elements for areas which may be exposed by uncovering work.
3. Maintain excavations free of water.

C. CUTTING

1. Execute cutting and fitting including excavation and fill to complete the Work.
2. Uncover work to install improperly sequenced work.
3. Remove and replace defective or non-conforming work.
4. Remove samples of installed work for testing.
5. Provide openings in the Work for penetration of mechanical and electrical work.
6. Employ original or skilled and experienced installer to perform cutting for

DIVISION 01 – GENERAL REQUIREMENTS
SECTION 01 73 29 – CUTTING AND PATCHING

- weather exposed and moisture-resistant elements and sight-exposed surfaces.
7. Cut rigid

D. PATCHING

1. Execute patching to complement adjacent Work.
2. Fit products together to integrate with other Work.
3. Execute Work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.
4. Employ original installer to perform patching for weather exposed and moisture- resistant elements, and sight-exposed surfaces.
5. Restore Work with new products in accordance with requirements of Contract Documents.
6. Fit Work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
7. At penetrations of fire rated walls, partitions, ceiling, or floor construction completely seal voids with fire rated material to full thickness of the penetrated element.
8. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

END OF SECTION

SECTION 01 77 00 - CONTRACT CLOSEOUT

1.1 DOCUMENTS REQUIRED UPON COMPLETION OF WORK

A. CLOSE OUT PROCEDURES

The contractor shall notify the engineer in writing when identified tasks are complete and ready for inspection. The engineer will make the inspection, forward the results of same to the contractor, who shall promptly correct any deficiencies noted.

The contractor shall notify the engineer in writing when all punch list deficiencies have been completed. The engineer will promptly set a time for final inspection, at which time the engineer and the contractor shall jointly inspect the work. The contractor will promptly correct any deficiencies noted.

It is possible that other contractors or the City will be working in the project area during the time of construction. It shall be the responsibility of this contractor to coordinate their work with all other agencies and/or contractors within the project area.

B. ADJUSTMENTS

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

C. FINAL DOCUMENTATION

Upon completion of the work and before final payment is made, the contractor shall deliver to the engineer, in addition to such other items specified in these specifications, the following documents:

1. "AS-BUILT" Drawings

"AS-BUILT" drawings and specifications of new or revised existing work, shown in red ink, provided by the general, mechanical, electrical contractors, and all other subcontractors, including all addendum's, change orders, deviations, changes, elevations, and dimensions of their work from the construction documents, updated monthly during the construction. Monthly payments will not be made until all redlined as-builts are updated.

Two (2) copies of all shop and construction drawings used for the project, the final record drawings ("AS-BUILT" to reflect the actual installation) including one (1) reproducible set of all design drawings and AutoCAD files, if applicable.

NOTE: The final payment for this contract will not be released until "AS-BUILT" drawings are received and approved by the engineer.

2. Project Record Documents

- a. Operation and Maintenance instructions arranged by system and subdivided by specification section.
- b. Shop drawings, product data, reports, certificates, original of warranties and bonds.

3. Spare Parts and Maintenance Products

- a. Provide spare parts, maintenance, and extra products in quantities specified in individual specification sections.
- b. Deliver to Project site and place in location as directed by Owner; obtain receipt from Owner.

4. Warranties and Bonds
 - a. Provide duplicate notarized copies.
 - b. Execute and assemble transferable warranty documents from subcontractors, suppliers and manufacturers.
 - c. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
 - d. Submit prior to final Application for Payment
 - e. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.
5. Re-Review Fees
 - a. Engineer will do a Substantial Completion Inspection and a Final Inspection. Re- Inspections after the Final Inspection, due to Contractor failure to correct deficient work, will require the deduction of an amount for Engineer compensation from the final payment to the Contractor.
6. Final Adjustment of Accounts
 - a. Submit final adjusted pay application to Engineer.
 - b. Submit all closeout documents to Engineer for review and acceptance prior to Final Pay Application.

D. FINAL CLEANUP

1. After all trades have completed their work, and just prior to occupancy, the general contractor shall:
2. Replace and remove any broken glass. Remove excess glazing compounds or seals.
3. Removal of all temporary facilities and contractor equipment.
4. Remove labels that are not permanent.
5. Clean the site.
 - a. Sweep paved areas and walkways. Remove stains, spills, and foreign deposits.
 - b. All surfaces disturbed shall be restored to a condition equal to that before the work began.
 - c. Surplus conduit material, tools, temporary structures, dirt and rubbish shall be removed and disposed of by the contractor, **and the project area shall be left clean to the satisfaction of the engineer.**
 - d. Clean up is considered incidental to the project and no measurement and payment will be allowed.
 - e. Obtain final inspections from authorities having jurisdiction.

END OF SECTION

SECTION 02 41 13 SELECTIVE SITE DEMOLITION

PART 1 – GENERAL

1.01 SUMMARY

- A. Description of Work:
 - 1. The extent and location of the demolition work is indicated on the Drawings and in the specifications. The work includes, but is not limited to:
 - a. The requirements for the removal, wholly or in part, and satisfactory disposal of buildings, pavements, retaining walls, fencing, storm drainage and utility pipelines and structures, miscellaneous site debris, and other obstructions which are designated to be demolished on the Drawings or within these Specifications.
 - b. Payment of all costs required for disposal of items at legal disposal sites, including all permit fees and related costs.
 - c. Backfilling and compaction of holes, voids, trenches or pits that result from such removal or otherwise noted on the plans.
 - 2. All demolition items not identified for salvage by the Engineer shall become the property of the Contractor. Disposal of all demolition items shall be in accordance with the specifications, local, state and federal requirements.
- B. Related Sections:
 - 1. Division 01
 - 2. Section 31 00 00 – Earthwork

1.02 SUBMITTALS

- A. Demolition Management Plan (DMP)
 - 1. The DMP shall provide the procedures proposed for the complete accomplishment of the demolition work and management of the demolition wastes and documentation. The procedures shall provide for safe conduct of the work, careful removal and disposition of materials specified to be salvaged or disposed, protection of property to remain undisturbed, and coordination with other work in progress. The procedures shall include a detailed description of the methods, staff, and equipment to be used for each operation, the sequence of operations, and quality control measures to ensure compliance with the Contract and regulatory requirements.
 - 2. Submittal requirements in Section 01 35 43.19 - Export Soil Management and Section 01 74 19 - Construction Waste Management and Disposal may be included as part of DMP plan or submitted separately.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 PREPARATION

- A. Utility locates shall be performed prior to start of demolition. Coordinate and resolve with the Engineer to turn off or de-energize affected services before starting demolition.
- B. Verify all items for demolition, disposal, and salvage as early as practicable prior to start of the work. Notify the Engineer immediately if observed conditions differ from anticipated conditions.
- C. Pothole Investigations:
 - 1. Potholes shall be 12-inch diameter air vacuum excavations.
 - 2. Survey utilities located by potholing and provide survey data to the Engineer within 5 days of completing pothole investigations.
 - 3. Backfill pothole excavations with Select Fill per Section 31 00 00 - Earthwork.

3.02 DISPOSAL AND DISPOSITION OF MATERIALS

A. Disposition of Materials

1. All materials and equipment removed, and not used for relay or reinstallation within the project, shall become the property of the Contractor and shall be removed from Port property.
2. The Contractor assumes full responsibility for the proper disposal of all demolition materials under this Contract in a manner that meets the requirements of federal, state and local regulations for protecting the health and safety of employees, the public, and for protecting the environment.

B. Cleanup:

1. Haul route and paved site areas will be swept to remove any construction debris or soil tracked out by construction equipment and vehicles.
2. 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

**SECTION 03 30 00
CAST-IN-PLACE CONCRETE**

PART 1 - GENERAL

1.01 SUMMARY

- 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.

1.02 RELATED DOCUMENTS

- A. General Provisions of the Contract, including General Conditions and other Division 01 Specification Sections apply to this Section

1.03 CODES AND REFERENCES

- A. Applicable provisions of the current versions of the following standards shall apply to the work of this Section, except as modified herein, and are hereby made part of these Contract Specifications to the extent required.
 - 1. American Concrete Institute ACI 301: Specifications for Structural Concrete.
 - 2. American Concrete Institute ACI 305R: Hot Weather Concreting.
 - 3. American Concrete Institute ACI 306R: Cold Weather Concreting.
 - 4. American Concrete Institute ACI 308R: Guide to Curing Concrete.
 - 5. American Concrete Institute SP-66: ACI Detailing Manual (including ACI 315-99).
 - 6. Modification of ACI 305R, 306R, and 308R: accomplish work in accordance with these guides except as modified herein. Consider the advisory or recommended provisions to be mandatory. Interpret reference to the "Building Official," the "Structural Engineer," and the "Architect/Engineer" to mean the Engineer.
 - 7. American Concrete Institute ACI 318: Building Code Requirements for Structural Concrete and Commentary.
 - 8. Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice (MSP), 2018, 28th Edition.

9. 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).
10. International Building Code (IBC) 2018, as amended and adopted by the City of Tacoma into the Tacoma Municipal Code (TMC).

1.04 DEFINITIONS

- A. Not Used.

1.05 ADMINISTRATIVE REQUIREMENTS

- A. Not Used.

1.06 SUBMITTALS

- A. Documentation demonstrating the qualifications and experience of supervisors and directors of work, as described above.
- B. Proposed concrete design mixes, indicating all material contents per cubic yard of concrete, including certificates of specification compliance. Written evidence that the ready-mix concrete plant is approved and certified by the NRMCA and other organizations.
- C. 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 26.4.
- D. Manufacturer's name, address, catalog number, and specifications for all proposed admixtures, concrete bonding agents, curing compounds, etc.
- E. Identify all aggregate supply pit names and locations. Submit certificates of specification compliance for materials to be used including aggregate alkali-silica reactivity (ASR).
- F. 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 306R and ACI 308R.
- G. Shop drawings showing pour sequences, construction joints, expansion joints, etc. Manufacturer's data for proposed pre-fabricated construction joint systems and hardware.

- H. Concrete delivery tickets for each truck delivered to the site. Submit delivery tickets to the City on-site representative before unloading at the site and in accordance with ASTM C 94, Section 14.
- I. Detailed shop drawings that are coordinated and checked for all concrete reinforcement prior to casting concrete.
 - 1. Do not deliver concrete reinforcement to the site prior to acceptance of the shop drawings.
 - 2. The shop drawings shall include, but not be limited to, material specifications, bar lengths, bar bending schedules, order lists, splice lengths, and proposed splice locations.
- J. Mill certificates for each heat of reinforcing steel and threaded bars to be furnished, indicating specification compliance, yield strength, ultimate strength, and chemistry.

1.07 QUALITY ASSURANCE

- A. All concrete work shall conform to the requirements of ACI 301, unless otherwise noted in the drawings or the specifications.
- B. Inspection and Testing: As determined by the Engineer, the City 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 will be provided testing agency information at the pre-construction meeting and will be required to call for inspection and provide all required coordination. The Contractor may obtain results of tests performed by the City from the Engineer. If the Contractor is not ready for inspection or is required due to the Contractor's actions to not be ready and fees are charged, the contractor will be required to pay these expenses and costs will be deducted from pay applications.
- C. Qualifications of Supplier: Ready-mixed concrete plants shall be approved and certified by the National Ready Mix Concrete Association (NRMCA) or qualified by WSDOT. Ready-mixed concrete shall be batched in accordance with the applicable portions of ASTM C 94.
- D. Qualifications of Personnel:
 - 1. 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 all work performed under this section. Qualified personnel shall have at least five (5) years experience performing the work described in this section.
 - 2. Trained and experienced journeyman concrete finishers having at least five (5) years experience shall be responsible for finishing all exposed surfaces.

- E. Building Code: All concrete shall meet the requirements of the IBC. Where provisions of pertinent codes and standards conflict with this specification, the more stringent provisions shall govern, as determined by the Engineer.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, storage, and handling is described in Paragraph 3.02 of this Specification.

PART 2 - PRODUCTS

2.01 CONCRETE

- A. General:

1. All concrete, unless otherwise specifically permitted by the Engineer, shall be batched and mixed at the approved Ready-Mix plant. Batching, mixing, and delivery of ready-mix concrete shall conform to ASTM C 94.
2. All cast-in-place concrete shall be proportioned on the basis of field experience or laboratory trial mixtures according to ACI 318, Section 26.4.

- B. Cementitious Materials:

1. All cement shall be Portland cement conforming to ASTM C 150.
2. Portland cement for use in mixes without fly ash shall be Type I-II or Type II conforming to ASTM C 150 except that the cement shall not contain more than 0.75 percent alkalies by weight calculated as Na₂O plus 0.658 K₂O and the content of Tricalcium aluminate (C₃A) shall not exceed 8 percent by weight..
3. Portland cement for use in mixes with fly ash shall be Type I or Type I-II conforming to ASTM C 150.
4. Fly ash, if used, shall meet the requirements of ASTM C 618, Type F, with the added provision that the loss on ignition shall not exceed 1 percent, and that the fly ash is stored in a separate silo from the cement. Split bins are not acceptable.

- C. Aggregates:

1. Aggregates shall conform to ASTM C 33. All coarse and fine aggregate shall consist of hard, tough, durable particles free from foreign and deleterious materials, and shall be stored in such a manner as to prevent segregation, excessive breakage, and the introduction of foreign material.
2. 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.

3. Grading shall conform to ASTM C33 Standard Specification for Concrete Aggregates Maximum nominal aggregate size shall be $\frac{3}{4}$ inch, unless approved by the Engineer.
 4. 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.
- D. Potable water shall be used for mixing concrete.
- E. Admixtures: All admixtures shall be supplied by one manufacturer approved by the Engineer.
1. 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.
 2. Water-reducing admixtures shall conform to the requirements of ASTM C 494. Dosage rates shall be in accordance with the manufacturer's recommendations.
 3. 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.
- F. Epoxy Bonding Agent:
1. Meets ASTM C 881, Type V, Grade 2, Temperature Class A, B, or C, and match the surface temperatures to which the bonding agent is applied, as endorsed by the manufacturer.
 2. MasterEmaco ADH 326 manufactured by BASF, or Sikadur 32 HI-MOD LPL, manufactured by Sika Corporation, or equal, as approved by the Engineer before the start of the work where it will be used.

2.02 OTHER MATERIALS

- A. All other 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.

2.03 MIX PROPORTIONS AND STRENGTH

- A. The mix proportions shall produce a mixture that will readily work into all corners, sides, and angles of the forms, around reinforcement and embedded items, with no segregation, and prevent free water from collecting on the surface.
- B. The mix proportions shall be selected in accordance with ACI 301.
 - 1. Test data representing thirty recent consecutive tests for each design shall be submitted to establish the standard deviation used in Section 4.2.3.2.
 - 2. 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 Section 4.2.3.2.
 - 3. Where no previous data are available, the mix or mixes shall be overdesigned in accordance with Section 4.2.3.3.b.
 - 4. When consecutive test data have been established during the project the overdesign criteria may be relaxed in accordance with Section 4.2.3.4.b.
 - 5. Deviation from any reviewed design mix without approval of the Engineer will not be permitted.
- C. Unless otherwise indicated, concrete minimum 28-day compressive strengths are shown on the drawings.
 - 1. Concrete mixtures shall conform to the most restrictive requirements of ACI 318-14 for exposure classes F2, S0, W0, and C1 and meet the following requirements: Slump: Maximum 8 inches, and chosen to enhance workability without violating the maximum water/cement ratio requirement.

2.04 REINFORCEMENT

- A. All reinforcing bars, except as noted below, shall be deformed billet-steel bars conforming to ASTM A 615, Grade 60, deformed. Bars conforming to ASTM A 706 may be substituted for ASTM A 615 reinforcing bars at the Contractor's expense.

PART 3 - EXECUTION

3.01 PREPARATORY WORK

- A. General:
 - 1. Prior to placing concrete, inspect the installed work of all other trades and verify it is complete to the point where this installation may commence.

2. Verify that all items to be embedded in concrete are in place, properly oriented, located, and secured.
 3. Verify that concrete may be placed to the lines and elevations indicated on the drawings with all required clearances for reinforcement.
 4. All areas in which concrete is to be placed shall be thoroughly cleaned to remove wood debris, sawdust, tie wire cuttings, and all other deleterious material.
 5. Tie wire ends shall be bent back so they do not encroach into the specified clear cover of the concrete.
 6. Concrete forms which have not been treated with oils, waxes, or other bond breakers shall be thoroughly wet prior to placing concrete.
 7. Clean and roughen existing concrete or concrete from previous pours to provide a bondable surface.
 8. All transporting and handling equipment shall be cleaned of all hardened concrete and other debris.
 9. Details of bending, placing, and splicing of all reinforcing steel shall conform to ACI 318, except as modified herein.
- B. 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

A. Placement:

1. Concrete that does not reach its final position in the forms within 1-1/2 hours after the addition of cement shall not be used. During hot weather, this time limit shall be reduced in accordance with ACI 305R.
2. Place concrete as soon as possible after mixing. Concrete which has developed initial set or partially hardened shall not be re-tempered or remixed.
3. The method and manner of placing concrete shall not allow segregation of the aggregates or displacement of reinforcement and embedded objects.
4. When using concrete pumps as the placing system, the pump priming slurry shall be discarded before placement into the forms. Initial acceptance testing may be delayed until the pump priming slurry has been eliminated. No pump

shall be used that allows free water to flow past the piston. Aluminum conduits or tremies shall not be used for pumping or placing concrete.

5. 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. Carefully fill each part of the forms by depositing concrete directly in its final destination.
 6. When concrete must be dropped more than five feet into the forms, it shall be deposited through a sheet metal or other approved conduit. Approved conduit shall also be used to place concrete in sloping forms or in other locations, as directed by the Engineer, to prevent concrete from sliding around reinforcing or other embedded objects.
 7. The methods of depositing and compacting concrete shall produce compact, dense, impervious concrete with the required surface finishes and no segregation. Remove defective concrete as directed by the Engineer at no additional cost to the City.
- B. 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° F. If air temperature exceeds 90°F, provide water spray or other approved methods to cool contact surfaces to less than 90°F. Hot and cold-weather concrete placement shall follow the respective recommendations in ACI 305R and ACI 306R.
- C. Consolidation of Concrete:
1. Provide suitable internal vibrators for use in compacting all 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.
 2. 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.
 3. 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.
 4. Do not use vibrators to transport or move concrete inside the form.

- 5. A sufficient number of vibrators shall be supplied to effectively vibrate all of the concrete placed. Hand-tamping or rodding shall be required wherever necessary to secure a smooth and dense concrete on the outside surfaces.
- 6. When vibrating concrete with epoxy-coated reinforcement, only use vibrators with coated stingers that do not damage the epoxy coating.
- D. Concrete trucks shall not be washed out onsite unless contained within a concrete wash-out area that complies with the requirements of the latest version of the City of Tacoma's Stormwater Management Manual.
- E. Any delivered load of concrete that is rejected shall be completely disposed of offsite.

3.03 CONSTRUCTION JOINTS

- A. Joints and stoppages, except as specifically shown on the drawings, shall conform to ACI 318, Chapter 26. Wire mesh or similar materials shall not be used.
- B. Submit for the Engineer's approval all requests for additional, deleted, or relocated construction joints. Changes as a result of such requests shall be at the Contractor's expense and will be deducted from the contractors application for payment.
- C. Thoroughly clean and roughen all joint surfaces and remove loose concrete, gravel, sediment, laitance, and all other deleterious substances.
- D. 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.
- E. Unless otherwise noted, joints requiring roughened surfaces shall have grooves ½-inch to 1-inch wide, ¼-inch to ½-inch deep, which are spaced at twice the width of the groove.
- F. 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 on vertical surfaces between pours including crane beam, sheet pile wall cap beam, and pile cap sections.

3.04 CURING CONCRETE

- A. Follow ACI 308R.
- B. Concrete shall be maintained above 40° F and in a moist condition for at least the first seven days (168 hours) after placement.

- C. Do not use curing compounds on surfaces to receive additional concrete.
- D. 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.
- E. 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.
- F. Do not apply curing compound to construction joint surfaces, reinforcing steel, or embedments in the concrete. Curing compound on construction joints, reinforcing steel, or embedments shall be completely removed before the following concrete pour.
- G. Supply backup spray equipment and sufficient workers to properly apply the curing compound.
- H. Within 12 hours following the application of the curing compound, the top surfaces shall be covered with cotton mats, an approved vapor proof curing paper, or white polyethylene sheeting. If the covering used is cotton mats, it shall be kept continuously wet day and night for the period of time specified above, and if curing paper or plastic film is used, it shall be left in place for the same length of time.
- I. Curing paper and white polyethylene sheeting shall be kept tightly in place by taping and weighting joints, or other methods for the prescribed length of time.
- J. Membrane curing compounds which leave a waxy film on the concrete shall not be used.
- K. After the concrete has cured for the required time, the top surfaces shall be swept clean.
- L. All concrete shall be protected from damage and accelerated drying. No fire or excessive heat shall be permitted near the concrete at any time.
- M. In lieu of curing compounds the Contractor may use wet burlap or other wet cure methods as approved by the Engineer.
- N. Only wet cure methods shall be used on concrete surfaces against which additional concrete will be cast.
- O. Wet cure methods shall be continuous for the prescribed duration of the curing period.

3.05 FINISHING CONCRETE

- A. Finish: All permanently exposed surfaces, unless specifically noted otherwise, shall be free from local bulging and all 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.
- B. Protect finished surfaces from damage, stains and abrasion. Surfaces or edges damaged during construction shall be repaired at the Contractor's expense.
- C. Defects:
 - 1. 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. These defects shall be chipped out to reveal sound concrete and then shall be patched. Surface cracks greater than or equal to 0.007 inches in width. These cracks shall be patched.
 - 2. 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. These defects shall be repaired as specified in this Section unless otherwise directed by the Engineer.
- D. Vertical Surfaces and Walls:
 - 1. Immediately after removal of forms or form linings, inspect the concrete surfaces for defects and irregularities.
 - 2. All defects, defective concrete, and tie rod holes shall be repaired immediately after the forms are removed unless otherwise directed by the Engineer. Exposed tie wires shall be removed (chipped out) and the resulting holes patched. The repair mortar shall be 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 manufacturer of the repair material.
 - 3. All 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. Roughening shall be accomplished using methods in accordance with the construction permits and approved by the Engineer, to expose sound concrete without undercutting around the edges of the larger aggregate particles or cracking the concrete to remain.
- E. Horizontal Surfaces:

1. Exposed horizontal surfaces shall have a heavy broom finish.

3.06 TESTING

- A. Testing of concrete will be performed by an accredited testing agency retained by the City. Methods of sampling, testing, evaluation, and acceptance will conform to ACI 301. The Contractor shall assist the City with access to collect samples.
- B. Testing as described above will be at the City's discretion and in no way relieves the Contractor of any obligations.
- C. Tests performed by the City will be done at no cost to the Contractor, except as noted below.
 1. Additional testing and inspection required because of changes in materials, proportions, and procedures requested by the Contractor.
 2. Additional testing of materials or concrete when either fails to meet the specification requirements when tested in accordance with the ACI standards outlined and the appropriate ASTM standards contained therein.

3.07 REINFORCING STEEL BARS

- A. Order Lists: Before ordering material, furnish all order lists and bending diagrams for approval by the Engineer; reinforcement placing drawings submitted for approval shall conform to the CRSI MSP. Do not order material until such lists and bending diagrams have been approved. The approval of order lists and bending diagrams by the Engineer shall in no way relieve the Contractor of responsibility for the correctness of such lists and diagrams.
- B. General Fabrication Requirements for Reinforcing Bars: Bend all 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. Do not field bend epoxy-coated reinforcing bars. Make bends and hooks in accordance with the applicable portions of the CRSI MSP.
- C. Carefully handle and install coated bars to minimize job site patching. Use the same precautions as described above for delivery, handling, and storage when placing coated reinforcement. Do not drag coated bars over other bars or over abrasive surfaces. Keep coated bars free of dirt and grit. When possible, assemble coated reinforcement as tied cages prior to final placement into the forms. Support assembled cages on padded supports.
- D. Placing and Fastening:

1. Place all steel reinforcement accurately and hold firmly in the position indicated on the drawing during the placing and setting of concrete. Tie bars at all intersections.
2. Minimum concrete cover to reinforcement shall be as indicated on the drawings:
3. Maintain the minimum distance from the forms by means of stays, blocks, ties, hangers, or other approved supports.
 - a. Holding reinforcement from contact with the forms shall be by approved metal or plastic chairs. Metal chairs which are in contact with the exterior surface of the concrete shall be plastic-coated for the full depth of the indicated concrete cover.
 - b. Separate layers of bars by plastic chairs, by precast mortar blocks of compressive strength not less than 3750 pounds per square inch, spacing bars, or by other devices approved equal.
 - c. The minimum spacing between bars, except at lap splices, shall 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.
4. 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, immediately contact the Engineer and obtain approval of a new procedure before placing concrete.

3.08 SPLICING

- A. Furnish all reinforcement in the full lengths indicated on the drawings, except that reinforcement over forty feet in length may be spliced.
- B. Splicing of bars, except reinforcement over forty feet in length and when indicated on the drawings, will not be permitted without approval of the Engineer. When approved, splices shall be staggered with no more than fifty percent of any particular bar type being spliced at any one location. Minimum length of lap splice shall be per the schedule of minimum lap splice lengths in the drawings unless noted otherwise on the drawings. Minimum distance between spliced zones shall be three lap lengths.

3.09 CLEANING REINFORCEMENT

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

END OF SECTION

SECTION 05 12 00
STRUCTURAL STEEL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. General: This Section covers all structural steel and miscellaneous metal Work.
 - 1. It is the intent of this Specification that all base plates, supporting columns, equipment frames, and similar items do not bear directly on concrete floors, even though this condition may not always be shown on the Drawings. They shall bear on grout pads of non-shrink, non-metallic grout having a minimum thickness of 3/4-inch unless otherwise noted. Tanks shall bear on grout pads having a minimum thickness of 1 3/4-inches. The Contractor is herein advised of this intent and is directed to construct and install the Work accordingly.
- B. Related Work Specified Elsewhere
 - 1. Section 05 50 00 – Metal Fabrications
 - 2. Section 09 90 00 – Protective Coatings
- C. Scope of Work: Work shall include, but not necessarily be limited to, the following if shown on the Drawing, if specified, or if required to complete the Project.
 - 1. Structural steel, such as beams, channels, angles, tees, bars, pipe, tubing, and plates.
 - 2. Fabricated metal items, such as brackets, pipe hangers, frames for support of ratings and floor plates, equipment supports and lift hooks.
 - 3. Clip angles, connection plates, and base plates.
 - 4. All anchors, bolts, nuts, washers, inserts and all other miscellaneous metal items not specified elsewhere in other Section of this Specification.

1.02 QUALITY ASSURANCE

A. General: Provide items which have the following characteristics.

1. Furnish materials and fabricated items from an established and reputable manufacturer or supplier.
2. Supply all new materials and fabricated items made from first class ingredients and construction and guaranteed to perform the service required.
3. Provide all materials and fabricated items as specified herein, or as shown or called for on the Drawings which conform to the following Standard Specifications, or are the product of the listed manufacturer, or similar, equivalent and equal product.

B. Shipping and Handling of Materials

1. Handle, ship, and store material in a manner that will prevent distortion, rust, damage to the shop coat or any other damage.
2. Store material in a clean, properly drained location out of contact with the ground.
3. Replace or repair all damaged material in an approved manner by and at the expense of the Contractor.

C. Test Welds

1. The City will provide and pay for tests of welds. The requirement for weld tests shall be determined by the Engineer. The tests shall be made by one of, or a combination of, the following procedures:
 - a. Visual inspection of welding. Visual inspection of welding will be made while the operators are making the welds, and again after the work is completed. Hand or power wire brush and thoroughly clean the weld after welding is completed before the inspector makes the check inspection. Inspect welds with magnifiers under strong, adequate light for the following defects:
 - 1) Surface cracking
 - 2) Porosity
 - 3) Excessive roughness
 - 4) Unfilled craters
 - 5) Gas pockets

- 6) Undercuts
 - 7) Overlaps
 - 8) Size
 - 9) Insufficient throat and concavity
- b. Nondestructive testing of welds: Ultrasonic testing on welding, except where not feasible due to the type or location of the weld. Magnetic particle, liquid penetrant, or radio graph tests when ultrasonic testing is not feasible.
- 1) Ultrasonic inspection technique and standards of inspection in accordance with AWS D1.1, Part C.
 - 2) Particle inspection method in accordance with ASTM E109.
 - 3) Penetrant inspection method in accordance with ASTM E 165.
 - 4) Radiography tests in accordance with AWS D1.1, Part B; do not use this method for fillet welds.
- D. Inspection of Weld Studs. After welding, the ceramic ferrule should be removed from each stud and the weld fillet visually inspected. A fillet of less than 360° is cause for further inspection. Such studs should be hammer tested, bending the stud 15° from the vertical toward the closest end of the embedment plate or steel member. Bending without failure indicates a satisfactory weld. Bent studs may be left bent.
- When studs are welded to steel plates or members with temperatures below 32°F, one stud in each 100 should be tested by bending to an angle 15° from the vertical. Warning – Welding should not be attempted when the base metal temperature is below 0°F or when the steel surface is wet or exposed to falling rain or snow.
- E. Retesting Costs. The Contractor shall pay for the cost of the test only when retesting is required due to failure of original Work or material.

1.03 CODES AND STANDARDS

- A. Performance of Work. Perform all Work in this Section, unless specifically noted otherwise, in accordance with the following codes.
- 1. The latest edition of the International Building Code, including the International Building Code Standards.
- B. Materials and Methods. Where materials and methods are indicated in this Section or on the Contract Drawings as being in conformance with a standard specification, it refers to the latest edition of that specification,

including all interim revisions. Listing of a standard specification without further reference indicates that the particular material or method conforms with such listed specification.

- C. Metalwork. Except as otherwise specified herein, perform all metalwork in accordance with the following specifications:
 - 1. For steel, the AISC "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings."
- D. Steel Welding. Perform welding for steel in accordance with the Specifications of the American Welding Society "Structural Welding Code, latest edition, AWS D1.1," by accomplished welders certified in accordance with "AWS Specifications for Standard qualification Procedure." All welding operators are subject to examination for requalification at any time during the progress of the Work.

1.04 SUBMITTALS

- A. The Contractor shall submit the following to the Project Representative sufficiently in advance of the start of the affected Work to allow time for favorable review by the Engineer without delaying the Work, even though items proposed to be furnished conform to the exact description stated in this Section, or as shown on the Contract Drawings.
 - 1: Prepare, on 24x36-inch Shop Drawings for all items of supply covered in this Section showing details of installation, methods of fabrication, kind of metal, sizes, and finish. Where possible, prepare Shop Drawings from actual coordinated measurements taken at site of the Work. After favorable review and fabrication, update Drawings with shop and field changes.
 - a. The Contractor will consult with other trades in advance, so that their Shop Drawings, and installation or erection of their Work, is coordinated with other Work.
 - b. A favorable review of these Drawings will cover only a review of size and arrangement of principal and auxiliary members, and strength of connection. The Contractor is responsible for all dimensions shown on these Drawings. Where possible, prepare Shop Drawings from actual coordinated measurements taken at site of the Work.
 - c. Mill Test: Submit certification of materials with copies of mill reports for each type of steel used.

- d. Certifications: Submit written certification that the welders to be employed in the work meet the requirements as specified under "Quality Assurance"
- e. Product Data: Submit producer's or manufacturer's specifications for the following:
 - 1. High strength bolts, including nuts and washers
 - 2. Shop applied primer.

1.05 QUALITY ASSURANCE

- A. Fabricator/Erector Qualifications: Must have plant, facilities, and personnel sufficient to fabricate and/or erect metal framing as indicated on the drawings. Must be able, upon request, to show framing of similar size, materials, and scope of work of this contract.
- B. Qualifications for Welding Work: Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure." Provide certification that welders to be employed in work are certified by Washington Association of Building Officials (WABO) and AWS within the previous 12 months.
- C. Allowable Tolerances: Unless otherwise noted on drawings or specified, provide structural steel work in accordance with the following minimum tolerances:
 - 1. Fabrication and Erection Tolerances: In accordance with requirements of AISC "Code of Standard Practice". Contractor is responsible for the correct fitting of all structural members, and for the elevation and alignment of the finished structure.
 - 2. Fabrication and Erection Tolerances for "Architecturally-Exposed Structural Steel" (AESS): In accordance with requirements for AISC "Code of Standard Practice", Section 10.
- D. Special Tests and Inspections: Refer to Section 01400 of this specification for special inspection and testing in the field by the Engineer's Inspector.
- E. Mill Test Reports: Submit mill test reports on all steel verifying compliance with specified requirements, regulations, and standard specifications.

PART 2 - PRODUCTS

2.01 PROTECTIVE COATINGS

- A. Structural steel used for piping supports in tankline pits and tunnel shall be painted. See Section 09 90 00 – Protective Coatings.

2.02 GALVANIZED MATERIALS

- A. Unless noted otherwise, all miscellaneous metal shall be hot-dipped galvanized. Fabricated items shall be ground smooth at welded joints, edges, and corners and galvanized after fabrication.
- B. Items to be galvanized shall include, but not necessarily be limited to, the following:
 - 1. Grating and Kick Plate
 - 2. Pipe anchor assemblies, pipe guide and support assemblies, pipe hangers, an associated hardware.
 - 3. All steel hardware, nuts, bolts, washers, anchors, and threaded rods, except as noted, or which are stainless steel material.

2.03 STRUCTURAL STEEL MEMBERS

- A. All structural steel members, such as beams, channels, angles, structural tubes, structural tees, plates, and similar items shall conform to ASTM A 36, unless noted otherwise herein or on the Drawings.

2.04 STAINLESS STEEL

- A. Stainless steel articles when called for herein or on the Drawings shall conform to AISI Type 304 chromium-nickel steel, except Type 316L, which shall be used when specifically specified herein, or shown on the Drawings. The Drawings show size and thickness.

2.05 BOLTS AND NUTS

- A. Bolts and nuts shall conform to the requirements for regular hexagon bolts and nuts of ANSI B18.2.1 and B18.2.2, respectively. Material shall conform to ASTM A 307, except when high strength bolts are specified or noted on the Drawings, in which case they shall conform to ASTM A 325. All bolts and nuts on all connections, which will be intermittently or continuously in contact with water shall be stainless steel Type 304. All others shall be galvanized, unless specifically otherwise noted.

2.06 WASHERS

- A. Circular washers for common bolts shall conform to ANSI B 27.2 Type A. Lock washers shall conform to Federal Specifications FF-W-84, and shall be galvanized unless otherwise noted. Washers shall be of the same material and finish as the bolt used; Type 304 for stainless steel unless Type 316L stainless steel is called for, then use Type 316L.

2.07 BASE AND BEARING PLATES

- A. Base and bearing plates, when specified herein, or when shown on the Drawings, shall be installed to provide full bearing for the member supported, after such member has been properly positioned. Refer to Paragraph 3.01C of this Section.

2.08 WELDING ELECTRODES

- A. Use welding electrodes for steel work in accordance with AWS A5.1 or A5.5 E70XX. For stainless steel, use AWS A5.4 or 5.9 electrodes. For welding dissimilar metals, submit the appropriate electrodes as product data.

2.09 GALVANIZING

- A. Galvanize all exposed steel items, except when specified otherwise herein, or on the Drawings. Galvanizing shall be by the following applicable processes.
 - 1. Hot-dip galvanize all sheet steel, plain or shaped in accordance with ASTM A 535.
 - 2. Hot-dip galvanize all products fabricated from rolled, pressed, and forged steel shapes, plates, bars and strip 1/8-inch thick or heavier, in accordance with ASTM A 123.
 - 3. Either hot-dip galvanize all steel hardware, nuts, bolts, washers, anchors and threaded rods in accordance with ASTM A 153 or electroplate with zinc coating of 0.001-inch minimum thickness in accordance with ASTM A 164 Type GS. Nuts shall be sized so that they screw on threaded bolts readily after galvanizing.
 - 4. Fabricated items shall be ground smooth at welded joints, edges and corners, and galvanized after fabrication.
- B. If, in an emergency, it becomes necessary to cut or weld galvanized surfaces that are to be painted in the field, then all galvanized surfaces

damaged by cutting or welding shall be repaired by the heated repair method. Galvanized handrails or other surfaces that will not be painted and that are field welded or damaged shall be repaired by the heated galvanize repair method. Repair materials shall be Galvalloy as manufactured by Metalloy Products Company; Gal-Viz as manufactured by Thermacote Welco; or equal.

1. Heat substrate to 600°F, or apply hot process touch-up material right after welding before metal has cooled below 600°F.
2. Rub bar of specified galvanize repair material over surface of hot substrate to apply a uniform coating of zinc. Wire brush hot coating with a clean wire brush to smooth out and bond zinc coating to substrate.

2.10 ADHESIVE CAPSULE ANCHORS

- A. Adhesive capsule anchors shall be of the two component type; one component being a threaded rod with nut and washer and the other component being a sealed glass cartridge containing a premeasured amount of polyester resin, aggregate and a hardening agent. Adhesive capsule anchors shall be Molly Parabond capsule anchors, as supplied by the Molly Division of the Emhart Fastener Group; HVA adhesive anchors as manufactured by Hilti Fastening Systems; or equal. Installation of adhesive capsule anchors shall be in strict adherence to manufacturer's recommendations and to the latest relevant ICBO Report.

2.11 EXPANSION ANCHORS

- A. Expansion anchors shall be of the insert type which expands permanently against the sides of a hole drilled in concrete when a steel expansion cone is forced into the shield by impact on the shield, or by tightening the nut. In the case of stainless steel expansion anchors, the expansion cone shall be forced into the shield by tightening the nut on the threaded rod or bolt. Any type of anchor which can be released, or which could be loosened by vibration, is unacceptable. Expansion anchors shall be stainless steel when so noted on the Drawings. Sizes of all anchors are shown on the Drawings. Submit a sample to the Engineer for favorable review, accompanied by certification of load test capacity. Expansion anchors shall be Hilti Kwikbolts as manufactured by Hilti Fastening Systems or equal. Installation of anchors shall be in strict adherence to manufacturer's recommendations and to the latest ICBO Report.

The embedment for expansion anchors shall be as shown on the Drawings, or in cases where no dimension is provided, use the minimum depth shown in the following table:

Expansion Anchor Embedment	
Diameter (inches)	Minimum Embedment (inches)
1/2	3
5/8	5
3/4	6
1	7

2.12 METAL ANCHORS

- A. Metal anchors of sizes and material noted on the Drawings, or specified, shall be installed when concrete is being placed. All anchors or anchor bolts shall be full diameter dimension. All frames shall be rigidly anchored in place with anchors of detail required for each specific location. All metal anchors or anchor bolts shall be galvanized, unless otherwise shown or specified. Welding studs (Nelson studs) shall not be used to anchor members to concrete. All anchor bolts shall be set by template, with provisions to hold bolts in correct position with respect to plan and elevation.

2.13 WELDING STUDS

- A. Where welding studs of sizes and material are noted on the Drawings, or specified, they shall be of the Industrial Type, Imperial Sizes, by Nelson Stud. Studs shall be manufactured from ASTM A 108 Grades 1010 through 1020 carbon steel. Standard right hand course thread with UNC-2A fit shall be provided. Plating of studs not required. Provide Nelson Stud Type "HBL" Full Base Threaded, or approved equal.

2.14 PROTECTION AGAINST ELECTROLYSIS

- A. Where dissimilar metals are used in conjunction with each other, suitable insulation shall be provided between adjacent surfaces so as to eliminate direct contact and any resultant electrolysis. The insulation shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other approved materials. Connections of dissimilar piping materials shall utilize dielectric unions, flanges, couplings, or bushing.

2.15 DOWELS

- A. Dowels shall be No. 4 steel bars embedded in the concrete with Hilti HVA adhesive anchors.

2.16 PIPE SUPPORTS

- A. All Strut System components shall be as manufactured by Unistrut Corporation or approved equal. All channel members, fittings, and hardware shall be galvanized as called out on the Drawings and these specifications. All components shall be from one manufacturer.

PART 3 - EXECUTION

3.01 GENERAL

- A. Fabrication for all structural steel shall be in accordance with the applicable provisions of the AISC "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings." Workmanship for steel shall be equal to standard commercial practice in modern structural shops.
 - 1. Fabrication and assembly shall be done in the shop to the greatest extent possible, and delivered to the Project as a unit ready for installation. Edges shall be straight. The Contractor shall coordinate the Work, making all provisions necessary for the passage of all applicable Work into, and attachment to, the structures. All Work shall be constructed sufficiently strong to withstand the tresses and strains to which normally subjected.
 - 2. Proper allowance shall be made for the expansion and contraction of the metals, and of the materials to which they are fastened.
 - 3. All joining on exterior Work shall be completely watertight.

4. All members shall be shaped correctly to requirements of the Drawings, with no kinks, twists, dents, or other blemishes prior to erection. All curved Work shall be evenly sprung.
5. Exposed edges and corners shall be free of burrs, and sharp edges or corners. Corners shall be rounded or chamfered. Exposed welds shall be ground smooth when specified herein or when noted on the Drawings.
6. Supplementary parts necessary to complete each item shall be included, even though such Work may not be definitely shown on the Drawings or specified herein. All such miscellaneous metalwork required by the Project shall be designed by the fabricator in accordance with good accepted standard practice.

B. STAINLESS STEEL WORK

1. Only the proper type of stainless steel electrodes or welding rods shall be used. All welded joints shall be ground smooth and polished. Welds shall be of such character as to eliminate injury to stainless steel parts in appearance, strength, and resistance to corrosion.
2. All scratches, marks, pits, and other blemishes on exposed surfaces incurred during fabrication of the material shall be removed by grinding and polishing until the entire surface possesses the same finish as the adjacent Work.

C. BASE AND BEARING PLATES

1. Base plates shall be installed under all columns; pipe supports (including rack type); and supports for tanks, equipment frames and similar items. The corners of base plates shall be rounded or chamfered.
2. These base plates shall bear on the grout pads of non-shrink, non-metallic grout having a minimum thickness of 3/4-inch unless otherwise noted. The Contractor is herein advised of this requirement and is directed to construct and install such Work accordingly, so that any support of this type does not bear directly on concrete.

D. SHOP PRIME

1. All structural steel items which are not galvanized or epoxy coated, including connection angles, shall be given a shop coat by the

fabricator, using material which is standard for the fabricator. Finish paint coats shall be furnished and applied as specified in Section 09 90 00 – Protective Coatings.

E. DISSIMILAR METALS

1. When a dissimilar metal such as aluminum, is in contact, such as with concrete, mortar, masonry, or adsorptive materials subject to wetting, the contact surfaces shall be given a brush coat of cut-back asphaltic, or coal tar paint.

3.02 ERECTION

A. GENERAL:

1. Erect structural steel members in accordance with the AISC "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings," 1980 Edition, except as modified herein, or on the Drawings.
2. Incorrect fabrication or damaged members:
 - a. When a condition exists whereby parts cannot be assembled or fitted properly as a result of errors in fabrication, or of deformation due to handling or transportation, report the condition immediately to the Engineer. The method of correction must be approved by the Engineer before any corrective Work is done. The corrective Work shall be made in the presence of the Engineer or their representative.
 - 1) Straighten plates and angles or other shapes using approved methods.
 - 2) The heating of heat-treated parts for straightening will not be permitted.
3. Connections: Anchor bolts and other connections between structural steel and foundations shall be provided and shall be properly located and built into connecting work. Connections for which details are not indicated shall be designed in accordance with the AISC "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings."
4. Work anchored in sleeves set in concrete shall be set with non-metallic, non-shrink grout. Pipe sleeves shall allow a 1/4-inch minimum clearance between items anchored and the sleeve.

5. Where metal is fastened to concrete, the connections shall be made by means of anchor bolts, or of fastenings embedded in concrete, such as adhesive capsule anchors, or other methods favorably reviewed by the Project Representative.
6. Welders shall be pre-qualified for the type of welding performed, in accordance with AWS Standard Qualification Procedure. All welding operators shall be subject to examination for requalification at any time during the progress of the Work.
7. Work shall be erect, square, plumb, straight and true, accurately fitted, and with tight joints and intersections.
8. Finished Work shall conform to a straight line or flat plane to within 1/8-inch in eight feet and t within 1/4-inch total deviation.
9. Curved surfaces shall conform to a true arc of a circle to within 1/16-inch in six inches.

B. WELDING

1. Perform all welding by the shielded electric arc method in accordance with "Structural Welding Code, AWS D1.1."
2. Repair and make additional inspections, at the Contractor's expense, of the weld areas which have been rejected as a result of inspection. Follow this procedure until the welds are acceptable to the Engineer.
3. Welders shall be pre-qualified in accordance with AWS Standard Qualification Procedure. See "Quality Assurance".
4. All welding operators shall be subject to examination for requalification at any time during the progress of the Work.

END OF SECTION

SECTION 05 50 00
METAL FABRICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section Includes:

1. All metal fabrications and other miscellaneous metal items together with related accessory items and fasteners, including:
 - a. Steel stairs and ladders
 - b. Metal pan stairs
 - c. Stair treads and nosings
 - d. Steel guardrails, handrails, and stair rails.
 - e. Chain closures
 - f. Gratings
 - g. Grating support angles
 - h. Floor plates
 - i. Steel angle edgers
 - j. Steel channel and angle door frames
 - k. Steel angle corner guards
 - l. Miscellaneous hot rolled structural members used to supplement, support, or strengthen wood framing light gauge steel framing or cold formed metal framing or to support hollow metal work.
 - m. Steel fascias, angles, and trim exposed as part of the finished structure.
 - n. All other metal fabrications and miscellaneous metal not covered under other sections.

B. Related Sections.

1. Section 05 12 00 - Structural Steel

1.02 REFERENCES

A. American National Standards Institute:

1. B18.23.1 Beveled Washers

B. American Society for Testing Materials:

1. A36 Specification for Carbon Structural Steel
2. A53 Specification for Pipe, Steel, Black and Hot-Dipped Zinc Coated Welded and Seamless
3. A123 Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
4. A153 Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
5. A283 Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
6. A307 Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
7. A500 Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
8. A501 Specifications for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
9. A653 Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
10. C595 Specification for Blended Hydraulic Cement
11. F844 Specification for Washers, Steel, Plain (Flat), Unhardened for General Use

C. Publications of the National Association of Architectural Metal Manufacturers (NAAMM):

1. "Metal Product Outline; Division 5 Metal"
2. "Metal Stair Manual"
3. "Metal Finishes Manual"
4. "Pipe Railing Manual"
5. "Metal Bar Grating Manual"

D. Steel Structures Painting Council (SSPC), Volume 2. Standards for Surface Preparation are specified by SSPC followed by SP and a number indicating the specified type of surface preparation.

1.03 SUBMITTALS

A. Product Data: Fully describe every product proposed for use.

B. Shop Drawings:

1. Show dimensions, finishes, joining, attachments, inserts, and relationship of work to adjoining construction.
2. Indicate all shop and erection details including cuts, copes, connections, holes, threaded fasteners and welds. Indicate welds using AWS "Welding Symbols."
3. Show field measured dimensions of this and adjacent work and location of inserts on fabrication drawings.
4. Submit a full floor plan layout and details for all gratings and grating frames.

C. Calculations:

1. Contractor shall submit calculations for all elements designated to be designed by others on the drawings including stairs, asphalt storage tanks, access catwalk, and handrail. Calculations shall be stamped and signed by a Professional Engineer licensed in Washington State.

1.04 QUALITY ASSURANCE

A. Contractor's Qualifications: Welding procedures, welders, and welding operations shall be qualified for the type of work required in accordance with AWS Standard Qualification Procedures.

- B. Regulatory Requirements: Comply with the following codes and reference standards unless higher standards are specified, shown or required by applicable codes:
 - 1. "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings," of American Institute of Steel Construction (AISC), latest edition.
 - 2. Structural Welding Code of the American Welding Society, ASW D1.1, latest edition.
 - 3. International Building Code (IBC), adopted edition, especially paragraphs 509, Guardrails and 1006.9, Handrails.
 - 4. Stair, guardrail and accessibility design requirements in IBC, OSHA and the Federal Americans with Disabilities Act (ADA).
- C. Testing:
 - 1. Test materials in accordance with Section 0512 00 – Structural Steel.
 - 2. Test welding in accordance with Section 05 12 00 – Structural Steel.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver anchorage devices that will be embedded in the work of other trades in sufficient time to permit their timely installation. Provide proper setting drawing, templates, and directions for installation.
- B. Store materials above ground on platforms, skids, or other supports. Store all fasteners and welding electrodes in a weather-tight and dry location until ready for use. Store packaged materials in their original labeled containers.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Standard Structural Steel Shapes, Bars, and Plates: ASTM A36.
- B. Architectural and Miscellaneous Steel Items: ASTM A283, Grade A.
- C. Steel Tubing: ASTM A500, (cold formed) Grade A, or ASTM A501 (hot formed), welded or seamless.

- D. Steel Pipe: Seamless, conforming to ASTM A53, Type F, Grade A or B.
- E. Aluminum: Alloy 6061-T6 or 6063-T5 or T6.
- F. Bolts and Nuts: ASTM A307, Grade A.
- G. Plain Washers: ASTM F844.
- H. Beveled Washers: ANSI B18.23.1.
- I. Weld Type Bends and Fittings for Guardrails, Handrails, and Stair Rails: R&B Wagner, Inc.; J.G. Braun; or equal.
 - 1. Provide manufactured preformed side outlet (3-way) elbows, radius elbows, bends, tees, crosses, and other fittings of flush design for welded assembly.
 - 2. Provide elbows with a 1-inch inside radius.
 - 3. Provide three-way elbows with a 1/8-inch inside radius.
 - 4. Provide inside alignment sleeves.
- J. Anchorages to Concrete and Masonry:
 - 1. Refer to Section 05 12 00 – Structural Steel for anchors carrying shear or tension loads 200 lbs. or more.
 - 2. Provide cast-in-place, expansion or bonded anchorages with minimum size 3/8-inch diameter, 3-inch embedment.
 - 3. Provide a satisfactory evaluation report by ICBO.
 - 4. Do not load the anchorage in excess of half the ICBO values without inspection by Engineer.
 - 5. Material: Galvanized steel as noted.
 - 6. Do not use for loads in tension or withdrawal or for loads subject to vibration.
- K. Drive-Anchors: One-piece deformed spring steel anchor: RAWL-Drives, Buildex, or equal. 1/4-inch minimum diameter. Drive anchors shall be long enough so that all of the deformed portion plus 1/2-inch will be embedded in the concrete or masonry. Use for loads less than 200 pounds.

- L. Non-Shrink Grout: ASTM C1107, Grade B (construction) with no shrinkage as measured by ASTM C827. Furnish a pre-mixed product consisting of properly proportioned amounts of non-metallic dimensionally stable material to which water is added.
- M. Handrail Wall Brackets for Steel Railing: 1/4-inch formed steel drilled for screw attachment to pie rail and expansion bolt anchor to wall, Wagner HB-1, type 1-H; Blumcraft wall bracket; or equal.
- N. Safety Stair Nosings: Nosing base to be extruded aluminum type 6063-T5 filled with resilient epoxy binder (13%) combined with a filler that contains at least 60% aluminum oxide abrasive. Provide a minimum coefficient of friction of 0.50. Furnish in two contrasting colors having a difference in light reflectivity of at least 70% to meet ADA requirements for the visually impaired. Top surface 3-inches wide; 1/4-inch thick. American Safety Tred #9511 for concrete filled pan stairs and #3511 for poured concrete stairs; equivalent products by Wooster; or equal.

2.02 GALVANIZING

- A. Hot-dip galvanize all exterior ferrous metal work and all interior ferrous metal work so noted.
- B. Hot-dip galvanize all sheet steel, plain, or shaped in accordance with ASTM A525, G-90 Commercial Grade.
- C. Hot-dip galvanize all products fabricated from rolled, pressed, and forged steel shapes, plates, bars, and strip 1/8-inch thick or heavier, in accordance with ASTM A123.
- D. Hot-dip galvanize all steel hardware, nuts, bolts, washers, anchors, and threaded rods in accordance with ASTM A153. Size thread clearance to allow for galvanize coating; rerun threads after galvanizing, if required, to assure a smooth fit.

2.03 GALVANIZING REPAIR

- A. Repair damaged galvanizing by heated repair method. Repair materials: ReGalv by Rotometals, Inc., San Francisco, CA; or equal. Specifier knows of no equal.
 - 1. Heat substrate to 600°F, or apply hot process touchup material right after welding before metal has cooled below 600°F.
 - 2. Rub bar of specified galvanize repair material over surface of hot substrate to apply a uniform coating of zinc. Wire brush hot coating

with a clean wire brush to smooth out and bond zinc coating to substrate.

2.04 SHOP PRIMING

- A. Refer to Section 09 90 00 – Protective Coatings for surface preparation, pretreatment, primers, and application techniques.
- B. Apply one shop coat of rust inhibiting primer in accordance with Section 09 90 00 - Protective Coatings to all steel fabrications not scheduled to be galvanized.
 - 1. Apply two coats of primer to surfaces not in contact but inaccessible after assembly.

2.05 ISOLATION COATINGS

- A. Aluminum pigmented asphalt paint for aluminum in contact with other metals.
- B. Asphalt or bituminous mastic for aluminum in contact with concrete or plaster.

2.06 FABRICATIONS

- A. Steel Guardrails and Handrails:
 - 1. Fabricate from 1 1/2-inch inside-diameter Schedule 40 steel pipe. Maximum post spacing 8-feet.
 - 2. Hot-dip galvanize, after fabrication, guardrails and handrails exposed to the exterior and where noted to be galvanized.
 - 3. Avoid posts at inside or outside corners. Locate posts close enough to the corner in each direction so the diagonal distance between posts does not exceed the maximum allowed rail spacing. Form the corner with tight radius pipe bends or manufactured elbows. Mitters are not permitted. Where a post at a corner is unavoidable, use a manufactured three-way side outlet flush welded elbow.
 - 4. Make all wall returns, connections of a top rail to a post at the end of a run, and other changes in direction with smooth tight radius pipe bends or flush welded manufactured elbows. Mitters not permitted.

5. Make all pipe bends on bending jigs designed to produce accurate bends without buckling or deforming the pipe walls.
6. Make tee and cross intersections with manufactured flush weld type fittings or by carefully coping and welding the pipe.
7. Weld all joints with continuous beads. Thoroughly fuse without undercutting or overlap. Size welds to develop the full strength of the members joined after grinding. Grind and sand all groove welds flush.
8. Grind all fillet welds to a uniform radius tangent to the members joined after grinding. Round all edge and corners to a minimum radius of 1/8-inch. Sand with progressively finer grits removing all tool marks, imperfections, and scratches before proceeding to the next finer grit. Finish with 80 grit.
9. Close exposed ends of pipes by welding 3/16-inch thick closure plate inside and flush with pipe end.
10. Return ends of handrails 90 degrees to walls, close exposed end and mount with 1/8-inch maximum space between end of rail and wall.
11. Bend or offset handrails where required to provide 1 1/2-inch minimum code required clearance between handrail and edge of floor slab, columns, ducts, pipes, pilasters or other obstructions.
12. Provide sleeve inserts in accordance with paragraph 2.01 of this Section for guardrail posts set in concrete.
13. Cut and grind post ends to precise length and angle for where field welding to stair stringers is required.
14. Provide expansion slip joints as 40-foot centers. Use an internal sleeve 4-inches long fastened to one side. Bevel exposed edge of pipe at joint.

B. Metal Stairs with Grating Treads:

1. Stringers and connectors: Fabricate from structural steel shapes.
2. Treads:

- a. Steel bar grating, welded rectangular design, 1-inch x 3/16-inch bearing bars spaced 1 3/16-inch on center with 1/2-inch x 3/16-inch cross bars spaced 4-inches on center.
 - b. Safety nosings: Provide a 2-inch minimum width steel angle or channel nosing with a colored abrasive surface meeting the slip-resistance and visually impaired requirements specified under paragraph 2.01 of this Section. Mcbac by IKG Borden; equivalent product by Safety Metal Company; or equal.
- 3. Intermediate Landings:
 - a. Steel bar, welded rectangular design gratings with bars spaced 1 3/16 x 4-inches on center and complying with the paragraph headed "Gratings" in this Section.
 - b. Safety nosings: Provide a safety nosing meeting the requirements for nosings on grating treads for grating landings and steel checkerplate landings; meet the requirements of paragraph 2.01 of this Section for concrete landings.
- 4. For interior stairs, the top and bottom nosings shall have a 70% contrast with adjacent surfaces; for exterior stairs all nosing shall have a 70% contrast with adjacent surfaces.
- 5. Guardrails for metal stairs: Fabricate from steel pipe using same materials and fabrication method described for guardrails above. Attach rail posts to stringers by field welding with bent anchor plate and four bolts.

C. Ladders, Steel:

- 1. Rails: 2 1/2-inch x 3/8-inch flat bar drilled or punched for insertion of rungs.
- 2. Rungs: 1-inch diameter solid bar inserted into holes drilled in rails and welded on the outside. Space rungs equal distance apart. Coat rungs with an epoxy base paint containing aluminum oxide grit by Wooster "Safe-Stride" Anti-slip paint; or equal.
- 3. Provide brackets, welded to rails, spaced 8-feet on centers maximum for attachment to concrete or masonry with two 3/4-inch diameter drilled anchor bolts at each connection.

4. Hot-dip galvanize after fabrication.
5. Provide a retractable ladder extension where ladder does not extend above the highest surface served: Bilco "Ladder UP," equivalent by Saf-T-Climb; or equal.

D. Grating Support Frames:

1. Material: Galvanized steel.
2. Provide grating support angles for all grating. Fabricate grating support angles in complete, closed frames that will lie completely flat in a true plane. Install grating frames so they will support the grating with even, uniform, non-rattling bearing.
3. Design and fabricate grating frames as required to prevent twisting due to any large ratio of length to width. Restrict the length of each closed section of long narrow grating frames to 10-feet maximum.
4. Hot-dip galvanize grating support frames after fabrication. Grind welds smooth on the bearing surface before galvanizing.
5. Hot-dip galvanize ferrous grating support frames.

E. Grating:

1. Provide gratings that comply with requirements in the NAAMM Metal Bar Grating Manual.
2. Steel Grating:
 - a. Manufacturer: Blaw-Knox electro-forged steel grating; Irving electro-forged steel grating; or equal.
 - b. Welded steel grating: Hot-dip galvanized steel grating except where noted otherwise.
 - c. Cross bars: Spaced not more than 4-inches on center. Main bars: Not less than 1 1/4-inch high and 3/16-inch in thickness and spaced 1 3/16-inches on center. Fabricate with top surface of all bars flush. Install grating flush with adjacent concrete or other walking surfaces.
 - d. Size steel grating and support members as shown rated for 150 pounds per square foot superimposed load with a grating deflection not to exceed 1/4 of an inch.

- e. Provide punch serrated non-slip upper surface on grating in wet areas and areas noted to have a nonslip surface.
- f. Field measure installed grating frames before fabricating gratings.
- g. Provide grating panels that are absolutely flat, correctly sized, and fabricated to lie in their frames with uniform, non-rattling bearing on all supporting surfaces.
- h. Band ends of all fixed and removable grating section. Weld banding bars of the same thickness and the same depth as the main bearing bars to the ends of all bearing and cross bars. Weld the banding bars flush with the bearing bars at each panel corner and grind the weld smooth and flush. Round all edges and corners to 1/8-inch radius.
- i. Band all shop and field cutouts and openings. Weld the banding bars to all cut bearing and cross bars.
- j. Leave "split" openings in the gratings when required for the passage of pipes, valve stems or other devices.
- k. Provide "fixed" grating for all operating grating platforms. Bolt "fixed" grating to support members with saddle clips and stud bolts welded to support members.
- l. Where required for access or where noted, provide removable grating sections sized to limit the weight of any one section to 90 pounds.
- m. Bolt removable sections in place by the same method used for fixed grating. Mark removable sections by painting the banding bars red after galvanizing.

3. Aluminum grating:

- a. Manufacturer: Ohio Gratings Inc.; Seidelhuber; or equal.
- b. Aluminum alloy 6063-T6 rectangular bar gratings with a serrated top surface, pressure locked, 1 3/16 x 4-inch bar spacing unless noted otherwise.
- c. Provide banding strips same depth as main bars at grating ends and at all cut openings. Anchor gratings in place with stainless steel bolts.

- d. Furnish gratings with bar sizes and intermediate supports sized as shown.

2.07 ATTACHMENTS

- A. Metal Anchors: Provide metal anchors required to secure all frames and other items rigidly in place and detailed for installation into concrete forms prior to placing concrete.
- B. Anchor Bolts: Full diameter hot-dip galvanized steel unless otherwise shown. DO NOT USE welding studs (Nelson studs) to anchor members to concrete.

PART 3 - EXECUTION

3.01 ERECTION TOLERANCES

- A. Conform to straight, plumb and horizontal lines which also form a true flat plane to within 1/8-inch in 2-feet and 1/4-inch in 10-feet and 1/2 maximum overall.
- B. Curved surfaces shall conform to a true arc of a circle to within 1/8-inch in 12-inches and 1/4-inch maximum overall.

3.02 INSTALLATION GENERAL

- A. Fabricate and pre-fit metal work in the shop, in transportable components ready for field erection.
- B. Make proper allowance for expansion and contraction of the metals and of the materials to which they are fastened.
- C. Where metal is fastened to concrete, make the connection by means of sleeves and fastenings embedded in concrete or by expansion shield anchor bolts or wedge anchor bolts. Wood plugs, plastic plugs, or powder driven studs are not acceptable.
- D. Construct steel work in accordance with AISC Standard practices to withstand the forces normally applied and in compliance with IBC and OSHA requirements.
- E. Grind welds smooth on all metal work exposed to view. Provide work that has:
 - 1. Surfaces that are flat, straight, square, plumb and level.

2. Smooth curves, free of flat spots, and of uniform radius or, if intended to be of changing radius, follow a flowing fair curve.
 3. Make transitions between curved and straight portions of work at tangent points to achieve smooth and free flowing lines and surfaces without flat spots or abrupt changes in direction.
- F. Provide 1/8-inch radius corners and edges on all exposed work.
 - G. Perform all welding in accordance with AWS Code D1.1. Employ methods and techniques to achieve strength and good appearance.
 - H. Field Assembly: Set members to lines and elevations indicated. Align and adjust members before making permanent connections.
 - I. Galvanized Metal Repair: Repair damaged galvanized metal by the heated substrate method as specified in paragraph 2.03.
 - J. Touchup Painting (Ferrous Metals): After field assembly, clean all bare metal and all abrasions to shop coat, and spot paint with same primer used in the shop.

3.03 GUARDRAILS AND HANDRAILS

- A. Provide workmanship of the highest quality performed by mechanics skilled in executing high quality architectural metal work.
- B. Set shop fabricated guardrail sections into position and align the top rail so that it is true to specified tolerances. Do field joining neatly and inconspicuously.
- C. Install horizontal sections of guardrail with the top rail exactly horizontal. Vary the height of the rail as required to accommodate sloping deck surfaces. Maintain code required minimum and maximum rail heights.
- D. Support guardrails with temporary braces and shoring to maintain true alignment until all final connections and grouting are completed.

3.04 STAIRS AND PLATFORMS

- A. Furnish anchor bolts and other connectors required for connection to concrete or other materials.
- B. Set structural members to lines and elevations shown. Align and adjust members before making permanent connections.

- C. Where stairs land on sloping floors, the height of the first riser at the center of the stair shall be equal to the height of all other risers.

3.05 METAL STAIR NOSINGS

- A. Provide safety stair nosings in accordance with paragraph 2.01 of this Section at all concrete stairs and landings. Make nosings the full length of each tread less 2-inches at each end. Protect exposed surfaces of safety nosings during construction and leave the surfaces clean and free of concrete and staining.
- B. For interior stairs, provide a top and bottom nosing that contrast with adjoining surfaces and nosings on intermediate treads. For exterior stairs, provide nosings on all treads that contrast with surrounding surfaces. Adequate contrast is defined as a 70% difference in light reflectivity.

3.06 STEEL LADDERS

- A. Install ladders with stainless steel expansion anchor bolts.
- B. Locate first rung same distance above surface below it as space between other rungs.

3.07 GRATINGS AND FLOOR PLATES

- A. Install support frames so that gratings and floor plates have continuous support and so gratings and floor plates will sit in their frames without rattling or rocking in any direction including across diagonal corners.

3.08 MISCELLANEOUS

- A. Furnish the following for field installation:
 - 1. Custom fabricated steel connectors for wood beams and other rough carpentry work.
 - 2. Door frames made of structural steel shapes for installation in the concrete pour. Provide all anchors and connectors.
 - 3. Miscellaneous metal work not specified in other sections.

3.09 REPAIRS

- A. Repair or replace all defective work including:
 - 1. Unsightly welds.

2. Discontinuous welds.
3. Variations exceeding specified tolerances.
5. Kinks, bends.
6. Other defects affecting the quality, strength, utility and appearance of the work.

3.10 CLEANING

- A. Wash thoroughly using clean water and detergent.
- B. Do not use acid solutions, steel wool, or other abrasives.
- C. Remove stubborn grease stains with mineral spirits.

END OF SECTION

SECTION 09 90 00
PROTECTIVE COATINGS

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Coat or paint all facilities and equipment which are part of this Contract, except:
 - a. Metal completely embedded in concrete.
 - b. Piping buried in ground or encased in concrete.
 - c. Galvanized grating, galvanized bolts, and galvanized grating frames.
 - d. Nameplates and grease fittings.

- B.** Base the bid on using the products specified. If the products specified are not available in formulations that meet applicable regulations on volatile organic compounds (VOC) levels at time of application, submit for review products of equivalent quality and function that comply with current regulations. A reasonable difference in cost of material between the first named items specified and the products that are required to meet regulations that change after the bid date and are in effect at the time of application may be approved for payment by Change Order.

1.02 REFERENCES

- A.** Where standards of surface preparation are described by citing SSPC specification numbers reference is made to the "Steel Structures Painting Manual" Volume 2, published by the Steel Structures Painting Council.
- B.** American Society of Testing and Materials (ASTM):
1. ASTM D4060 Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
 2. ASTM D2794 Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
 3. ASTM D4541 Test Method for Pull-Off Strength of Coatings using Portable Adhesion Testers.

4. ASTM F1249 Test Method for Water Vapor Transmission Rate through Plastic Film and Sheeting using a Modulate Infrared Sensor.

1.03 DEFINITIONS

- A. Dry Film Thickness (DFT) – The prime coat and the sum of all fully cured applied coats for the paint system.
- B. Exterior Surface – surface that is not inside a building or structure and is exposed to the weather. A surface with epoxy coating(s) that may be affected by ultraviolet rays from the sun shall be considered an exterior surface if the sun can shine on that surface.
- C. Stripe Coat – coating applied to the edge, corner, welds, or bolts which is applied prior to application of additional system coats.

1.04 SUBMITTALS

- A. Prior to ordering material, submit a complete schedule of materials to be used. Include manufacturer's brand name, product name, and designation number for each coat of each system to be used.
- B. Provide Material Safety Data Sheets (MSDSs) for all products.
- C. Submit a full range of the manufacturer's standard and let down finish colors for review and selection by the Engineer. After final colors have been selected, submit two 8 1/2 x 11-inch samples on cardboard of each color indexed as to manufacturer and color designation.

1.05 QUALITY ASSURANCE

- A. Environmental Regulatory Requirements:
 1. All work material, procedures, and practices under this Section shall conform with requirements of the Northwest Air Pollution Authority. Prime or finish coat painting done in locations other than the project site shall be in accordance with air quality regulations in effect at the place the coating is applied. Products specified are, to the best of the Design Engineer's knowledge, in compliance with the applicable volatile organic compounds (VOC)¹ levels allowable at the date these Specifications were issued for bid.
 2. The Contractor will be responsible for any fines, costs, remedies or legal actions that may result from modifying or thinning coatings other than as recommended by manufacturer.

1.06 WARNINGS

- A. Application of paint, epoxy, and protective coating materials may be hazardous. Protect workers and property.
- B. Abrasive blasting is required. Become familiar with the existing site conditions. Protect adjacent facilities and personnel at no additional cost to owner.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver all coating materials in unopened containers with manufacturer's label, which must include name, batch number and date and VOC content.
- B. Store in an assigned area onsite in accordance with the recommendations of coating manufacturer and applicable federal, state, and local regulations. Maintain storage area clean and fire safe. Dispose of used rags, thinner, and buckets daily in accordance with coating manufacturer recommendations and applicable federal, state, and local regulations. Store solvents in close approved storage containers.

1.08 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Provide ambient temperatures recommended by coating manufacturer.
 - 2. Provide adequate ventilation.
 - 3. Use temporary dust barriers to close off areas being painted from areas where other work is being performed.

1.09 COLORS AND SAMPLES

- A. Coat all exposed metals white. If different shades of this color are available, give the Owner a color chart from which to select the color.
- B. Before starting work, obtain favorably reviewed color schedule.
- C. Colors are to be factory mixed, using light-fast colorants proportioned by accurate measurement into proper type base. All coatings must be formulated to perform in the climate and environment to which they will be exposed.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Coatings used in each system to be the product of one manufacturer.

- B. Use shop-applied prime coats compatible with the systems included in these specifications.
- C. Do not use coating systems containing lead.
- D. Do not use abrasives classified a hazardous material under applicable federal, state, and local regulations.

2.02 PRODUCTS

- A. Aboveground Pipe and Equipment. Use one of the following systems:
 - 1. Carboline System.
 - a. Surface preparation. Remove oil and grease from surface to be coated with Carboline Thinner #2 or Carboline Surface Cleaner #3 in accordance with SSPC SP 1. Abrasive blast to a commercial finish in accordance with SSPC SP 6. Obtain a 1 to 2 mil blast profile.
 - b. Coating system. Apply one coat of Carbomastic 15 L/O High Solids High Builds Aluminum Flake Filled Epoxy Mastic at 5 to 8 mils. DFT. Apply two coats of the Carboline 133 HB High Build Satin Finish Polyurethane Topcoat at 3 to 5 mils. per coat.
 - 2. Tnemec System.
 - a. Surface preparation. Abrasive blast to a commercial finish in accordance with SSPC Sp 6. Obtain a 1 to 2 mil. blast profile.
 - b. Coating system.
 - 1) Prime coat. Tnemec Series 90-97 Tnemec zinc at 2.5 to 3.5 mils.
 - 2) Intermediate coat. Tnemec Series 161 Fast Cure Epoxy at 4 to 6 mils.
 - 3) Finish coat. Tnemec Series 73 Endura-Shield at 3 to 5 miles.
 - 3. Sherwin-Williams System.
 - a. Surface preparation. Abrasive blast to a commercial finish in accordance with SSPC SP 6. Obtain a 2 mil. Blast profile.
 - b. Coating System.
 - 1) Prime coat: Recoatable epoxy intermediate B67H5/B67V5 at 4.0 to 6.0 mils. DFT.

- 2) Second coat: Hi-Solids Polyurethane B85-300/B60V30 at 3.0 to 5.0 mils. DFT.
- 3) Total DFT: 7 – 11 mils.

PART 3 – EXECUTION

3.01 SURFACE PREPARATION

- A. Prepare the surface in accordance with the manufacturer's requirements.

3.02 APPLICATION

- A. Roller apply all exterior coatings to avoid overspray contaminating other facilities or automobiles. It may take more than the number of coats listed to achieve the required DFTs.
- B. All steel coating application to be done in accordance with the latest revision of SSPC-PA.
 1. When successive coats of paint of the same colors are specified, tint alternate coats sufficiently to produce enough contrast to indicate complete coverage of the surface.
- C. Apply all material in strict accordance with manufacturer's instructions. Apply first coat immediately after surface preparation. Keep all paints at a consistency and applied in accordance with the printed directions of the manufacturer. Paint by hand or roller as approved by the Engineer in conformance to individual paint manufacturer's recommendations. The Engineer and paint supplier will review all surfaces to be painted on the job prior to application of any coatings. Once the Contractor begins undercoating or priming, this will be his guarantee that the surface is acceptable to paint. All painted surfaces are to be free from drips, ridges, and brush marks. The following stipulations also apply:
 1. Thinning permitted only when recommended by the manufacturer and only with thinner recommended for use with the particular product.
 2. Do not use additives to improve working characteristics or to lengthen or shorten set time.
 3. If items would be difficult or impossible to paint after installation, paint them before installation and touch up after installation.
 4. Apply each coat to a uniform, even coating; lay material on in one direction and finish at right angles. Allow material to thoroughly dry between coats. Scuff, sand, and remove all runs, sags, overspray, surface roughness, and other defects between each coat. Dust and wipe surface clean before applying next coat.

5. Cutting in is to be sharp and straight, free from overlaps or fuzzy edges. Redo any imperfect work.
6. Apply the number of coats or dry film thickness specified. Apply additional coats if required for uniform coverage, full hiding, and to achieve film continuity. Finished work is to be uniform in color, full coverage, smooth and free of sags and brush marks.
7. Do not coat when temperature is below 55°F or when the temperature of the surface to be painted is less than 4°F over the dew point temperature. Coat only under favorable environmental conditions. Protect and completely cure the work. Correct defective work to the full satisfaction of the Engineer.
8. Apply the last finish coat on all work after all major construction is complete and the work areas have been cleaned up and are dust free.

3.03 PIPE AND EQUIPMENT IDENTIFICATION

- A. Identify painted pipe 4-inches in diameter and larger by stenciling identification names and directional arrows. Identify unpainted pipe and pipe less than 4-inches in diameter by color vinyl pressure-sensitive lettered labels and arrows. Place names and arrows every 40-feet. Provide lettering size as follows:

<u>Pipe Diameter</u>	<u>Lettering Size (Height)</u>
1-1/4" or less	1/2"
1-1/2" to 2"	3/4"
2-1/2" to 6"	1-1/4"
8" to 10"	2"
Over 10"	3-1/2"

- B. Stencil pipe contents in black lettering on a yellow background. Use black directional arrows that are proportional to lettering.

3.04 FIELD QUALITY CONTROL

- A. Pinhole and continuity Testing:
 1. After applying the prime and finish coats, perform continuity and pinhole checking using a low voltage electrical resistance meter and check thickness with a magnetic thickness gauge to determine that pinhole free condition and specified film thickness of the paint system has been achieved over all of the painted surfaces. Repair all deficiencies in film integrity and thickness in accordance with the manufacturer's instructions.
 2. The Engineer or an independent testing consultant may perform its own continuity and pinhole checking and thickness checks in addition to the

Contractor's required tests. Provide equipment and necessary support, if requested. Repair any additional deficiencies in film integrity and thickness per the manufacturer's instructions and to the satisfaction of the Engineer.

3. Past use of this instrument has demonstrated that the painter must apply at least two and usually three or more stripe coats along all edges and angles and crevices formed by joining members in addition to the coats specified in order to achieve a pinhole free surface.
- B. Adhesion Testing: Where there is a question of paint or coating adhesion to surfaces, demonstrate to the Engineer's satisfaction that the coating adhesion to the area in question is equal to or greater than that which the paint manufacturer literature states may be achieved by his product. Use an "Elcometer Adhesion Tester" to accomplish this demonstration.
- C. Continuity, Pinhole, and Adhesion Testing support: Provide access, lighting, and labor as required to facilitate the Engineer's check (if required). Repair any areas damaged during and by the testing operation.

3.05 CLEANING AND COMPLETION

- A. At the completion of this portion of the work, remove all debris, remove all paint and stains from work for which paint finish is not intended, touchup all marred surfaces, and leave all buildings and structures in a clean condition, ready for use.
- B. Refinish all damaged or imperfect painting to the satisfaction of the Engineer prior to final acceptance of the facility.
- C. Finish work, except waterproofing mastics, is to present an even, pleasing, and uniform color and appearance. Surfaces exhibiting coatings with shadows, streaks, overlap marks, sags, drips, roughness, or non-uniform sheen will be considered as improperly applied and will not be considered acceptable.
- D. Leave all machinery nameplate data tags clean and readable and all grease fittings clean and usable.

3.06 SPARE PAINT

- A. Furnish at least one-gallon container of each type and color of finish product used. Label containers. Furnish products having a minimum of 11 months of shelf life at project completion.

END OF SECTION

SECTION 26 00 00
ELECTRICAL GENERAL CONDITIONS

PART 1 - GENERAL

1.01 GENERAL

- A. Conform to the General Conditions, Supplementary Conditions, and related work in other Divisions for all work in Divisions 26, 27, and 28.

1.02 WORK INCLUDED

- A. It is the intention of this division of the specifications and the accompanying drawings to describe and provide for the furnishing, installing, testing and placing in satisfactory and successful operation all equipment, materials, devices, and necessary appurtenances to provide a complete electrical system, together with such other miscellaneous installations and equipment hereinafter specified and/or shown in the plans. The work shall include all materials, appliances and apparatus not specifically mentioned herein or noted on the plans, but which are necessary to make a complete working installation of all electrical systems shown on the plans or described herein. Equipment and devices furnished and installed under other divisions of this specification (or by the owner) shall be connected under this division. The drawings and specifications are complementary and what is called for in either is binding as if called for in both.
- B. By submitting a bid, the contractor is acknowledging that he has made a thorough examination of the contract documents, existing site and building conditions, and has determined that these documents do sufficiently describe the scope of construction work required under this contract.

1.03 SCOPE OF BASIC BID

- A. Included in Divisions 26, 27, and 28 is all work and related items necessary to provide all electrical installations except as specifically excluded. In general, this includes all labor, equipment, tools, etc., to complete the electrical work.

1.04 RELATED WORK

- A. Mechanical Control Wiring – See Division 23

1.05 STANDARDS AND REGULATIONS

- A. The work shall comply with the latest edition of the applicable Standards and Codes of the following:
- | | |
|-------|---|
| ASTM | American Society for Testing and Materials |
| NBFU | National Board of Fire Underwriters |
| NEC | National Electrical Code |
| --- | State Electrical Code |
| NESC | National Electrical Safety Code |
| NEMA | National Electrical Manufacturers Association |
| NFPA | National Fire Protection Association |
| U.L. | Underwriters Laboratories Inc. |
| IPCEA | Insulated Power Cable Engineers Associated |
| CBM | Certified Ballasts Manufacturers |
| --- | Federal, State and Local Building Codes |
| ETL | Electrical Testing Laboratories |
- B. If any conflict occurs between Government adopted Code Rules and this specification, the codes are to govern. Nothing in these drawings and specifications shall be construed to permit work not conforming with governing codes. Also, this shall not be construed as relieving the Contractor from complying with any requirements of the plans and specifications which may be in excess of, but not in conflict with, requirements of the Governing Codes.

1.06 PERMITS & FEES

- A. The Contractor shall obtain and pay for all licenses, permits, and inspections required by laws, ordinances, and rules governing work specified herein. The Contractor shall arrange for inspection of work by the inspectors and shall give the inspectors all necessary assistance in their work of inspection.

1.07 DEFINITIONS

- A. When "provide" is used, it shall be interpreted as "furnishing and installing complete in operating condition".
- B. When "drawings" is used, it shall be interpreted as "all Contract Drawings for all disciplines".
- C. When "Contractor" is used, it shall be interpreted as the Electrical Contractor.

1.08 INTENT OF DRAWINGS

- A. The electrical drawings are intended to serve as working drawings for general layout. The equipment layout is diagrammatic and, unless specifically dimensioned or detailed, does not indicate all fittings, hardware, or appurtenances required for a complete operating installation.
- B. Anything shown on the drawings but not covered in the specifications, or anything covered in the specifications but not shown on the drawings, shall be as if covered in both. In case of conflict between the drawings and specifications, the Engineer will select the method to be used. The Contractor shall be responsible for verifying all measurements before proceeding with the work.
- C. Wiring diagrams are not intended to indicate the exact course of raceways or exact location of outlets. Raceway and outlet locations are approximately correct and are subject to revision as may be necessary or desirable at the time of installation. Precise location in every case shall be subject to the Engineer's approval.

1.09 PROTECTION

- A. The Contractor shall store and guard all equipment before installation and shall protect same, and replace any equipment that has been damaged prior to final acceptance.

1.10 HOUSEKEEPING

- A. All electrical materials shall be kept stored in an orderly fashion protected from heat, cold, and the weather.
- B. All marred surfaces shall be refinished and painted after installation.
- C. All debris shall be removed from premises during work, as directed, and at completion of job.

1.11 TEMPORARY USE

- A. Temporary or interim use of any and all portions of the electrical system shall be under the supervision of the Electrical Contractor.

1.12 AS-BUILT DRAWINGS

- A. The Contractor shall maintain, in addition to any reference drawings, an as-built set of prints, on which all deviations from the original design shall be drafted in a neat, legible manner with red colored pencil. This red-lined set shall identify all drawing revisions including addenda items, change orders, and Contractor revisions. The Contractor is responsible to revise panel schedules and load calculations as required.
- B. Drawings shall show locations of all concealed raceway runs larger than 1", giving the number of conductors and size of raceway. Underground ducts shall be shown with cross section elevations. All pipe, raceway, manholes or lines of other trades shall be included.
- C. The Contractor shall update all references to specific products to indicate products actually installed on project. This shall include, but not be limited to, lighting fixtures, baseboard heaters, etc.
- D. Upon completion of the Division 26 work, the Contractor shall deliver the red-lined drawings and one (1) pdf marked up as-built drawings to the Engineer.

1.13 WARRANTY

- A. Provide a written warranty that the Division 26, 27, and 28 work is free from mechanical and electrical defects. Contractor shall replace and repair, to the satisfaction of the Engineer, any parts of the installation which may fail within a period of 12 months after the date of substantial completion, provided that such failure is due to defects in material or workmanship, or failure to follow the specifications and drawings.

1.14 INSTRUCTIONS AND MANUALS

- A. A preliminary copy, complete except for the bound cover, shall be submitted 60 days prior to completion of the project for checking and review. Corrected copies shall be delivered to the owner 20 days prior to scheduled instruction periods. Obtain a receipt for the manual and forward a copy of the receipt to the engineer with the completed form.
- B. Manuals shall contain shop drawings, wiring diagrams, operating and maintenance instructions, replacement parts lists, and equipment nameplate data for all equipment and systems installed under the project. Signal equipment submittals shall contain step-by-step circuit description information designed to acquaint maintenance personnel with equipment operation in each mode of operation. Manuals shall contain original brochures supplied by manufacturers.

- C. Each type of device provided shall be identified in the o & m manual using the same identification as shown on the drawings and specifications. The information included must be the exact equipment installed, not the complete "line" of the manufacturer. Installed equipment shall be neatly and clearly identified on sheets where both installed equipment and other equipment are shown. Parts lists shall give full ordering information assigned by the original parts manufacturer. Relabeled and/or renumbered parts information as reassigned by equipment supplier are not acceptable. The following information shall be provided for each device
1. Manufacturer's name, address, and phone number.
 2. Local supplier's name, address, and phone number.
 3. Complete parts lists including quantities and manufacturer's part numbers.
 4. Installation instructions.
 5. Recommended maintenance items including maintenance procedure and recommended interval of maintenance listed in hours of operation, calendar unit or other similar time unit.
- D. The O & M Manual shall be assembled electronically. The information contained in the manuals shall be grouped in an orderly arrangement by specification index. The manuals shall have be indexed with divider sheets between categories with identifying tabs. The covers shall be imprinted with the name of the job, owner, architect, electrical engineer, division 26 contractor, and year of completion. As a minimum, provide a digital copy and (3) hard copies with the following selections broken out:
1. Panelboards
 2. Motor Controls
 3. Fused disconnects and fuse sizes
- E. Wiring Diagrams for each system shall be complete for the specific system installed under the Contract. "Typical" line diagrams will not be acceptable unless properly marked to indicate the exact field installation.

1.15 WORK NOT INCLUDED

- A. Indicated motors, controls, and equipment as described in other divisions shall be furnished by other trades, but shall be moved, set, and wired to electrical controls and power supply by the Electrical Contractor.

- B. Work to be included under this Contract shall be defined on drawings and in these specifications. Any details beyond these limits are meant only to give installation clarity to that portion which is a part of this Contract.

1.16 COMPLETION OF WORK

- A. Upon completion of the Division 26, 27, and 28 work, the Contractor shall deliver to the Engineer a completion letter stating that all of the requirements of the Contract for Divisions 26, 27, and 28 work have been fulfilled as set forth in the drawings and specifications and that all items in pre-final inspection lists submitted by the Engineer have been satisfactorily completed.
- B. Arrange for and obtain all required inspections and certificates pertaining to the Division 26, 27, and 28 work and deliver the certificates to the Engineer in triplicate. Section 260000 (continued)
- C. Prior to or at the time of final inspection, the Contractor shall, as outlined in detail in the specifications, complete the delivery of all the following items:

1.	Completion Letter	
2.	Certificate of Final Inspection. Electrical Inspector Fire Department	COMPLETION OF WORK - 260000 – 1.17
3.	Warranty to Owner (with copy for Engineer)	SUPPLEMENTARY GENERAL CONDITIONS – 260000 – 1.13
4.	Marked Set of As-Built Electrical Drawings	GENERAL AS-BUILT DRAWINGS 260000 – 1.12
5.	Motor Current Readings	GENERAL, TESTS – 260519 – 3.03(D)
6.	Phase Current Readings	GENERAL, TESTS – 260519 – 3.03(E)
7.	Panelboard and Special Equipment Shop Drawings and Final Approved List of Materials Installed	MATERIALS, GENERAL – 260000 – 2.03
8.	Wiring diagrams, Maintenance Manuals, Operation Instructions, and Brochures (5 sets minimum)	GENERAL, INSTRUCTIONS & MANUALS – 260000 – 1.14

* Secure delivery instructions from Architect for delivery to Owner.

1.17 SHOP DRAWING SUBMITTALS

- A. The Contractor shall submit to the Architect electronic shop drawings in PDF format. Electronic Shop Drawings that are submitted without following the format as outlined below will be returned for corrections without any further review.
 - 1. A separate PDF file shall be submitted for each Division including All submittal items for that Division as outlined below:
 - a. Division 26 – Electrical
 - b. Division 27 – Telecommunications
 - c. Division 28 – Electronic Safety and Security
 - 2. The contractor shall provide either a digital or hardware method of transporting the electronic submittal to the architect. Files larger than 10megabytes shall not be sent via email and shall be transferred via a file transfer protocol, pc compatible cd or pc compatible thumb drive. Divisions shall not be broken up into separate files for transfer via email.
 - 3. Each Specification PDF shall be submitted with the following format and salient attributes:
 - a. Cover page including:
 - 1) Project Title as indicated on the plans
 - 2) Project Location including address, city, state, country
 - 3) Prime Contractor name, phone number, and email address
 - 4) Sub-Contractor name, phone number, and email address
 - 5) Specification Division number and title
 - b. Index Page outlining each specification section included in the submittal. This list shall be linked to a corresponding Specification Section Divider for each section. This link shall enable the reviewer to jump to a specification section by clicking the item in the list.
 - c. Specification Section Divider: Shop Drawings shall be divided by specification section and each section shall begin with a divider page outlining the Specification number, title, and a list of submittal items for the section. In the upper right-hand corner of the divider page, a link shall be provided returning the reviewer to the Index Page.

- d. Each Submittal Item listed on the Specification Section Divider shall be linked to the specific item being submitted. Each Submittal Item shall be highlighted yellow with a note reference to the specific paragraph giving the submittal requirements.
 - e. Each page of the submittal shall be numbered in the bottom right corner of the page. Page numbering shall be Roman numerals for all pages before the First Specification Section. Each Specification Section page shall be numbered with the Specification Section number, a dash, and the page number in the Specification Section.
 - f. Specification items shall be specifically highlighted as they apply to the project rather than highlighting an entire product family. Items that do not apply to this project shall be crossed out with a red "X".
 - g. The PDF file shall not be protected to prevent printing, selecting of text within the document, or extracting of pages from the document.
- B. Shop drawings shall be submitted complete, at one time, and with each item indexed with dividers and separated per specification section and shall include, at a minimum, the items of equipment listed below:
- 1. All panelboards, showing breaker arrangement with circuit numbers, relays, and panel skirts.
 - 2. Motor starters and controls designating where items are intended to be used and equipment being controlled.
 - 3. Disconnect Switches
 - 4. Fuses
 - 5. Wiring Devices
 - 6. Back Boxes
 - 7. Coverplates
 - 8. Raceways and Connectors
 - 9. Fire Wall Penetration Seals
 - 10. Copper Wire
 - 11. **All Specialty Systems not listed above**
 - 12. Any other items requested by Engineer.

- C. Within ten (10) working days after the date of the letter rejecting any items of equipment, lighting fixtures, or materials as not in accordance with the specifications, the Contractor shall submit a new list of items to furnish and install in place of those items rejected. If the Contractor fails to submit this new list within the above specified time, or if any items on this second list are rejected as not being in accordance with these specifications, the Engineer may select the items which the Contractor shall furnish and install without change in Contract price or time of completion.
- D. The acceptance of a manufacturer's name or product by the Engineer does not relieve the Contractor of the responsibility for providing materials and equipment which comply in all details with the requirements of the Contract Documents. The Contractor shall be solely responsible for submitting materials at such a time to allow a minimum of two weeks for Engineer's review.
- E. Electrical Drawings for the project have been developed by the Engineer using AutoCAD Revision 2013 software or newer. These drawing files will be made available to the Contractor for development of shop drawings and/or As-Built with a signed waiver of responsibility.

1.18 SCHEDULE OF VALUES

- A. Provide Schedule of Values per Division 01 and related project requirements.
- B. Divisions 26, 27, and 28 Breakdown: Provide schedule of values for the following categories (as a minimum):
 - 1. Electrical Mobilization
 - 2. Electrical Submittals
 - 3. Electrical General Project Management, General Design, General Coordination
 - 4. Branch Circuit Materials Rough in – Labor
 - 5. Commissioning
 - 6. Electrical Punchlist, Closeout, and Owner Training
- C. The dollar value for "Electrical Punchlist, Closeout, and Owner Training" shall in no case be less than 2% of the total dollar value of the Division 26, 27, and 28 work (or as indicated in Division 01, whichever is higher). The dollar value for "Commissioning" shall in no case be less than 3% of the total dollar value of the Division 26 work.

- D. The Contractor is advised that in addition to payments held out for retainage and project final completion (i.e. "Electrical Punchlist, Closeout, and Owner Training"), as specified above and in Division 01, the Owner reserves the right to withhold 10% of the funds for any of the above categories until the systems (of that category) have been proven to operate as specified and have been completely tested and adjusted.

PART 2 - PRODUCTS

2.01 COMPETITIVE PRODUCTS

- A. Any reference in the specifications to any article, device, product, material, fixture, form, or type of construction by name, make, or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. The Contractor, in such cases, may use any article, device, product, material, fixture, form, or type of construction which in the judgment of the Engineer, expressed in writing, is equal to that specified. However, any manufacturer not listed as an accepted bidder for a specific item must be submitted for acceptance in writing and with descriptive data verifying equal quality and performance at least ten (10) working days prior to the bid date for approval.

2.02 MANUFACTURER/EQUIPMENT PRIOR APPROVALS

- A. Any manufacturer/equipment not listed as an approved substitute for a specified item must be submitted for acceptance in writing, with detailed information to include:
1. Manufacturer's Catalog Data
 2. Complete Physical and Technical Data
 3. Wiring Diagrams
 4. Detailed reference (written or highlighted) noting compliance with the appropriate Specification Section and all applicable Specification item numbers within that Section
 5. Complete type written index cross referencing all proposed substitutes and specified items
 6. Detailed reference to specified items (written or highlighted) noting equal quality and performance of proposed substitute equipment
 7. Other descriptive data, as required by the Engineer

- B. If substitute material is determined to be acceptable by the Engineer, it will be included in a subsequent Addenda prior to bidding. The acceptance of a manufacturer's name or product by the Engineer does not relieve the Contractor of the responsibility for providing materials and equipment which comply in all details with the requirements of the Contract Documents.
- C. Only materials which are specified or published in addenda as acceptable shall be used.

2.03 MATERIALS

- A. All materials must be of the quality herein specified. All materials shall be new, of the best quality, and free from defects. They shall be designed to ensure satisfactory operation and operational life in the environmental conditions which will prevail where they are being installed.
- B. Each type of material shall be of the same make and quality. The materials furnished shall be standard products of the manufacturers regularly engaged in the production of such equipment and shall be the manufacturer's latest standard design.
- C. All materials shall be U.L. or E.T.L. listed for the purpose for which they are used.
- D. Equipment in compliance with U.L. standards but not bearing their label is not acceptable. If the manufacturer cannot arrange for labeling of an assembled unit at the factory the unit shall be field evaluated per the Washington State Administrative Code (WAC) and the electrical inspector's requirements.

2.04 COMPLETE SYSTEM

- A. All the systems mentioned shall be complete and operational in every detail except where specifically noted otherwise. Mention of certain materials in these specifications shall not be construed as releasing the Contractor from furnishing such additional materials and performing all labor required to provide a complete and operable system.

2.05 NAMEPLATES

- A. Provide nameplates constructed of plastic (black on white) laminated material engraved through black surface material to white sublayer (attach with screws on NEMA 1 enclosures). EXCEPTION (1): Emergency distribution system component labeling - white letters on red background. Exception (2): Series rated systems shall be yellow background with white letters.
 - 1. Motor Starter and Disconnect Labels: Refer to Section 262816.
 - 2. Special Equipment/Outlet Labels: Refer to Appropriate Sections.

PART 3 - EXECUTION

3.01 GENERAL

- A. Careful consideration shall be given to clearances under and over beams, pipes and ducts, to provide proper headroom in all cases. Check drawings to determine heights of all suspended ceilings and size of pipe shafts where raceway and wire-ways shall run. Coordinate installation of Divisions 26, 27, and 28 wiring and equipment with Division 23 and other trades. Where insufficient room for proper installation appears, obtain clarification from Engineer before any installation begins.
- B. Cutting and Patching:
 - 1. Obtain permission from the Architect and/or Owner's Representative prior to cutting. Locate cuttings so they will not weaken structural components. Cut carefully and only the minimum amount necessary. Cut concrete with diamond core drills except where space limitations prevent the use of such drills.
 - 2. All construction materials damaged or cut into during the installation of this work must be repaired or replaced with materials of like kind and quality as original materials by skilled labor experienced in that particular building trade.

3.02 COORDINATION

- A. The Contractor is responsible for accomplishing work contained within Divisions 26, 27, and 28. The work shall coordinate with that of the other Contractors and/or other trades doing work in the building. The contractor shall examine all drawings, including the several divisions of mechanical, structural, civil and architectural, for construction details and necessary coordination. Specific locations of construction features and equipment shall be obtained from the Contract Documents, field measurements, and/or from the trade providing the material or equipment. No extra costs will be allowed for failure to obtain this information.
- B. All conflicts shall be reported to the Engineer in writing before installation for decision and correction. Special attention is called to the following items:
 - 1. Location of grilles, pipes, sprinkler heads, ducts, and other mechanical equipment so that all electrical outlets, lighting fixtures, and other electrical outlets and equipment are clear from and in proper relation to these items.
- C. The Contractor will not be paid for work requiring reinstallation due to lack of coordination or interference with other Contractors or trades. This includes, but is not limited to, removing, replacing, relocating, cutting, patching, and finishing.
- D. The Contractor shall review the installation manual for each device to be installed. If a conflict appears to occur between the manufacturer's recommended installation practices and the plans or specifications, notify the Engineer immediately. Final determination shall be by the Engineer. The Contractor will not be paid for reinstallation due to failure to comply with manufacturer instructions or design documents.

3.03 CLEANING AND PAINTING

- A. All equipment, whether exposed to the weather or stored indoors shall be covered to protect it from water, dust and dirt.
- B. After installing, all metal finishes shall be cleaned and polished, cleaned of all dirt, rust, cement, plaster, grease, and paint.
- C. All equipment with a primer coat of paint shall be given two (2) or more coats of a finish enamel and scratched surfaces be refinished to look like new. Markings, identification, and nameplates shall be replaced.

3.04 EQUIPMENT IDENTIFICATION

- A. Provide identifying engraved Bakelite nameplate on all equipment, including pull boxes, to clearly indicate its use, area served, circuit identification, voltage, and any other useful data.
- B. Each auxiliary system, including communications, shall be clearly labeled to indicate its function.

3.05 DEVIATION

- A. Deviation from the shop drawings in construction or installation of equipment shall not be made unless Shop Drawings showing proposed deviations are submitted to and approved by the Engineer. If any equipment is furnished under this or other divisions with current, voltage, or phase ratings that differ from those shown on the drawings, the Contractor shall notify the Engineer in writing immediately and shall not connect said equipment until instructed as to required changes by the Architect. No extension of time will be granted as a result of such changes.

3.06 EXCAVATIONS

- A. All excavations are to be conducted so that no walls or footings shall be disturbed in any way.
- B. Remove all surplus earth not needed for backfilling and dispose of same as directed.

3.07 WIRING METHODS

- A. All branch circuit wiring shall be installed in raceway with junction boxes and fittings.
- B. Provide access panels as needed for pull boxes and equipment located above ceiling or behind walls.
- C. Multiple feeder runs shall be rod hung, using a strut type channel with individual one-hole clamps, back plates, and machine screws.

3.08 PENETRATIONS OF FIRE RATED ELEMENTS

- A. Penetrations of fire rated elements must be made such as to retain that rating. See architectural sheets for specific fire rated locations.

3.09 HANGERS AND SUPPORTS

- A. Provide hangers, brackets, and suspension rods and supplementary steel to support equipment.

- B. Hangers provided under other divisions shall not be used for support of Division 26, 27, or 28 equipment unless permitted by Architect/Engineer.

3.10 WORKMANSHIP AND OBSERVATION

- A. Workmanship shall be of the best quality and none but competent workers shall be employed under the supervision of a competent foreman. All completed work shall represent a neat, professional appearance.
- B. All work and materials shall be subject to observation at any and all times by representatives of the Engineer.

3.11 MISCELLANEOUS

- A. Provide complete seismic anchorage and bracing for the lateral and vertical support of conduit and electrical equipment, as required by the International Building Code.
- B. Conduits that cross seismic separations shall be installed with flexible connection suitable to accommodate conditions. Secure raceways on each side of a separation and provide a minimum of 36" length of flexible conduit to span separation.

3.12 CABLE AND WIRING ROUTED UNDERGROUND OR UNDERSLAB

- A. All cables and conductors, both line voltage and low voltage, routed underground or underslab shall be U.L. listed for installation in wet locations per NEC and WAC codes.

END OF SECTION

SECTION 26 05 19

WIRES AND CABLES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide all wire, cable, and terminations complete.

1.02 RELATED DOCUMENTS

- A. Section 260000 – Electrical General Conditions

PART 2 - PRODUCTS

2.01 WIRE AND CABLE (COPPER, 600-VOLT)

- A. Interior and Above Grade: All wires to be Type THW or RHW. Type THWN/THHN or XHHW wire may be utilized at Contractors option, subject to code requirements. Wire and cables shall be brought to project in original containers bearing the underwriters label. Provide Type AVA wire where conductors are subject to temperature above 167 Degrees F.
- B. Underground: All conductors to be type USE. Increase Raceway size when necessary to accommodate conductors per code. Exception: Underground conductors completely contained in code recognized Raceway and boxes may be Type THW, THWN or XHHW.

2.02 WIRE AND CABLE (ALUMINUM, 600-VOLT)

- A. May be used at Contractor's option (except for ground cable) subject to the following requirements:
 - 1. Increased size for same current capacity (increased raceway size may be necessary).
 - 2. No aluminum conductors smaller than #4 AWG shall be used.
 - 3. Insulation requirements are the same as for copper conductor wires and cables.
 - 4. Aluminum conductors shall be made of an AA-8000 series electrical grade aluminum alloy conductor material.

2.03 SPLICES

- A. Solderless type only. Preinsulated "twist-on" type (limited to size #10 and smaller). Bolt on compression type with application of preformed insulated cover, heat shrinkable tubing or plastic insulated tape acceptable for all sizes.

2.04 TERMINATIONS

- A. Compression set, bolted or screw terminal.
- B. Conductors #12 and smaller shall utilize eye or forked tongue type compression set terminator when termination is to a bolted or screw set type terminal block or terminal cabinet.

2.05 PLASTIC CABLE TIES

- A. Nylon or Equivalent, locking type.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install all wiring in Raceway unless shown or specifically authorized otherwise.

3.02 WIRE SIZE

- A. Provide solid wire for No. 14 AWG and smaller, and stranded conductors for No. 12 AWG and larger (600) volts.

3.03 TESTS

- A. In addition to the factory testing of all equipment and cable, the Contractor shall test all wiring connections for continuity and ground before any fixtures or other loads are connected. Tests shall be made with a 500V minimum DC "Megger" type tester. If tests indicate faulty insulation (less than 2 megohms), such defects shall be corrected and tested again. Contractor shall provide all apparatus to make tests and shall bear all expenses of required testing. Routine operation tests shall be made on all pieces of equipment to demonstrate that working parts are in operating condition. Results of all tests shall be recorded and submitted to the Architect. The Contractor shall immediately replace all parts, which fail to pass the test.
- B. All circuits both in and out of the building shall test out free of grounds, short circuits and other defects.
- C. Check and record catalog number and ampere size of controller overload heaters installed, nameplate full-load amperes, and actual operating amperes of each motor. **IMPORTANT:** Submit recorded data in triplicate to the Engineer. Check proper load balance on the electrical system, direction of rotation,

- lubrication, and overload protection of all motors before placing in operation.
- D. The final test of all equipment shall be made on dates designated by the Architect/Engineer and all readings shall be made in his presence.
- E. Feeders shall be checked to ensure all phases are energized before connecting to their respective motors. Each motor shall rotate in the proper direction for its respective load. Prior to rotation test, all bearings shall be inspected for proper lubrication.
- F. Minimum megger test for equipment shall be as follows:
- | | |
|-----------------------|-------------------|
| Equipment Maximum | Minimum Test |
| <u>Voltage Rating</u> | <u>Resistance</u> |
| 1,000-Volts or less | 2 Megohms |
- G. Provide certification of torque values for feeder and service entrance conductors per equipment manufacturer's recommendation.

3.04 CONDUCTOR SIZES, REFERENCED ON PLANS

- A. Copper, type THW or RHW unless noted.

3.05 PULLING

- A. Powdered soap stone or approved spray cream shall be the only lubricant used.

3.06 STRIPPING INSULATION

- A. Do not ring the cable, always pare or pencil.

3.07 TAPING

- A. If used shall be half lapped synthetic tape.

3.08 CONDUCTORS IN PANELS AND SWITCHBOARDS

- A. Conductors in panels, switchboards, and terminal cabinets shall be neatly grouped and formed in a manner to "Fan" into terminals with regular spacing.

3.09 CABLE SUPPORTS

- A. Provide conductor support devices as required by code in vertical cable runs.

3.10 RACEWAY SIZES REFERENCED ON DRAWINGS

- A. Raceways are sized for copper, type THW, unless otherwise noted. Size all Raceways per code unless specifically noted to be larger on the drawings.

END OF SECTION

SECTION 26 05 32

OUTLET AND PULL BOXES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide outlet and pull boxes to enclose devices, permit the pulling of conductors and for wire splices and branches.

1.02 RELATED DOCUMENTS

- A. Section 260000 – Electrical General Conditions

PART 2 - PRODUCTS

2.01 INTERIOR WIRING

- A. General: Outlet and pull boxes shall be pressed drawn steel, zinc coated with plaster ring where applicable. Welded boxes not allowed. Four-inch size minimum. Large pull boxes shall be fabricated sheet steel, zinc coated or baked enamel finish, with return flange and screw retained cover.
- B. Surface Metal Raceway: Boxes of same Manufacture and to match Raceway. Boxes to accommodate standard devices and device plate.
- C. Install pull boxes so as to be accessible after completion of building construction.

2.02 EXTERIOR WIRING

- A. Above Grade: Outlet and junction boxes shall be cast or malleable iron or shall be cast of corrosion resistant alloy compatible with Raceway to which it is connected. Pull boxes shall be fabricated of heavy gauge steel and hot dipped galvanized. All boxes shall have gasketed covers.
- B. Below Grade: Where exposed to earth, boxes (handholes) shall be constructed of precast concrete with size, configuration, cover, grates and reinforcing as required by the particular installation.
 - 1. Manufacturer: Similar to Utility Vault 3030LA with base or Fogtite J11 Type 2 with base. Lid shall be H-20 rated where installed in traffic areas. Where not exposed to earth shall comply with Paragraph 2.02A above.
- C. Exterior outlet boxes shall be weather resistant and rain tight, with appropriate covers, gaskets and screws.

PART 3 - EXECUTION

3.01 ANCHORING

- A All boxes shall be firmly anchored directly or with concealed bracing to building studs or joints. Boxes must be so attached so that they will not "Rock" or "Shift" when devices are operated.

3.02 FLUSH MOUNTING

- A Except for surface mounted boxes or boxes above accessible ceilings, all boxes shall have front edge (box or plaster ring) even with the finished surface of the wall or ceiling.

3.03 ELECTRICAL OUTLETS

- A General: Coordinate the work of this section with the work of other sections and trades. Study all Drawings that form a part of this Contract and confer with various trades involved to eliminate conflicts between the work of this section and the work of other trades. Check and verify outlet locations indicated on Architectural Drawings, door swings, installation details, layouts of suspended ceilings and locations of all plumbing, heating and ventilating equipment.

3.04 CONNECTION TO EQUIPMENT

- A For equipment furnished under this or other Divisions of the Specifications, or by others. Provide outlet boxes of sizes and at locations necessary to serve such equipment. An outlet box is required if the equipment has pigtail wires for external connection, does not have space to accommodate circuit wiring used. Study equipment details to assure proper coordination.

3.05 BLANK COVERS

- A Provide blank covers or plates over all boxes not covered by equipment.

3.06 JUNCTION OR PULL BOXES

- A Pull and junction boxes shall be installed as shown, and to facilitate pulling of wire and to limit the number of bends within code requirements. Boxes shall be permanently accessible and shall be placed only at locations approved by the Architect.
- B In suspended ceiling spaces, boxes shall be supported from the structure independently from ceiling suspension system.
- C The Drawings do not necessarily show every pull or Junction Box required. The Contractor is permitted to provide boxes deemed necessary by him for his work when installed in accordance with these Specifications.

3.07 BOXES IN EARTH

- A Provide for all wire splices and as required to pull conductors. Boxes (handholes) shall be set in place on a 3" sand bed. Coverplates shall be flush to, and match the slope of, the final surface grade.

3.08 NAMEPLATES

- A For all line voltage junction boxes, provide engraved nameplate indicating circuit numbering of all wiring in junction box.

END OF SECTION

SECTION 26 05 33
RACEWAY

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide Raceway System complete.

1.02 RELATED DOCUMENTS

- A. Section 260000 – Electrical General Conditions

PART 2 - PRODUCTS

2.01 ELECTRICAL METALLIC TUBING (EMT)

- A. General: Hot dipped galvanized.
- B. Fittings: Raintight; steel or malleable iron type using a split corrugated compression ring and tightening nut or stainless-steel locking disc. Steel set screw fittings are acceptable for dry locations. Indenter, drive-on and pressure cast or die cast type set screw are not acceptable.

2.02 FLEXIBLE METAL CONDUIT (FMC, LFMC)

- A. Dry Locations:
 - 1. General: Galvanized flexible steel for dry locations only.
 - 2. Fittings: Malleable iron or steel, Thomas and Betts "squeeze" type or equal.
- B. Damp and Wet Locations:
 - 1. Liquid Tight: Polyvinyl chloride (PVC) weatherproof cover over flexible steel conduit.
 - 2. Fittings: Thomas and Betts "liquid tight" or equal.

2.03 RIGID NON-METALLIC CONDUIT (PVC)

- A. Schedule 40 rigid polyvinyl chloride type unless otherwise noted.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install Raceway concealed in construction unless noted otherwise on the Drawings or specifically approved in writing by the Architect/Engineer.
- B. Cut Raceway ends square, ream and extend maximum distance into all couplings and connectors.
- C. Provide and install manufactured end caps on all Raceway ends during construction to prevent the entrance of water or dirt. Tape, as a cover, not permitted.
- D. Swab out all Raceways before pulling wires.
- E. All elbows for GRS and PVC Raceway shall be factory radius bends. For all other Raceway, use factory radius bends of 1-1/4" and larger diameter.
- F. Raceway shall not penetrate sheet metal ducts unless permission is granted by Architect/Engineer. All sleeves shall be provided for Raceway installation.

3.02 GALVANIZED RIGID STEEL CONDUIT

- A. All Connections shall be watertight. Install for all Raceways in concrete or where subject to damage.

3.03 ELECTRICAL METALLIC TUBING

- A. Install for wiring in masonry, frame construction, furred ceilings and above suspended ceilings. May be used for exposed work in unfinished areas where not subject to damage. Where construction involves masonry work, surface cut masonry units wherever such masonry units are to remain unplastered or uncovered in complete construction.

3.04 RACEWAYS UNDERGROUND

- A. Galvanized rigid steel conduit - painted with two coats of bitumastic paint - or galvanized rigid steel conduit with 15 mil. polyvinyl chloride (PVC) jacket (repair abrasions with PVC base paint or PVC).
- B. PVC Raceways may be used for underground runs when permitted by code. Field bends, when necessary, shall be formed only with factory recommended heater. Penetrations through floor and walls shall be galvanized rigid steel (GRS) conduit. PVC, if used, shall be increased in size from that shown to include code required ground wire.
- C. All underground bends in excess of 10 degrees and all elbows shall be GRS.
- D. Arrange and slope Raceways entering building to drain away from building.

- E. Ground wires shall be provided in all PVC Raceway.

3.05 INSERTS, SHIELDS AND SLEEVES

- A. Where supports in slabs are required after wall has been poured, use a drilled-in threaded insert, installed as recommended by Manufacturer.
- B. Sleeves shall be provided for all wall penetrations.

3.06 RACEWAYS THAT STUB UP THROUGH FLOOR

- A. Install at such depth that the exposed Raceway is vertical and no curved section of the elbow is visible.
- B. PVC Raceway shall not be stubbed through floors.

3.07 SEALING OF RACEWAY PENETRATIONS

- A. Exterior Wall Surfaces Above Grade: Seal around all penetrations with caulking approved by Engineer. For concrete construction above ground level, cast Raceway in wall or core drill wall and hard pack with a mixture of equal parts of sand and cement.
- B. Roofs: Provide mopped, lead, roof jack where Raceway penetrates roof membrane.
- C. Fire Rated Floors, Walls, Ceiling/Roofs: Concrete or masonry, seal around Raceway penetration with Dow Corning 3-6548 silicone RTV foam or approved equal. Plaster or gypsum wallboard, seal around Raceway penetration with plaster, fire tape per local Fire Marshal's requirements.

3.08 SEALING OF RACEWAYS

- A. Seal interior of all Raceways which pass through buildings roofs, floors or through outside walls of the building, above or below grade. Seal on the end inside the building using duct sealing mastic, non-hardening compound type, specially designed for such service to maintain the integrity of the seal of the wall, floor or roof. Pack around the wires in the Raceways.

3.09 FLEXIBLE CONDUIT

- A. Flexible conduit shall be used **only** for connection to motors and equipment subject to vibration with 90 degrees loop minimum to allow for isolation and for lay-in fluorescent fixtures above T-Bar ceilings. For fixture installations, one end of flex must terminate in rough-in junction box. Flex conduit shall not be installed over 6' long or used to connect from fixture to fixture. Use liquid tight for pumps, equipment which is regularly washed down, and equipment in damp locations. Provide ground wire.

END OF SECTION

SECTION 26 28 13

FUSES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Section 260000 – Electrical General Conditions

1.02 WORK INCLUDED

- A. Provide all fuses as required. Provide three (3) spare of each size and type required. Fuses shall not be installed until equipment is ready to be energized. This measure prevents fuse damage during shipment of the equipment from the manufacturer to the jobsite or from water that may contact the fuse before the equipment is installed. Final tests and inspections shall be made prior to energization of the equipment. This shall include a thorough cleaning, tightening, and review of all electrical connections and inspection of all grounding conductors. All fuses shall be furnished by the Electrical Contractor. All fuses shall be of the same manufacturer.

PART 2 - PRODUCTS

2.01 MAINS, FEEDERS, AND BRANCH CIRCUITS

- A. Circuits 0 to 600 amperes shall be protected by current limiting BUSSMANN LOW-PEAK Dual-Element Fuses LPN-RK (250 volts) or LPS-RK (600 volts). All dual-element fuses shall have separate overload and short-circuit elements. Fuse shall incorporate a spring activated thermal overload element having a 284°F. melting point alloy and shall be independent of the short-circuit clearing chamber. The fuse must hold 500% of rated current for a minimum of 10 seconds and be listed by Underwriters Laboratories, Inc., with an interrupting rating of 200,000 amperes r.m.s. symmetrical. The fuses shall be UL Class RK1 to maintain the Engineered protection of the system components.
- B. Motor Circuits: All individual motor circuits with full load amperes ratings (FLA) of 480 amperes or less shall be protected by BUSSMANN LOW-PEAK Dual-Element Fuses LPN-RK (250 volts) or LPS-RK (600 volts). Larger H.P. motors shall be protected by BUSSMANN Type KRP-C Low-Peak Time-Delay Fuses of the ratings shown on the drawings. All other motors, (such as 1.0 service factor motors) shall be protected by BUSSMANN LOW-PEAK Dual-Element Fuses LPN-RK (250 volts) or LPS-RK (600 volts) installed in ratings of approximately 115% of the motor full load current except as noted above. The fuses shall be UL Class RK1 Dual Element Time Delay or Class L.

2.02 SPARE FUSES

- A. Spare fuses shall be provided with a minimum of three of each ampere rating.

2.03 ACCEPTABLE MANUFACTURERS

- A. Bussman
- B. Little Fuse

PART 3 - EXECUTION

3.01 FUSES

- A. Install in all fusible devices provided under this Contract.

END OF SECTION

SECTION 26 28 16
DISCONNECTS AND FUSED SWITCHES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Section 260000 – Electrical General Conditions

1.02 WORK INCLUDED

- A. Provided all disconnects, fused and unfused, required by code for equipment furnished under this and other divisions of these specifications and as shown on the drawings.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

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

2.02 DISCONNECTS

- A. Switch shall be heavy-duty type, shall be quick-break and shall be horsepower rated. Switch shall have blades as required to open all ungrounded conductors and shall be single throw unless noted.
- B. Enclosure shall have interlocking cover to prevent opening door when switch is closed. Door interlock shall include a defeating scheme, shall be pad-lockable in the "Off" position.
- C. Enclosure shall be suitable for environment in which mounted. All exterior enclosures shall have a minimum nema 3r raintight rating.

2.03 FUSED SWITCHES (OR FUSED DISCONNECTS)

- A. Shall be as above with addition of fuse space and clips to accept only fuses as noted in Section 262813.
- B. Fuses shall be provided in all fused disconnects.
- C. Fuses shall be sized in accordance with manufacturer's requirements of protected equipment.

2.04 NAMEPLATES

- A. Provide nameplates on all enclosures and include the following information: Load served, voltage, phase, panel and circuit number. Construct and attach in accordance with Section 260000.

PART 3 - EXECUTION

3.01 SUPPORTS

- A. Secure solidly to wall or approved mounting frame. Disconnects supported only by Raceway are not acceptable.

3.02 SPLICES

- A. Wiring space within enclosure shall not be used as a junction box.

3.03 INSTALLATION

- A. All material installation shall be in accordance with manufacturers' recommendations and the provisions of applicable codes.
- B. Fuses shall not be installed until equipment is ready to be energized.

END OF SECTION

SECTION 26 50 00 LIGHTING

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Provide the lighting system complete and operational.

1.02 RELATED DOCUMENTS

- A. Section 26 00 00 – Electrical General Conditions

1.03 FIXTURE SCHEDULE MANUFACTURER'S SERIES NUMBERS

- A. The design series reference does not necessarily represent the number, size, wattage, lumen output or special requirements as specified hereinafter.

1.04 SUBMITTALS

- A. Shall be neatly and clearly marked to indicate the fixtures, performance, efficiency, mounting methods comply with contract documents.
- B. When substitute fixtures are submitted (if permitted) the data shall clearly cross reference (written or highlighted) that the substitute fixture complies with every detail of the specified fixture. The substitute fixture must be supplied with an IES file for verification of the fixture performance and lumen output.
- C. The manufacturer's representative will be required to provide the photometric reports for various areas with the substituted fixture to prove the foot-candle level is adequate and meets the design intent.
- D. The Engineer has the right to request a working sample of the substituted light fixture to verify quality and style meet the design intent.
- E. Fixtures not fully complying with the intent of the contract documents and design criteria will be rejected.

PART 2 – PRODUCTS

2.01 DLC COMPLIANCE

- A. Light fixtures are required to be DLC 4.0 Compliance and be on a DLC Compliance listing to accommodate energy rebate.

2.02 METAL PARTS

- A. Interior Fixtures: Steel or aluminum with manufacturer's standard color and finish as indicated on the Lighting Fixture Schedule, unless specified otherwise.
- B. Exterior Fixtures: Corrosion resisting metal, a (non-ferrous, stainless steel or special finish) and in all cases suitable for outdoor service without tarnishing or

other damage due to exposure; manufacturer's standard colors unless specified otherwise; cadmium plate all metal parts concealed by canopies, including screws, plates and brackets. All exposed fasteners shall be tamperproof.

2.03 LIGHT TRANSMITTING COMPONENTS

- A. When not otherwise independently secured by other means the lens of any fixture shall be contained in a captive metal frame that remains attached to the fixture when door is in open position.

2.04 SPECIAL PARTS

- A. Adapters, Plates, Brackets and Anchors: Provide where required by construction features of the building to suitably mount lighting fixture. All such appurtenances and mounting methods shall be approved by the Architect/Engineer prior to fabrication and installation.
- B. Low Voltage Transformers: Provide and install where required to power individual or linear runs of low voltage light fixtures.

2.05 LAMPS

- A. Solid-State Lighting: Fixtures shall have a lumen maintenance life expectancy (L_{70}) of > 50,000 hours, a CRI of > 80, and a CCT of 5000K. Each solid-state fixture model shall be tested in accordance with IES LM-79 & LM- 80 requirements.

2.06 LED DRIVERS/POWER SUPPLIES

- A. The LED drivers/power supplies shall meet the following criteria:
 - 1. Drive mode: Constant Current or Constant Voltage depending on the LED configuration for the light fixture.
 - 2. Output currents: 250 mA – 1000 mA
 - 3. Output voltages: 6VDC – 48VDC
 - 4. Input voltages: 110 to 277 VAC; 50/60 Hz.
 - 5. Power factor at >0.90 @ full load
 - 6. Line regulation accuracy: +/- 2%
 - 7. Load regulation accuracy: +/- 3%
 - 8. Greater than 85% efficient
 - 9. Output over-voltage, output over-current and output short circuit protection with auto recovery
 - 10. Provide each driver with onboard transient voltage suppression (TVS)
 - 11. Limited power source output to allow for class 2 wiring.
 - 12. Flicker Free 0-10V Dimmable to 10% light output.
 - 13. 5 Year Warranty.

2.07 OUTDOOR LIGHTING STANDARDS

- A. Provide watertight insulating fuse in the base of lighting standards to individually protect each lighting fixture; buss Style "HEB" or approved, waterproof fuse holder with Buss fuse of appropriate capacity and voltage. Provide fuse for each hot circuit wire; do not fuse neutral.
- B. Provide concrete preformed round poles with base plate for bolting to concrete foundation. Natural exposed aggregate finish. Height as noted on drawings.
- C. Provide concrete foundations as shown on drawings. Field verify locations with Architect prior to installation of bases.

2.08 OUTDOOR GROUND MOUNTED LIGHTING FIXTURES

- A. Provide concrete foundations for mounting of ground mounted lighting fixtures. Foundation shall be a minimum of 6" deeper than the light fixture and a minimum of 6" all around the base of the fixture. Provide #4 rebar with 3" minimum ring ties at 8" on center. The #4 rebar shall be vertically spaced approximately 6" apart. Field verify locations with Architect prior to installation of bases.

2.09 INTEGRAL PHOTOCELLS

- A. Where daylight harvesting photocells are mounted integral to light fixtures, the manufacturer shall provide a diode (or similar means) on the low voltage dimming control bus to ensure that the photocell dimming signal does not propagate to other light fixtures. If the manufacturer does not provide a means to keep the photocell dimming signal from propagating outside of the fixture, it is the responsibility of the Electrical Contractor to install the required diodes in a junction box outside of the fixture at no additional cost to the owner.

PART 3 – EXECUTION

3.01 LIGHTING FIXTURES – GENERAL

- A. Size and mounting height from finished floor to bottom of fixture as indicated on the drawings. Verify mounting provisions prior to the ordering of fixtures. Fixtures shall be UL listed for the location, and application in which they are installed.
- B. Ceiling fixtures shall be coordinated with and suitable for installation in, on or from the ceiling as shown. Installation and support of fixtures shall be in accordance with NFPA 70 and manufacturer's recommendations.
- C. Recessed fixtures installed in seismic areas shall be installed utilizing specially designed seismic clips.
- D. Suspended fixtures installed in seismic areas shall have 45° swivel hangers and shall be located with no obstructions within the 45° range in all directions. The

stem, canopy and fixture shall be capable of 45° swing.

3.02 DIFFUSERS AND ENCLOSURES

- A. Install lighting fixture diffusers only after construction work, painting and clean up are completed. Prior to final acceptance, remove all lamps, reflectors and diffusers, wash, rinse and reinstall.

3.03 ADJUSTMENT OF FIXTURES

- A. Make all final spotlight and adjustable light settings under the direction of the Architect/Engineer during a scheduled period of time prior to the completion of the project. Include costs for all equipment and personnel expenses required for adjustment.
- B. For fixtures with indirect lighting, notify Engineer prior to installation of any circumstance where the fixture lamp source will be within 12" of ceiling.

3.04 SUPPORT OF FIXTURES

- A. Recessed Troffer Type: For fixtures supported by the ceiling suspension system, provide integral tabs, which rotate into position after fixture is lifted into the ceiling cavity. Provide two safety chains secured to structural members above suspended ceiling. Circuit connection shall be through use of 60-inch flexible conduit from a rigidly supported junction box. For plaster or GWB ceilings, provide a plaster frame compatible with light fixture.
- B. Recessed Downlight Type: Mount in frames suitable for the ceiling, with the recessed portion of the fixture securely supported from the ceiling framing. For fixtures supported by a ceiling suspension system, provide two safety chains secured to structural members above suspended ceiling.
- C. Surface and Pendant Mounted Type:
 - 1. Where mounted on accessible ceilings, hang from structural members by means of hanger rods through ceiling or as approved.
 - 2. Where ceiling is of insufficient strength to support weight of lighting fixture, provide additional framing to support as required. Fixtures shall be supported from structure with seismic bracing independent of ceiling.
 - 3. For Pendant Mount Type: Provide a Unistrut channel for mounting fixtures entire fixture length unless light fixture is designed specifically for supporting itself. Provide 3/8-inch thread rod secured to structural members for support of Unistrut channel.
 - 4. Continuous Runs of Fixtures: Straight when sighting from end to end, regardless of irregularities in the ceiling. Where fixtures are so installed, omit ornamental ends between sections.

5. Provide Unistrut and mounting hardware above the ceiling to bridge structure, piping and mechanical ductwork in order to mount the fixture per the Contract Documents.

D. Drivers/Power Supplies shall be accessible.

3.05 LOCATION

- A. Mount to the dimensions shown on the drawings. Mount at quarter points where no dimensions appear. Architect shall specify mounting locations where no dimensions appear, and quarter point mounting is impractical or not indicated on the drawings.
- B. Refer to details, structural drawings, mechanical drawings, and coordinate with mechanical Contractor for equipment and ductwork mounted in ceilings to prevent conflict with light fixtures prior to installation. If conflicts cannot be resolved with the Mechanical Contractor, notify Architect/Engineer.

3.06 CONCRETE FOUNDATIONS

- A. Install at locations shown taking care to provide soil compaction same as required under paving to avoid settling and tilting of pole. Provide for all steel, concrete or aluminum poles shown. Concrete foundations shall have a minimum raceway sweeps of 90 degrees and anchor bolts shall be accurately set in foundations using a template supplied by the pole manufacturer. Concrete work and grouting; see Division 3 of the specifications. When concrete work has cured, base plates shall be leveled and grouted in place. Pole anchor bases shall then be set on base plates, leveled plumb on foundations, and secured with holding nuts.

3.07 FIXTURE TENTING

- A. Contractor shall coordinate ceiling types with architectural drawings and specifications and provide equivalent fire rated enclosures above all light fixtures which penetrate rated ceilings.
- B. Light fixtures that are not IC rated and are to be installed within 3" of insulation shall be provided with an EZ Barrier #EZB 16-24-9 protective cover designed for recessed light fixtures.

END OF SECTION

SECTION 31 00 00
EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section describes general requirements for all types of earthwork and is applicable to all earthwork required on the Project. Earthwork includes excavation, including both rock and common, bedding material, backfill, and compaction.
- B. Related Work Specified Elsewhere
 - 1. Section 01 35 43 – Export Soil Management

1.02 REFERENCES

- A. This section incorporates by reference the latest revisions of the following documents. They are part of this section insofar as specified and modified herein. In case of conflict between the requirements of this section and the listed documents, the requirements of this section shall prevail.

<u>Reference</u>	<u>Title</u>
AASHTO T176	Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test
ASTM C 136	Method of Test for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM D 422	Method of Test for Sieve or Screen and Hydrometer Analysis of Fine and Coarse Aggregates
ASTM D 1556	Method of Test for Density of Soil in Place by the Sand-Cone Method
ASTM D 3017	Method of Test for Moisture Content of Soil and Soil Aggregates in Place Nuclear Methods (Shallow Depth)
WSDOT	Washington State Department of Transportation Standard Specifications (2022)
WSSS	Washington State Safety Standards for Construction Work WAC 296-155

1.03 SUBMITTALS

- A. Submit the following:
 - 1. Test results for all materials as required by WSDOT.

1.04 QUALITY CONTROL

- A. Use adequate number of trained and skilled workers experienced in the type of Work to be performed.
- B. Perform Proctor moisture-density curves for each material type and perform compaction tests for density and moisture every 100 cubic yards of compacted fill with at least one (1) test for each separate structure. Perform tests in accordance with ASTM D-698.
- C. Owner's representative may perform periodic quality assurance testing, sampling, and monitoring. Cooperate as required in obtaining samples for testing.
- D. Submit as-built data, laboratory data, shipping documents, and drawings per Division 01 as soon as possible following construction of installation.

1.05 SITE CONDITIONS

- A. General: For general details concerning site conditions, refer to Appendix A, Geotechnical Report titled Geotechnical Engineering Services, Asphalt Tank, City of Tacoma Road Maintenance Batch Plant, Tacoma, Washington by GeoEngineers dated August 3, 2022.
- B. Existing Soils Data: Refer to the Geotechnical Report in Appendix A.
- C. Groundwater: Refer to the Geotechnical Report in Appendix A.

PART 2 - PRODUCTS

2.01 BACKFILL

- A. Structural Fill: Shall consist of granular material, either naturally occurring or processed, free of organics, debris and other deleterious material. The material shall meet the requirements of Select Borrow per WSDOT Section 9-03.14(2). The Contractor may use the native material if it meets the above mentioned criteria for structural fill.

PART 3 - EXECUTION

3.01 GENERAL

A. Control of Water

1. Keep excavations free from water during construction. The static groundwater level shall be drawn a minimum of 2 feet below the bottom of excavations to maintain the undisturbed state of natural soils, and to allow placement of fill to the specified density.
2. Control surface water and keep out of excavations by sloping ground surfaces, and by providing ditches around the work area to intercept surface runoff and seepage, and to direct it away from excavations and prepared subgrades.
3. Control any ground or surface water that is encountered during excavation operations. Provide appropriate measure including, but not limited to, sloping, slope protection, ditching, sumps, and dewatering to permit proper completion of work.

B. Excavated Material

1. Surplus excavated material and unsuitable excavated material shall be disposed in the pit area of the central maintenance facility as shown on the Drawings. The Contractor shall dispose of material immediately after excavation, at the Contractor's expense, in accordance with applicable ordinances and environmental requirements.
2. Materials stockpiled for reuse must be protected from wind or rain erosion by covering with tarps or other effective methods.

C. Hauling and Traffic Patterns

1. When hauling is done over highways or city streets, the loads shall be trimmed and the vehicle shelf areas shall be cleaned after each loading. The loads shall be watered after trimming to minimize dust.
2. Maintain traffic patterns on-site which preserve the stability of site soils.

D. Finish Grading

1. Finished surfaces shall be smooth, compacted, and free from irregularities. The degree of finish shall be that normally obtainable with a blade grader.
2. Finished grade under pavements shall be specified by the spot elevations and sections ± 0.05 -foot, except where a local change in elevation is required to match sidewalks, curbs, manholes and catch basins, or to ensure proper drainage.

3. When the work is an intermediate stage of completion, the lines and grades shall be as specified +0.50-foot to provide adequate drainage.

3.02 CLASSIFICATION OF FILL

- A. Fill material shall be placed in horizontal layers, and compacted with power-operated tampers, rollers, idlers, or vibratory equipment. Material type, maximum layer depth, relative compaction, and general application are specified in Table A below. Unless otherwise specified, fill classes shall be used where specified in Table A under general application. The most appropriate lift thickness shall be determined in the field using the Contractor's selected equipment and fill and verified by the Owner's Representative with insitu soil density testing (nuclear gauge methods). All compacted surfaces shall be sloped to drain as to prevent ponding. Structural fill operations should be observed and evaluated by the Owner's Representative.

Table A – Fill Classifications

Material Type	Maximum Uncompressed Layer Depth (inches)	Minimum Relative Compaction Percent	General Application
Structural Fill	8 inches for heavy equipment compactions and 4 to 6 inches for hand-compactions	95	Fill under slab-on-grade. Pavement subgrade, trench backfill.

3.03 UTILITY BEDDING

- A. Place bedding material in the pipe zone as indicated on the drawings and as specified in the section applicable to the type of pipe being installed.

3.04 UTILITY TRENCH BACKFILLING

- A. Complete pipe bedding and initial backfill as shown on the drawings before subsequent backfilling operations are started.
- B. Take all necessary precautions to protect the pipe from any damage, movement, or shifting. In general, perform backfilling by placing the material so as not to damage the pipe.
- C. Upon completion of work, remove and legally dispose of temporary cribbing, sheeting, or other timbering, unless specifically authorized otherwise by the Project Representative in writing.

3.05 EARTHWORK FOR STRUCTURES

- A. Structure Excavation

1. Except as otherwise shown or specified, any method of excavation within the work limits and easements shown may be used which, in the opinion of the Contractor, is considered best. At those locations, where the excavation extends below the static groundwater level, or the natural soils are saturated and of low strength, take whatever precautions are necessary to maintain the undisturbed state of the foundation soils at and below the bottom of the excavation.
2. The exposed subbase soils shall be evaluated by the Owner's Representative to confirm the presence of competent bearing soil prior to the placement of formwork, reinforcing, or structural fill material. In areas where unsuitable, unstable subbase soils are observed, over-excavate, and remove these materials and replace with compacted structural fill. The limits of subbase over-excavation will be determined in the field by the Owner's Representative.
3. If the over-excavation is carried below the lines and grades specified on the drawings, or if the bottom of the excavation becomes disturbed because of the Contractor's operations and requires over-excavation and backfill, the Contractor shall refill such excavated space to the proper elevation in accordance with procedure specified for structural backfill at no additional expense to the City.
4. Unless otherwise specified, excavations shall extend a sufficient distance from walls and footings to allow for placing and removal of forms, installation of services, and for inspection, except where concrete is specified to be placed directly against excavated surfaces.

B. Structural Backfill

1. All fill under slab-on-grade, including backfill for utility excavations, footings, and over-excavated areas, shall consist of structural fill.
2. Prior to placing structural fill, the exposed subgrade shall be evaluated by the Project Representative.
3. After completion of construction below the elevation of the final grade and prior to backfilling, concrete forms shall be removed, and the excavation shall be cleaned of debris.
4. Structure backfill shall not be placed until the subgrade portions of the structure have been inspected by the Owner's Representative. No backfill material shall be deposited against concrete structures until the concrete has developed a strength of not less than 2,500 pounds per square inch in compression or until the concrete has been in place for 28 days, whichever occurs first.
5. Structural fill material shall be placed in uniform layers and shall be brought up uniformly on all sides of the structure.

6. Compaction of structural fill shall be accomplished by using power-operated tampers, rollers, or vibratory equipment. Compaction within 2 feet of walls shall be performed with hand-operated vibratory equipment.

3.06 SUBGRADE FOR PAVEMENT

- A. Proof-rolling: Proof-roll, in the presence of the Owner's Representative, areas beneath future pavements to a dense, unyielding surface.
- B. Over-excavation: Where the undisturbed condition of natural soils is inadequate for support of the planned construction, the Project Representative will direct the Contractor to over-excavate to provide adequate supporting soils. The excavated space shall be filled to the specified elevation with structural fill.
- C. Place in accordance with Table A. Compact to 95 percent of the maximum density. Prior to fill placement, the subgrade surface shall be evaluated by the Owner's Representative to confirm the presence of competent bearing soils.

3.07 WET WEATHER EARTHWORK

- A. The following are applicable if earthwork is to be accomplished in wet weather or in wet conditions:
 1. Accomplish earthwork in small sections to reduce exposure to wet weather.
 2. Place and compact a suitable thickness (8 inches or more) of clean fill material immediately after excavating and removing unsuitable soil.
 3. Limit the size of construction equipment to prevent soil disturbance.
 4. Do not leave soil uncompacted and exposed to moisture. Use a vibratory roller or equivalent to seal ground surface.
 5. Slope the ground surface in the construction area to promote rapid runoff of precipitation and to prevent ponding of water.
 6. Protect all exposed cut slopes with waterproof covering during periods of wet weather.
 7. Soils that are too wet to achieve proper compaction shall be removed and replaced with clean, imported structural fill.
 8. Excavation and placement of structural fill material shall be observed on a full-time basis by the Owner's Representative, experienced in earthwork, to determine that all the work is being accomplished in accordance with the intent of the specifications.

3.08 FINISH

- A. Areas covered by the work, including excavated and filled sections and transition areas, shall be graded uniformly to the elevations shown. The finished surface shall be reasonably smooth, compacted, and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from a blade grader operation. The finish surface shall be not more than 0.2-foot above or below the established grade. Ditches shall be finished to drain readily.

3.09 TESTS

- A. The Owners Representative may take samples and perform moisture content, gradation, compaction, and density tests during placement of backfill materials to check compliance with these specifications. The Contractor shall remove surface material at locations designated by the Owner's Representative and provide such assistance as necessary for sampling and testing. Testing by the Owner's Representative does not relieve the Contractor of its responsibility to determine, to its own satisfaction, when and if its work meets the specifications. Tests will be made by the Owner's Representative in accordance with the following:

<u>Test</u>	<u>Standard Procedure</u>
Moisture Content	ASTM D 3017
Gradation	ASTM C 136, ASTM D 422
Density In-Place	ASTM D 3017
Moisture Density Relationship	ASTM D 1557

END OF SECTION

SECTION 32 12 00
PAVING AND RESURFACING

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes: New paving, surfacing, repair and replacement of all surfacing on roadways, driveways, shoulders, walkways, or parking areas that are removed or damaged by the Contractor's operations, in accordance with the Drawings and these Specifications. The repair or replacement of traffic control devices and the location and replacement of monuments are included in this section.

1.02 PAVEMENT

- A. The Contractor shall avoid damaging existing pavement which is to remain or pavement outside the removal limits shown on the Drawings and will be responsible to repair such at their own cost and to the satisfaction of the Owner.
- B. Unless noted otherwise on the Drawings or directed by the Owner, damaged, or removed pavement shall be restored as follows.
 - 1. Existing asphalt and cement concrete pavement will be restored in kind as specified herein, unless Owner directs Contractor to leave surface unpaved.
 - 2. Road shoulders will be restored with crushed top course surfacing as specified herein.
 - 3. Other traveled surfaces will be restored to the satisfaction of the Owner in a manner to match the existing surface.

1.03 MAINTENANCE PRIOR TO RESURACING

- A. The Contractor is responsible for the temporary maintenance of roadway and parking area surfaces within the Work limits prior to paving. This responsibility includes the application of dust palliatives as required and maintaining the surface in a level and passable condition.

1.04 QUALITY ASSURANCE

- A. WSS refers to the latest edition of the State of "Washington State Standard Specifications for Road, Bridge, and Municipal Construction."

PART 2 - PRODUCTS

2.01 GRAVEL BASE

- A. The material for gravel base shall conform to the requirements of WSS Section 9-03.10.

2.02 CRUSHED SURFACING TOP COURSE

- A. The material for CSTC shall conform to the requirements of WSS Section 9-03.9(3) Top Course, except for the following modifications:
 - 1. Passing 5/8-inch square sieve – 95% to 100%
 - 2. Passing 1/4-inch square sieve – 30% to 65%
 - 3. Passing U.S. #200 sieve – 7.5% maximum
 - 4. Minimum fracture for each size shall be 50%

2.03 ASPHALT CONCRETE, CLASS B

- A. Asphalt concrete shall be class B as specified in WSS Section 9-03.8(6). Aggregate for asphalt concrete shall conform to the requirements of WSS Sections 9-03.8(1) through 9-03.8(6), inclusive. Asphalt binder shall be viscosity grade AR-4000W as specified in WSS Section 9-02.1(4). The asphalt content of the mixture shall be 6 percent as defined in WSS Section 9-03.8(6).
- B. Asphalt prime coat shall be MC-70 as specified in WSS Section 9-02.1(2).
- C. Asphalt sealer shall be CSS-1 as specified in WSS Section 9-02.1(6) or equivalent cutback asphalt.

2.04 ASPHALT CONCRETE SURFACE SEALER

- A. Asphalt concrete surface sealer shall meet the requirements of ASTM 2939. The rubber shall be a type that is resistant to petroleum and distillants. Not less than 1 percent by weight of rubber shall be blended with the cone tar pitch, prior to emulsification.
- B. Provide asphalt base slurry sealer as manufactured by Cascade Asphalt Sealing Company.

PART 3 - EXECUTION

3.01 GENERAL

- A. All valve boxes, manhole frames, catch basin gratings, and other utility appurtenances located within paved areas shall be set or raised to finish grade,

unless otherwise noted. Utility appurtenances located in asphalt concrete pavement shall be raised to finish grade after the surfacing is completed. The utilidor covers will be covered with pavement or paved up to as indicated on the Drawings.

- B. Unless otherwise shown on the Drawings, the new pavement shall have the same plan dimensions and grade as the pavement that existed prior to construction. Patches shall conform to adjacent existing pavement and provide a smooth, continuous surface.
- C. Standard pavement sections shall be not less than 3-inches unless shown otherwise on the Drawings.

3.02 GRAVEL BASE

- A. Provide 6-inch gravel base unless noted otherwise on the Drawings. Construction shall meet the requirements of WSS Section 4-02.3.

3.03 CRUSHED SURFACE TOP COURSE

- A. Provide crushed surfacing top course as shown on the Drawings and where required by Section 02700 – Paving and Resurfacing, paragraph 1.02 B herein. A minimum of 2-inches of crushed material shall be placed. Match the existing thickness where directed. Construction shall meet the applicable requirements of WSS Section 4-04.3.

3.04 ASPHALT CONCRETE PAVEMENT

- A. The construction of asphalt concrete pavement shall conform to the requirements of WSS Section 5-04.3. Provide a minimum of 3-inches of compacted asphalt concrete. The compacted depth of any one lift will not exceed 3-inches.
 - 1. After placing the new asphalt concrete, seal the meet line with asphalt and cover with clean, dry sand before the asphalt solidifies.
 - 2. Seal joints between asphalt concrete and cement concrete with tar.

3.05 ASPHALT CONCRETE SURFACE SEALER

- A. Apply asphalt concrete surface sealer in accordance with the requirements of WSS Section 5-04.3(19). Apply two coats of sealer.

3.06 TRAFFIC CONTROL DEVICES

- A. The Contractor will be required to restore all traffic signs, lighting standards, pavement striping and traffic buttons, and other lane delineation devices such as curbing, guardrails, islands, etc., that are removed or damaged by the Contractor's operations.

3.07 MONUMENT RESTORATION

- A. Survey monuments located within the public and private rights-of-way that are removed, disturbed, or destroyed by the Contractor's operations shall be replaced with a standard monument as shown on the Drawings.
- B. Prior to construction, the Contractor shall ascertain the location of survey monuments in the work area and shall establish such reference points as are required to restore these monuments. It is the Contractor's responsibility to preserve or re-establish the reference points during construction.
- C. Monuments shall be installed after paving is completed. Forms are not required, but the top 3-inches of concrete shall be shaped to a true circle. The bronze marker shall be set, marked, and certified as to correctness by a Public Land Surveyor licensed by the State of Washington.

3.08 PAVEMENT STRIPING

- A. Striping on roadways and parking areas that has been damaged or destroyed by the Contractor's operations shall be repainted. Temporary striping using paint or plastic shall be done immediately upon completion of the pavement restoration. Permanent striping shall be done whenever a full day's work has accumulated.

END OF SECTION

SECTION 40 05 00

GENERAL EQUIPMENT AND MECHANICAL REQUIREMENTS

1.01 SUMMARY

- A. Section Includes: General performance requirements of the asphalt storage tanks and associated mechanical equipment.
- B. Related Sections:
1. Section 05 12 00 - Structural Steel
 2. Section 05 50 00 - Metal Fabrications
 3. Section 09 90 00 - Protective Coatings

1.02 REFERENCES

- A. American Gear Manufacturers Association (AGMA).
- B. American Institute of Steel construction (AISC).
- C. Hydraulic Institute.
- D. National Electrical Manufacturers Association (NEMA).
 1. MG 1 Motors and Generators
- E. Occupational Safety and Health Association (OSHA)
- F. Institute of Electrical and Electronics Engineers (IEEE) Standard:
 1. 112 Test Procedure for Polyphase Induction Motors and Generators.
- G. Underwriters Laboratories (UL) Publication: Recognized Component Directory.
- H. American Iron and Steel Institute (AISI).
- I. American Society for Testing and Materials Standard Specifications (ASTM):
 1. ASTM A 123 Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products.
 2. ASTM B 633 Electrodeposited Coatings of Zinc on Iron and Steel.

- J. American Welding Society (AWS).
 - 1. ASW D 10.4 Recommended Practices for Welding Austenitic Chromium-Nickel Stainless Steel Piping and Tubing.
- K. International Building Code (IBC).
- L. American Petroleum Institute (API)
 - 1. API 650 Welded Steel Tanks for Oil Storage

1.03 STANDARDS FOR THE WORK

- A. Complete Systems: Provide pipe, fittings, wiring, and supports to produce complete, operable systems with all elements properly interconnected. If a specific dimensioned location is not shown for interconnections or smaller system elements, select appropriate locations and show them on Shop Drawing submittals for review.
- B. Contractor shall provide design of Asphalt Storage and Handling System (System) exclusive of the system foundation, containment walls, electrical system improvements from service panel to the Asphalt Storage and Handling System, and lighting. System design shall include structural and seismic design as required by the IBC and authority having jurisdiction. Contractor shall also submit Asphalt Storage and Handling System design including stairs, platforms, catwalk, ladders, pipe supports to the City of Tacoma as a deferred submittal for review and approval prior to procurement and fabrication of System components.
- C. Provide equipment and material new and without imperfections. Erect in a neat and workmanlike manner; aligned, leveled, cleaned, and adjusted for satisfactory operation; installed in accordance with the recommendations of the manufacturers and the best standard practices for this type of work so that connecting and disconnecting of piping and accessories can be readily made and so that all parts are easily accessible for inspection, operation, maintenance and repair. Locate oil and lubrication fittings clear of and away from guards, base, and equipment and within reach from the operating floor. Coordinate location of all motor connections in order to properly orient encased electrical conduits. In order to meet these requirements with equipment as furnished, minor deviation from the Drawings may be made as favorably reviewed by the Engineer.
- D. The recommendations and instructions of the manufacturers of products used in the work are hereby made part of these Specifications, except as they may be superseded by other requirements of these Specifications.

1.04 SUBMITTALS

- A. Shop Drawings: Submit Shop Drawings to the Engineer and receive favorable review prior to fabrication, construction, or delivery to the project site in accordance with Section 01 13 00 – “Submittals and Shop Drawings” of these specifications. Show sizes and arrangement of equipment, foundations, and anchor bolts required, performance characteristics, fan curves and pump curves, control diagrams, wiring diagrams, motor data sheets, methods of assembly, pipe hanging details, ductwork layouts and connections to other work. Date and sign drawings as certified for use in construction of this project. The arrangement of mechanical equipment and appurtenant piping shown on the Drawings may be varied as necessary to fit the favorably reviewed certified manufacturer's installation drawings. However, manufacturers' drawings shall not deviate in substance from the Contract Drawings and Specifications as to location, size, type, and design of equipment.

The following minimum requirements shall accompany all equipment submissions:

1. Overall dimensions.
 2. Mounting arrangement and dimensions.
 3. Description of materials.
 4. Connection sizes and orientation.
 5. Capacity and location of lifting eyes.
 6. Motor arrangement showing location of electrical connections.
 7. Rating data – Mechanical and Electrical as applicable.
 8. Detail electrical wiring diagrams, showing component designation and rating.
 9. Seismic design and calculations as required by IBC and local codes.
 10. Motor data as specified in this Section.
 11. List of special tools and/or spare parts to be furnished, if any.
- B. Each piece of equipment, for which certified witnessed or non-witnessed performance tests are required, shall be accompanied by a completed form containing at least the following information:
1. Owner's name and location of project
 2. Contractor's name and subcontractor if applicable.
 3. Name of item being submitted.

4. Specification reference by section, paragraph, and page.
5. Data on item (manufacturer, general descriptive data, dimensions, size of connections, speeds, performance curves, serial number). A specific list of the test results plus a list, which shows the values, which differ from Specifications.
6. Motor data, type, voltage, frequency, phase, full load amperes, starting method, frame size, enclosure insulation type (NEMA Code Letter), dimensions, service factor, serial number.
7. Date and signature of person certifying the performance.

1.05 RESPONSIBILITY AND CARE OF EQUIPEMENT

- A. The Contractor shall be responsible for the equipment included in this Contract until it has been finally inspected, tested, and accepted in accordance with the requirements of these Specifications.
- B. The Contractor shall make his own provisions for properly storing and protecting all material and equipment against theft, injury, or damage from any and all causes. Damaged material and equipment shall not be used in the work.

PART 2 – PRODUCTS

2.01 DESIGN

- A. General: Design all equipment for the service intended, of rugged construction, of ample strength for all stresses which may occur during fabrication, transportation, erection and during continuous or intermittent operation. Adequately stay, brace and anchor, and install equipment in a neat and workmanlike manner. Give consideration to appearance and safety, as well as utility, in the design of details. Use cathodically compatible materials of construction.
- B. Seismic: Refer to IBC and local codes for seismic design criteria.
- C. Controls: Unless noted otherwise, the design of the electric control of any equipment system and/or equipment package shall be the responsibility of the Contractor/manufacturer of the equipment system and/or equipment package. Any elementary control diagrams as shown on the Electrical or Instrumentation Drawings are illustrative of control and monitoring requirements pertaining to various equipment of this project. The Contractor/manufacturers shall design their own functional electric control devices and circuitry, in consultation with the specific elementary control diagrams and other project specifications, to meet the equipment control requirements. All such systems and package controls shall be furnished by the equipment manufacturer, except those controls shown in motor control centers and process controllers, remote

control device, and their interconnecting wiring shall be provided under Divisions 26 (see Electrical Drawings), 40, and 43.

2.02 MATERIALS AND STANDARD SPECIFICATIONS

- A. Materials: Design, fabricate, and assemble equipment and systems with new materials and in accordance with acceptable modern engineering and shop practices. Manufacture individual parts to standard sizes and gauges so repair parts can be installed in the field.
- B. Uniformity: Unless otherwise specified, equipment or material of the same type or classification use for the same purpose shall be the product of the same manufacturer and shall be the same model.

2.03 WELDED STEEL TANKS

- A. General
 - 1. It shall be the responsibility of the Contractor/Manufacturer to design the welded steel tanks, meeting the following criteria:
 - a. (2) Stationary vertical tanks shall be constructed of 1/4-inch-thick A-36 steel plate for storage of 12,500 gallons of liquid asphalt.
 - b. Tank sides and top shall be insulated with 6-inches of insulation (R-24). Floor shall be insulated with 3-inches of insulation (R-10) and covered with 12-gauge steel.
 - c. Tank insulation cover shall be 0.032-inches thick stucco embossed aluminum. Top of tank shall be covered with non-skid plate.
 - d. A 3-inch asphalt line inside the tank shall be provided for asphalt overflow and vent. Overflow shall have external outlet located 3 feet above grade.
 - e. Supply and recirculation piping shall connect to the tank with 3-inch flange connections.
 - f. Fill pipe shall be 3-inch flange connection.
 - g. Tank top shall be equipped with an 18-inch inspection port and a flanged mixer port for mounting of a variable speed agitation system. 3 baffles are positioned inside of tank.
 - h. A 20-inch flanged access door shall be located on side of tank near bottom.
 - i. A safety high-level float with cut-off switch shall be provided to protect against overflow during filling operations.

- j. A 3-inch drain valve shall be located at the base of the tank.
- k. Four (4) lifting lugs for moving tank into place shall be provided.
- l. Sampling valve on side of tank, 24" above tank bottom. The valve should be manually operated and feature a screw stem operated by a hand crank.

B. Design Criteria

- 1. API 650, design per the Drawings and criteria per 2.03(A) of this Section.

C. Tank Design

- 1. Roof: Design purlins and rafters for seismic water sloshing where it will occur. Provide continuous fillet welds all around lapped surfaces at all purlin and rafter connections and beam supports.
- 2. Roof Supports: Pipe or tubular columns, hermetically sealed.
- 3. Corrosion Allowance: None.
- 4. Roof-to-Shell Joint: Continuous fillet welds, each side of shell and roof plates.
- 5. Shell Circumferential Joints: Complete penetration butt joints.

D. Tank Accessories

- 1. General: Provide the tank complete with all pipe connections, access openings, nozzles, taps, drains, ladders, and other accessories as shown on the Drawings or required herein. All accessories shall conform to the API 650 and as specified.
- 2. Stainless Steel Items: Provide AISI Type 304 material, unless Type 316 is specifically specified.
- 3. Shell Manways: One (1) 20-inch diameter manway located in the shell and located according to the Drawings. Provide suitable means to hold the manway covers in the open position. Hinge shall be loose, so that easy bolting is possible. Hot-dip galvanize after fabrication.
- 4. Piping and Pipe Connections: Per Section 40 22 00 – Pipe and Pipe Fittings
 - a. Provide welded steel inlet, outlet, and drain piping.
 - b. Pipe connections: Locate exterior face of flanges 6-inches minimum from shell plate, unless shown otherwise.

5. Roof Access:

- a. Provide an exterior steel ladder and guarded, safe access to the roof manway in accordance with the IBC and OSHA. Hot-dip galvanize all parts of the steel ladders, guardrails, chain closure, access platform, and ladder supports after fabrication.
- b. Exterior Ladder: Furnish access prevention at the bottom.
- c. Roof Manway: Provide one (1) weather-tight, hinged 24-inch steel manway raised 3-inches minimum above roof. Select a cover that opens a full 90°, locks when open and can be pushed open from inside the tank. Cover shall support a minimum of 300 lbs when closed.
- d. Guardrail: Provide around the roof edge in accordance with IBC and OSHA.
- e. Chain Closure: Provide 5/16-inch weldless carbon steel oblong link chain at each rail level. Fasten with boat type snap hook at one end and eye bolt at the other end.
- f. Provide catwalks with handrails between tanks and platform as shown on the Drawings.

6. Vents:

- a. Provide tank vent condenser, to eliminate asphalt fumes, 200 GPM, 16 tubes.
- b. Provide screens over all vents. Manufacturer shall verify that adequate venting is provided to equalize pressure and prevent buckling of the tank. Screens shall be designed to pop out into the interior of the tank if the internal tank pressure becomes large enough to cause buckling of the tank shell.

7. Safety Eyes:

- a. 3/8-inch diameter forged pad eyes with minimum 1-inch inside diameter eye and 1 1/4-inch diameter shoulder.
- b. Weld perpendicular to the outside of the tank roof at the locations shown.
- c. Weld with 1/4-inch fillet welds all around the pad eye shoulder.
- d. Load capacity: 400 lbs. any direction.

8. Sight Level Gauge:

- a. Level gauge will be Shand & Jurs or approved equal.

- b. Provide float-operated gauge.
 - c. Steel with baked enamel coating, black numbers, and gradations on white background.
 - d. Scale: Feet and tenths of feet.
9. Zinc Coatings:
- a. Bolts, Washers and Nuts: Electrodeposited zinc-coated to conform with ASTM B633.
 - b. Other Galvanized Items: Hot-dipped zinc-coated to conform with ASTM A123.

E. Fabrication

1. API 650 and also:
- a. Fabricate and assemble in the shop to the greatest extent possible.
 - b. Shape all members correctly, with no kinks, twists, dents, or other blemishes prior to erection. Evenly spring all curved work.
 - c. Make exposed edges free of burrs and sharp edges. Make corners rounded or chamfered.
 - d. Shop prime all steel items which are not galvanized or epoxy-coated, with material that is compatible with the finish coat.
 - e. Stainless Steel Items:
 - 1) Use the proper type of stainless-steel electrodes or welding rods complying with AWS D10.4.
 - 2) Remove by grinding and polishing, all scratches, marks, pits, and other blemishes on exposed surfaces.
 - 3) Use grinding wheels and other tools that have never been used on carbon steel.

F. Source Quality Control

- 1. Material: Verify that satisfactory mill test reports are available on all steel.
- 2. Welding: See Section 05 12 00 – Structural Steel
 - a. Verify welders are qualified.

- b. Verify that weld procedures are followed.
- 3. Report: Provide a shop inspection report including mill tests, radiographs, and inspection records, before tank erection is started.

2.04 ELECTRIC MOTOR DRIVES

A. General

- 1. It shall be the responsibility of the Contractor to design the electrical motor drives as stated in this Section.
- 2. Motors shall be designed, built, and installed in the driven equipment, to provide long, trouble-free life in industrial service and shall be rated in conformance with NEMA MG1. Motors rated 100 horsepower or less and rated 600V or less shall be listed in UL Recognized Component Directory or shall be listed and labeled by other organizations acceptable to the authority having code enforcement jurisdiction.
- 3. Unless otherwise specified with the driven equipment, provide motors with the following typical characteristics:
 - a. Motors shall be variable speed and designed for continuous duty and full voltage starting. Motors shall provide standard starting torque.
 - b. Voltage Ratings:
 - 1) 1/2 horsepower or less: 115 volts, single phase, 60 Hz, capacitor start. Small fan motors may be split phase or shaded pole type if standard for the equipment.
 - 2) Above 1/2 horsepower: 460 volts, three phase, 60 Hz, squirrel cage induction motors.
 - c. All motors shall have a service factor of 1.15 in an ambient temperature of 40°C.
 - 1) Exceptions: Motors which have special enclosures or winding configurations may carry a Unity (1.0) Service Factor. Examples are totally enclosed, explosion proof, or submersible motors.
 - d. Windings shall be copper.
 - e. Provide ground lug inside the terminal box.
 - f. Provide lifting eye on each motor weighing more than 50 pounds.

- g. Each motor shall be suitable for six starts per hour (5 minutes on and 5 minutes off, continuously) when powering the specific driven equipment required for this project.
 - h. Each motor shall have an overall sound power level at no load not greater than given in NEMA MG1-12.49.
 - i. Motors which have special operating characteristics such as multi-speed, high torque/high slip, short time intermittent ratings shall be nameplated to show how these characteristics differ from standard design.
- 4. Motors used with adjustable frequency drives shall have inverter duty complying with NEMA MG-1 Part 31.40.4.2.

B. Nameplate

- 1. Provide stainless steel nameplate for each motor, attached to the motor by stainless steel screws or drive pins. Nameplates shall indicate clearly the information required by NEMA MG 1, Part 10 and MG1-12.55.

C. Enclosure Type by Location

- 1. Unless otherwise specified with the driven equipment, provide motors with the following typical enclosures:
 - a. Indoors: Horizontal motors shall be open, drip-proof; vertical motors shall be drip-proof with guard.
 - b. Outdoors: Vertical motors shall be weather-protected type I. Horizontal motors shall be totally enclosed; fan cooled. All motors shall have the following features:
 - 1) Bearing protection.
 - 2) Anti-corrosion treatment of external hardware and internal metal parts.
 - 3) Weatherproof terminal box with gaskets between the motor, terminal box and terminal box cover.
 - 4) Guard screens on ventilation openings.
 - 5) Moderate moisture resistant insulation specified hereinafter.
 - 6) Interior and exterior corrosion protection coatings.
 - 7) Special attention to leads into terminal box.

D. Insulation

1. Unless otherwise specified with the driven equipment, provide motors with Class B or F insulation, non-hygroscopic. In single phase motors 1/2 horsepower or smaller, provide Class A insulation or better.
2. Where called for in the Specifications for the driven equipment, provide the following type of insulation:
 - a. Moderate Moisture Resistant: Provide extra dip and bake of epoxy or polyester varnish to resist somewhat higher than normal moisture in the atmosphere.

E. Motor Horsepower

1. The maximum permissible motor loading:
 - a. Motors with service factor 1.15 or greater: 100% of nameplate horsepower.
 - b. Motors with service factor less than 1.15%: 90% of nameplate horsepower.

TABLE 11001 -1
MOTOR NOMINAL EFFICIENCIES AT FULL LOAD

HP	900 RPM	1,200 RPM	1,800 RPM	3,600 RPM
Open Drip-Proof and Weather Protected Type 1 Motors				
1	78.5	78.5	82.5	80.0
1.5	80.0	80.0	84.0	81.5
2	85.5	82.5	82.5	85.5
3	85.5	82.5	82.5	84.0
5	86.5	86.5	85.5	86.5
7.5	87.5	89.5	87.5	88.5
10	90.2	90.2	89.5	86.5
15	90.2	91.7	90.2	89.5
20	91.7	91.7	91.0	90.2
25	91.7	92.4	91.7	90.2
30	92.4	93.0	92.4	92.4
40	91.7	93.0	93.6	93.6
50	93.0	93.0	93.6	93.6
60	93.6	93.6	94.1	94.1
75	94.1	93.6	94.1	93.6
100	94.5	94.5	94.5	94.1
125	94.5	95.0	95.0	94.1
150	95.0	94.5	95.0	94.1
200	95.0	95.0	95.0	94.1
250	94.5	95.0	95.0	94.5
300-500	95.0	95.8	95.8	94.5

Total Enclosed Fan Cooled Motors				
HP	900 RPM	1,200 RPM	1,800 RPM	3,600 RPM
1	78.5	78.5	82.5	80.0
1.5	80.0	80.0	84.0	81.5
2	85.5	82.5	82.5	85.5
3	86.5	86.5	82.5	84.0
5	88.5	87.5	85.5	86.5
7.5	89.5	90.2	87.5	88.5
10	90.2	91.0	89.5	90.2
15	90.2	92.4	91.0	91.7
20	91.7	92.4	91.0	91.7
25	91.7	93.0	92.4	92.4
30	92.4	93.0	93.0	93.0
40	92.4	93.6	94.1	94.1
50	93.6	93.6	94.1	94.1
60	93.6	94.1	94.1	94.1
75	94.1	94.1	94.1	94.5
100	94.5	95.0	95.0	94.5
125	94.5	95.0	95.4	95.0
150	94.5	95.0	95.4	95.4
200	95.0	95.0	95.4	95.4
250	95.0	95.4	95.8	95.8
300-500	95.0	95.8	95.8	95.8

2. Probable motor horsepower ratings have been specified or shown on the Drawings. Changes from the specified horsepower may be accepted, if necessary to assure that motors do not exceed their maximum permissible loading, as defined above, under normal operation. Motor horsepower shall not be less than those specified in driven equipment sections. If a larger horsepower rating is required by the driven equipment, provide all changes required to motor starting and control equipment and to the conduit and wiring system without any additional cost to the Owner.

F. Efficiency

1. For motors 1 horsepower and larger, provide premium efficiency motors unless otherwise specified. Premium efficiency motors shall have nominal efficiencies at full load not less than those listed in Table 11002-1.
 - a. Guaranteed minimum efficiencies of premium efficiency motors shall correspond to nominal values as tabulated in NEMA MG-1, Table 12-6.
2. Efficiencies shall be determined by using the IEEE 112, Test Method B using segregated loss determination.

3. Single-phase fractional horsepower motors 1/4 HPT through 3/4 HP motors shall be high-efficiency split-capacitor types having minimum efficiency ratings of not less than 64% and power factors of not less than 94.5%.

G. Locked Rotor KVA – Code Letter

1. Provide motors with locked rotor kVA values less than or equal to those corresponding to the following:

Horsepower	Code Letter
≤5	M
7-1/2-10	H
≥15	G

H. Factory Tests

1. Conduct factory tests on all motors in conformance with NEMA MG 1-12.51. All tests shall be made in accordance with IEEE Standard 112.

2.05 GEAR PUMPS

- A. It shall be the responsibility of the Contractor to design the gear pumps as described in this section. Provide pump with the following characteristics:

Operating Point, gpm	35 – 150
Maximum Pump Speed	1800 rpm
Motor Horsepower	To be determined by Manufacturer
Pump Drive	Variable Speed

- B. Pump Types: Gear Pumps described above shall be Roper, Viking, or equal. All furnished gear pumps shall be supplied by the same pump manufacturer.

C. Pump Construction:

1. General: Pumps shall be positive displacement, gear type and shall include pump, gear reducer, if necessary, motor, common steel base and guard. If gear reducer is used, maximum motor rpm shall not exceed 1,800 rpm.
2. The pump body, body supports, and packing gland shall be of high quality, close-grained cast iron. Castings shall be free from sand holes, blow holes, and other detrimental defects. Suction and discharge flanges shall be Class 125-pound cast iron. A suitably sized hand hole with suitable removable cover shall be provided near the suction flange.
3. The pump gears shall be heat treated cast iron. The pumping gears shall be keyed to their shafts with a sliding fit for easy removal if necessary. Bearings shall be wear-resistant high-lead bronze. Four heavy-duty sleeve bearing shall be used to increase bearing life. The bearings shall be provided with grooves to allow circulation of the fluid being pumped

for lubrication and control of bearing temperature. The outboard drive shaft bearings supports shall be provided to handle external radial loads and absorb thrust loads.

4. Motors:

- a. Motors shall be sized by the manufacturer to provide sufficient horsepower to overcome the maximum starting torque for the pump and to provide the capacity at the head and speed requirements specified. Motors shall be horizontal for indoor operation. Motor rpm shall not exceed 1,800 rpm. Provide motor space heaters. See this Section for detailed motor specifications.
- b. Drives: Drives shall be by multiple V-belts and pulleys. Drives shall be supplied with OSHA approved safety guards. V-belt drives shall not exceed 4 to 1 speed reduction and shall have a 1.5 service factor. Furnish one extra set of sheaves and one set of belts for each pump to provide the alternate pump speed/capacity rating specified in Paragraph 2.01A.

5. Pump and Motor Mounting: The pump and motor shall be mounted on a common steel base. The pump and motor shall be aligned as shown on a common steel base. The pump and motor shall be aligned as shown on the Drawings. The base shall be supplied with a channel all around to serve as a drip pan, which shall have a 1-inch threaded outlet piped to the nearest funnel drain.

6. Pump Anchorage: Pump bases shall be fastened to concrete pump pads with anchor bolts. Bases shall be grout filled after anchoring.

7. Pump Housing: Pump shall be housed in an insulated and heated enclosure.

2.06 U.L. LISTED CONTROL PANEL

- A. It shall be the responsibility of the Contractor to design the U.L. listed control panel as described in this section.
- B. The panel shall be by a NEMA 4, weatherproof enclosure with gasketed door, stainless steel hardware, and quality enamel finish. It shall be possible to padlock the door against pilferage.
- C. Control panel shall house all heater switch gear inside the weatherproof enclosure.
- D. Switch gear shall include main circuit breaker with external operator, contactors, individual fuses for each heat tube, indicating controlling thermostat of appropriate range 20°F to 400°F with a differential of plus or minus of 2 degrees F. It shall continuously show the actual temperature of the tank contents as well as the desired control temperature.

- E. The temperature sensitive bulb shall be mounted in a well to allow replacement without emptying the tank.
- F. Hi-temp. Cut-out shall be provided with warning light and push to reset button outside of the panel.
- G. A control circuit transformer – properly fused – shall reduce the control circuit voltage to 120V.
- H. Pump box control to be housed in the same enclosure consisting of a reversing magnetic starter, motor overload protection, Type 4 forward-reverse-stop push buttons, thermostat to control pump temperature.
- I. The control panel shall be U.L. listed and approved and carry a label as an Industrial Control Panel.
- J. All wiring connections from panel to heaters and motors shall be on a weatherproof basis. There shall be “explosion proof” seal-offs provided between the heaters and the controls. Suitable connectors shall be provided for the incoming service.
- K. A storage tank heater instruction booklet including complete wiring diagrams shall be included with each system.

2.07 POLYMER AGITATION SYSTEM (MIXER)

- A. It shall be the responsibility of the Contractor to design the Polymer Agitation System as described in this section.
- B. Performance of the polymer agitation system includes variable speed for vertical tank that keeps modified asphalt in suspension with a 7.5 HP variable speed motor, and top mounted 3” shaft with two 4-blade, 48” diameter mixers. Mixer shaft is attached to the bottom of the tank with solid lube self-aligning bearing and channel cross member for bearing support. Includes motor starter and on/off switch in a NEMA 4 panel mounted 4' from the bottom of the tank.
- C. Mixer will not operate until the temperature reaches a predetermined set point.

2.08 STORAGE TANK HEATERS & PUMPING SYSTEM

- A. It shall be the responsibility of the Contractor to design the storage tank heaters and pumping system as described in this Section.
- B. Heaters shall require the following electrical requirements: 44KW, 460 Volt, 3-Phase, 60 HZ
- C. Heaters shall be of the electrical tubular immersion type and shall be of rugged design suitable for heavy industrial use.

- D. Heaters shall be provided with controllers allowing operator with the ability to select product temperature. Temperature range shall be between 100°F and 450°F.
- E. Heater tubes shall be 3" O.D. schedule 40 black iron pipe.
- F. Heater shall be constructed with an explosion proof seal-off connecting heater to control panel.
- G. Heater elements to be ETL listed as sheathed heating elements.
- H. Heaters shall extend substantially along the entire bottom length or width of the tank for uniform heating, but the arrangement shall be such that the internal heater elements can easily be removed for inspection or maintenance without emptying the tank. To ensure easy removal of the heater elements from the tubes regardless of adjacent equipment or other barriers, they shall be flexible to the degree that they can be bent on a 4' radius without permanently distorting or damaging the element in any way.
- I. The design of the heater shall be such that easy local repair is feasible from parts available at all times from local stocks (Tacoma-Seattle).
- J. The design of the heater elements shall be such that each individual heater tube comprises a balanced 3-phase load if applicable. All mechanical parts of the actual heating element assembly shall be of 60-16 nickel chromium alloy or better.
- K. Six-hundred-volt conductors shall be used for leads in the heater terminal boxes. Sufficient heater surface shall be provided so that not more than 3 watts per square inch per hour is dissipated at any point on the heater tube.

2.09 ELECTRICAL HEAT TRACING

A. General

- 1. It shall be the responsibility of the Contractor to design the electrical heat tracing and related control/monitoring system as described in this section.
- 2. Electrical heat tracing cable shall use factory-terminated, mineral insulated (MI) cable. All heat-tracing cable shall be able to provide continuous exposure (maintain) temperatures above 300° F to 455° F.
- 3. Each cable shall be factory-terminated to the required length, consisting of the lengths required for the pipe or equipment, plus an allowance for areas of additional heat loss such as valves, flanges, fittings, supports, and the like, plus a reasonable excess to allow for field variations. The cold lead section shall be seven feet long unless otherwise specified.

4. Maximum heating cable sheath temperature, per either FM or CSA method of calculation, shall be submitted with the bid or design for all Division 1 and Division 2 applications.
5. Each cable shall be shipped with the catalog number marked on the outside of the package, and a permanent metallic cable tag containing the heating cable length, wattage, voltage, and current draw. If the cable has been designed for a hazardous location, the tag shall also indicate the area of classification and heat-tracing circuit number.
6. A warranty against manufacturing defects for a period of 10 years shall be available.
7. All material and equipment installed shall be Factory Mutual (FM) or UL approved.

B. Single Point Control and Monitoring Devices

1. The system shall be field-mounted and shall have FM or CSA approval for Class 1, Division 2, Groups A, B, C, D when using a solid-state switching device.
2. The system shall provide the user with the option of line-sensing control with a user selectable dead band, ambient sensing, proportional ambient sensing, and power limiting control modes.
3. The system shall provide an isolated solid-state alarm relay or a dry contact relay for alarm annunciation back to a Distributed Control System (DCS).
4. Electrical code-approved ground-fault detection equipment shall be integral to the controller.
5. Enclosure type shall be NEMA 4X stainless steel.
6. The control and monitoring system shall have a network-ready option to provide communication to a host PC.

C. Thermostats and Contactors

1. Process temperature maintenance systems shall operate using self-regulating control.

2.10 LUBRICATION

- A. Provide lubricants of types recommended by equipment manufacturers, in quantities sufficient for consumption prior to completion, testing, and final acceptance.

2.11 STRUCTURAL METAL FRAMING

- A. Details of fabrication shall be in accordance with Section 05 50 00 – Metal Fabrications.
- B. Weld submerged steel surfaces, which butt or bear against each other, to seal the surfaces against the penetration of the liquid. Weld all gaps between adjacent submerged steel surfaces less than 1/32-inch side to seal the surfaces. Weld size shall be not less than the thickness of the thinnest member of the lapped or joined assembly.

2.12 EQUIPMENT BASES AND BEDPLATES

- A. Mount equipment assemblies on a single heavy cast iron or welded steel bedplate unless otherwise shown or specified. Provide bases and bedplates with machined support pads, tapered dowels for alignment or mating of adjacent items, adequate openings to facilitate grouting, and openings for electrical conduits. Round or chamfer and grind smooth all corners. Continuously weld seams and contact edges between steel plates and shapes, and grind welds smooth. Do not support machinery or piping on bedplates other than that which is factory installed. Provide jacking screws in equipment bases and bedplates to aid in leveling prior to grouting. Mount all equipment bases and base plates on reinforced concrete pads at least 3-inches high.

2.13 ANCHORS

- A. Each equipment manufacturer shall design and furnish an anchor bolt pattern and the required anchor bolts, nuts, and washers of adequate design for securing bases and bedplates to concrete bases. Provide anchor bolts of length to allow for 1 1/3-inch of grout under base plates and adequate anchorage into structural concrete unless otherwise shown or specified.
- B. Provide anchor and assembly bolts and nuts of ample size and strength for the purpose intended. All bolts shall be standard machine bolts, with cold pressed hexagon nuts. Provide suitable degauling compounds for bronze and stainless-steel threaded components. Any space wholly or partially underground or having a wall or ceiling forming part of a water channel, is classified as a moist location. Unless otherwise specified or noted on the Drawings, provide materials as follows:
 - 1. Bolts and nuts in submerged locations or submerged and embedded in concrete or buried in earth: type 304 stainless steel.
 - 2. Bolts and nuts for supports or equipment in dry or moist locations: Galvanized steel (hot-dipped), with oversize nuts.
 - 3. Use other bolting materials where specifically called for in the Specifications or on the Drawings.

- C. Anchor all motor-driven equipment with cast-in-place anchor bolts or drilled-in anchors set with epoxy adhesive. Do not provide expansion type anchors for motor-driven equipment.
- D. Anchor all non-motor-driven equipment with cast-in-place anchor bolts or drilled-in anchors set with epoxy adhesive except that, where specifically allowed by note on the Drawing, expansion type anchors may be used.
- E. Refer to Section 055000 for technical specification requirements of drilled-in anchors set in epoxy adhesive and for expansion bolt anchors. Refer to Section 055000 for cast-in-place anchors.

2.14 SAFETY GUARDS

- A. Cover belt or chain drives, fan blades, couplings, nip points, exposed shafts and other moving or rotating parts on all sides with safety guards conforming to all Federal, State, and local codes and regulations pertaining; conform to the most restrictive requirement. Design guards for easy installation and removal, complete with necessary supports, accessories, and fasteners, all hot-dip galvanized. Design guards in outdoor locations to prevent entrance of rain and dripping water. Provide tachometer test opening in line with ends of shafts. Typically, guards shall be expanded metal on structural steel frame except that outdoor guards may be of solid material. Provide hinged doors with latch for service and lubrication access.
- B. Cover all pipes, manifolds, heaters, and other surfaces which have a surface temperature sufficient to burn human tissue with a thermal insulating material or otherwise guard against contact.
- C. Guards to comply with OSHA requirements.

2.15 NAME PLATES

- A. Manufacturer's Nameplate: Furnish each piece of equipment and its driver with a corrosion-resistant metal nameplate fastened to the item in a readily readable position. This nameplate to contain the manufacturer's name, equipment rating, capacity, size, model, serial number, and speed. All information written or printed to be in English.
- B. Direction of Rotation: Furnish each piece of rotating equipment with a direction of rotation arrow.
- C. Functional Identification: Label each piece of equipment using a plastic laminate label with the functional name and number of the equipment.
 - 1. Fasten labels to the equipment, its base or other acceptable location:
 - a. Letters: At least 1/2-inch high with the border trim on all side not less than 1/4-inch.

- b. Color: Black background with white letters.
- c. Fasteners: Brass or stainless steel screwed into inserts, anchor shields, or tapped holes in equipment or base.

2.16 PROTECTION AGAINST ELECTROLYSIS

- A. Where dissimilar metals are used in conjunction with each other, provide suitable insulation between adjacent surfaces so as to eliminate direct contact and any resultant electrolysis. Connections of dissimilar piping materials shall utilize dielectric unions, flanges, couplings, or bushings.

2.17 SPECIAL TOOLS

- A. For each type of equipment to be furnished, provide a complete set of all special tools (including grease guns or other lubricating devices) which may be necessary for the adjustment, operation, and maintenance of such equipment.

2.18 FINISHES

- A. Conform to applicable requirements of Section 09 90 00 – Protective Coatings.
- B. Factory Painting: On pumps, motors, drives, starters, control panels, and other similar self-contained or enclosed components, apply a factory protective paint system unless otherwise noted. Paint or otherwise protect surfaces that are inaccessible after assembly by a method, which provides protection for the life of the equipment.
- C. Shop Priming: Except where field sandblasting is required, apply one or more shop coats of metal primer on surfaces to be finish painted at the site, of sufficient thickness to protect surfaces until finished. Primer shall be compatible with finish coat.
- D. Rust Preventive: Coat machined, polished, other ferrous surfaces, and non-ferrous surfaces, which are not to be painted with rust preventive compound.

2.19 NOISE AND VIBRATION

- A. Mechanical and electrical equipment, as installed in this project, shall not create sound levels that are in excess of that permitted by OSHA for 8-hours per day, worker exposure unless otherwise noted for the specific piece of equipment involved. If the required sound level cannot be achieved by bare equipment in its designate environment, provide sound attenuating enclosures. Sound attenuating enclosures shall have necessary ventilation to prevent equipment overheating and shall be constructed for easy removal to permit maintenance. Device necessary for day-to-day operation shall pierce the enclosure or otherwise be accessible without need to remove the enclosure.

- B. Equipment which when operating has obvious excessive vibrations shall be repaired or replaced as directed by the Engineer. Baseline vibration measurements shall be made where specified.

2.20 FACTORY TESTS

- A. Perform factory tests for each piece of equipment where specifically called for in the section specifying that equipment. Note that factory tests are inherent in many reference standards. The requirement for a factory test in a referenced standard is hereby made a part of these specifications. Conduct factory tests at the same speeds and other conditions at which the equipment will operate in the field, except as noted.
- B. Where specifically noted, performance tests may be witnessed by the Engineer or his representative. Inform the Engineer in sufficient time to allow arrangements to be made for witness of such tests. When non-witnessed tests are performed, supply certified results.
- C. Perform factory testing of pumps in accordance with the requirements and standards of the Hydraulic Institute.
- D. Tests of other equipment shall conform to the requirements set forth in these Specifications.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Inspect each item of equipment for damage, defects, completeness, and correct operation before installing.

3.02 PREPARATION

- A. Prior to installing equipment, ensure that the areas are clean. Maintain the areas in a broom-clean condition during installation operations. Clean, condition, and service equipment in accordance with the approved Instruction Manuals and specific recommendations of the equipment manufacturer.

3.03 INSTALLATION – WELDED TANK

- A. Erection
 - 1. API 650 and also:
 - a. Comply with erection plan and welding sequences.
 - b. Follow qualified weld procedures.
 - c. Use qualified welders.

- d. Provide complete penetration butt welds at all side shell joints.
- e. Remove all evidence of any welding of temporary erection devices.
- f. Stainless steel items:
 - 1) Use the proper type of stainless-steel electrodes or welding rods complying with AWS D10.4.
 - 2) Remove by grinding and polishing, all scratches, marks, pits, and other blemishes on exposed surfaces.
 - 3) Use grinding wheels and other tools that have never been used on carbon steel.

B. Field Quality Control

- 1. API 650 and also:
 - a. Provide 24-hours notice of all testing to Engineer.
 - b. Provide all testing equipment and satisfactory access to the work being inspected.
 - c. Perform and evaluate all radiographs promptly, so any repairs can be made and re-evaluated without delay of the erection.
 - d. The Engineer will be the sole judge of compliance with the quality of work specified herein or in API 650.
 - e. Repair all leaks and retest by the same method that discovered the leak.
- 2. Tank Welding:
 - a. Retain a Certified Welding Inspector to be present during all inspections and testing and to specify the test locations.
 - b. Inspection by trepanning, air carbon arc gouging and removal of sectional segments will not be permitted.
- 3. Tank Bottom: Test all joints by the vacuum method after erection and prior to painting.
- 4. Tank Bottom and Side Shell: Test by the water method, after erection and prior to painting.
- 5. Report: Provide a field inspection report, including radiographs and inspection records before acceptance of the tank by the Owner.

C. PAINTING

1. Perform interior and exterior cleaning, preparation, and painting in accordance with API 650 and Section 09 90 00 – Protective Coatings.
2. Provide a first anniversary inspection of the tank painting, including testing and any required repair work, at no additional cost to the Owner.

3.04 INSTALLATION – ELECTRIC MOTOR DRIVES

- A. Install motors in driven equipment in conformance with motor manufacturer's recommendations and requirements. Motor nameplate shall be visible when installed on the driven equipment.

3.05 INSTALLATION – GEAR PUMPS

A. INSTALLATION

1. Equipment shall be installed in strict conformance with manufacturer's installation instructions. Pump and motor alignment shall be checked according to the Standards of the Hydraulics Institute after pump and motor have been installed at the site.

B. FIELD PAINTING

1. Pumps, motors, and appurtenances shall receive a final color coat in the field in accordance with Section 09 90 00 – Protective Coatings.

C. FIELD TESTING

1. All pumps shall be field tested.

D. FIELD SERVICE

1. The manufacturer shall provide a competent field service engineer to thoroughly check and inspect the pumps after installation, place the pumps in operation and make necessary adjustments, and instruct plant personnel in proper operating and maintenance procedures.

3.06 INSTALLATION – BEARING PLATE AND GROUTING

- A. Structural Fabrications: Conform to the AISC Code and Specification referenced in Article "Structural Steel Fabrications," and conform to Section 05 50 00 – Metal Fabrications.
- B. Equipment: Conform to approved Instruction Manuals. Employ skilled craftsmen experienced in installation of the types of equipment specified. Use specialized tools and equipment, such as precision machinist level, dial indicators, gauges, and micrometers, as applicable. Produce acceptable installations free of vibration or other defects. Align and pin to common bedplate equipment and rivers connected by flexible couplings.

- C. Anchor Bolts: Deliver bolts with templates or setting drawings and verify that bolts are correctly located before structural concrete is placed.
- D. Base and Bedplate Grouting: Do not place grout until initial fitting and alignment of connected piping is completed. Level and align equipment on the concrete foundations, then entirely fill the space under base or bedplates with grout. Bevel exposed grout at 45-degree angle, except round exposed grout at horizontal surfaces for drainage. Trowel or point exposed grout to a smooth, dense finish and damp cure with burlap for three days. When grout is fully hardened, remove jacking screws and tighten nuts on anchor bolts. Check the installation for alignment and level, and perform approved corrective work as required to conform to the tolerances given in the applicable Instruction Manual.
 - 1. Make an allowance of at least 1 3/4-inches for grout under the storage tanks, whether or not shown on the Drawings. Use steel shims to level and adjust the bases. Shims may be left embedded in the grout; in which case they shall be installed neatly and so as to be as inconspicuous as possible in the completed work. Unless otherwise approved, all grouts shall be a favorably reviewed non-shrink, non-metallic grout.
 - 2. Grout: Dimensionally stable, inorganic, premixed and resistant to acids, alkalies, and salt water, and unaffected by water and oil. It shall have high strength even when used as a pourable mixture and shall bond well with steel and cured concrete or be compatible with a suitable bonding agent which shall then be used to effect the bond. Use in strict accordance with the manufacturer's recommendations. Provide Five Star Grout as manufactured by U.S. Grout Corporation, Bonsal Construction Grout as manufactured by Bonsal Company, or equal. Submit for favorable review by the Engineer prior to use.
 - 3. Where practicable, place the grout through the grout holes in the equipment base and work outward and under the edges of the base and across the rough top of the concrete foundation to a peripheral form so constructed as to provide a suitable chamfer around the top edge of the finished foundation.
- E. Architectural Metals: Handrails, guardrails, stairs, and other architectural metals furnished as part of equipment shall conform to the requirements of Section 05 50 00 – Metal Fabrications.

3.07 EQUIPMENT STARTUP AND ADJUSTMENT

- A. Arrange for an authorized factory-trained representative of the company or companies supply the various items of equipment to check the installation and adjust and test the equipment furnished before the acceptance of the work by the Owner. Said representative shall be experienced and knowledgeable of the equipment being tested. Furthermore, he shall assist and instruct the operating staff in adjusting and operating the equipment during the initial plant operation period.

1. Provide initial lubrication for all equipment.
2. Test and demonstrate to the Owner's representative that all equipment operates properly, and specified performance has been attained. For pumps, include measurement of suction and discharge pressure at the pump and measurement of pumping rate by volumetric means or through a suitably calibrated meter for two points on the performance curve. For adjustable-speed pumps, conduct tests at a minimum of two speeds. Furnish any test equipment or measuring devices required which are not part of the permanent installation.
3. In addition, demonstrate that the entire facility is in full operating condition prior to the acceptance of the work. Should any equipment or part thereof fail to expense. Pay for All tests involved in this Section.
4. Pressure test equipment and connections thereto as required by these Specifications.

3.08 PERFORMANCE TESTS

- A. Upon completion of the work, and after all systems are set and balance, conduct performance tests in accordance with Division 1 and other applicable sections of these Specifications. Submit test conditions, test data and results to the Engineer for review.

3.09 SOUND LEVEL TESTING

- A. Measure the sound level developed by all mechanical and electrical equipment provided. Perform testing in all rooms and spaces containing such equipment during the final operation test program with all equipment operating. Use OSHA approved instrument and record the highest sound level developed when measured according to OSHA standards in each room and space. Deliver a copy of records to the Owner.

3.10 TOOLS, LOOSE PARTS, AND LUBRICANTS

- A. Tools and Loose Parts Supplied: Provide an inventory of tools and loose parts required to be supplied under the project. Turn over inventory and parts to the Owner. The Owner's written acknowledgement of receipt is required for project completion. Loose parts are defined as items such as special tools, keys, safety equipment, and portable equipment. Refer to Division 01 and relevant technical sections of these Specifications for additional instructions.
- B. Recommended Spare Parts: furnish a complete list of recommended spare parts and supplies for each equipment furnished with current prices and a source of supply.
- C. Provide a list of all recommended lubricants not listed in the O&M Manuals.

END OF SECTION

SECTION 40 05 07

PIPE SUPPORTS AND ANCHORS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This Section describes the product and installation requirements for piping supports and associated anchors that are not shown on the Drawings. Included are:
 - 1. Pipe supports, hangers, and associated anchors.
 - 2. Sleeves and seals.
 - 3. Flashing and sealing equipment and pipe stacks.

1.02 REFERENCES

- A. Factory Manual.
- B. MSS Standard Practice No. SP-69.

1.03 SUBMITTALS

- A. Indicate support framing and attachment methods.

1.04 DESIGN CRITERIA FOR PIPE HANGERS AND SUPPORTS

- A. General.
 - 1. Pipe supports are generally not shown for piping less than 6-inches in diameter. Where pipe hangers and supports are not shown, it shall be the Contractor's responsibility to provide piping supports in accordance with the design criteria stated hereinafter and the standard or typical support details on the Drawings.
 - 2. Where not detailed or otherwise indicated, pipe support types and spacing shall be in accordance with the Manufacturer's Standardization Society's (MSS) Standard Practice No. SP-69, except as superseded by the requirements of these Specifications.
- B. Pipe Support System Design:
 - 1. Design loads: Support the sum of the weight of the pipe, fittings, and contents. The pipe hangers and supports shall keep the pipe in proper

alignment. The hangers and supports shall be free of sharp projections which would wear or cut the pipe. Anchor pipelines to avoid excessive strain on fittings and equipment. Anchor the pipe to resist internal pressure forces tending to separate any unrestrained joint at pressures 1 1/2- times the maximum working pressure for the applicable system.

2. Location: Support all piping in a manner which will prevent undue strain on any valve, fitting, or piece of equipment. Provide pipe supports at changes in direction or elevation, adjacent to flexible couplings, at all nonrigid joints, etc. Where piping connects to equipment, it shall be supported by a pipe support and not by the equipment.
3. Seismic loads: Provide seismic anchorage as required by Local codes.

PART 2 – PRODUCTS

2.01 PIPE HANGERS AND SUPPORTS

- A. Manufacture and Design. Pipe supports shall, to the maximum extent possible, be standard factory fabricated units conforming to the typical supports and braces shown in the Drawings and specified below. Where required support cannot be provided by standard factory fabricated units, and is not detailed on the Drawings, the Contractor shall provide special pipe supports. For all pipe supports which are not defined by specific designs shown on the Drawings, the Contractor shall provide design calculations for favorable review. Special fabrications shall be in conformance with Section 051200 – Structural Steel and Miscellaneous Metals.
- B. Guides: Unless shown otherwise on the project drawings, provide Unistrut series P-1000 hot dipped galvanized with two-hole carbon steel or stainless steel pipe clamp for pipe guides. Unistrut shall be fastened to the wall and, where designated, to the floor, with epoxy anchors, unless noted otherwise on Project Drawings.
- C. Anchors. Provide fabricated units as shown in the Drawings and at locations indicated.

PART 3 – EXECUTION

3.01 PIPE HANGERS AND SUPPORTS

- A. Unless noted otherwise on Project Drawings, guide horizontal piping from wall supports as described above. Guides shall be installed on centers as shown in the Drawings.
- B. Install fabricated anchors as indicated in the Drawings at the required locations.

END OF SECTION

SECTION 40 05 51

VALVES AND ACCESSORIES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This Section describes valves and other accessories for the piping systems specified in Section 40 22 00 – Pipe and Pipe Fittings (Piping Systems)

1.02 SUBMITTALS

- A. Submit product data to show that the products conform to these Specifications.

PART 2 – PRODUCTS

2.01 PRESSURE RELIEF VALVES

- A. Service: Pump #1, Pump #2.
 - 1. Set Pressure: 90 psig, 10% Accumulation Pressure of 100 psig.
 - 2. Type: Direct Spring Operated.
 - 3. Orifice Size: "J" – 1.287 inch diameter.
 - 4. Body: 316SS.
 - 5. Plug and stem: Stainless Steel.
 - 6. Seats and seals: Teflon seat, Viton seal.
 - 7. Pressure rating: 2000 psig
 - 8. Connection: 2: NPTF
 - 9. Manufacturer: Anderson, Greenwood & Co., or approved equal.

2.02 PLUG VALVES

- A. Service: Road Oil
 - 1. Type: 3-inch lever actuated two-way or three-way lubricated plug valve, Class 150 flanged, rising stem, OS&Y with bolted bonnet, solid wedge.

2. Body: Carbon steel.
3. Plug facing: Metal
4. Stem: CR13
5. Pressure rating: As noted above.
6. Connections: Threaded/flanged. Provide extra unions (not shown in Drawings) wherever threaded products are used to allow for removal.
7. Manufacturer: Dezurik or approved equal.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install valves in accordance with manufacturer's instructions. Provide a union close to each valve to allow easy removal and replacement.
- B. Above-ground valves shall be rigidly held in place using supports and hangers. The stem orientation of valves in elevated piping shall be as approved by the Owner for accessibility, but no valve shall have stem in the downward direction.

3.02 TESTS

- A. Test all valves and accessories for proper operating adjustments and settings and for freedom from vibration, binding, scraping, and other defects. The testing of the hydraulically and electrically controlled valves shall be supervised by the manufacturer's representative who shall verify proper installation, adjustments, and performance to Owner. The adequacy of all pipe hangers and supports and valve supports to meet specified requirement shall be verified. All defects found shall be corrected.

END OF SECTION

SECTION 40 05 93
ELECTRIC MOTOR DRIVES

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes: Provide motors to drive equipment specified in other sections and divisions, including, but not limited to, Divisions 26 (see Electrical Drawings), 40, and 43. Refer to driven equipment sections for additional requirements. Requirements of the driven equipment Specifications shall take precedence over the requirements of this Section, where conflict occurs. This Section applies to all electric motors furnished for this project, unless otherwise noted.
- B. Related Sections:
 - 1. Section 40 05 00 - General Equipment and Mechanical Requirements
 - 2. Section 43 23 56 - Gear Pumps
 - 3. Section 26 00 00: General Electrical Requirements

1.02 REFERENCE STANDARDS

- A. National Electrical Manufacturers Association (NEMA) Standard:
 - 1. MG 1 Motors and Generators
- B. Institute of Electrical and Electronics Engineers (IEEE) Standard:
 - 1. 112 Test Procedure for Polyphase Induction Motors and Generators.
- C. Underwriters Laboratories (UL) Publication: Recognized Component Directory.

1.03 SUBMITTALS

- A. For each motor, include the following data in the shop drawing submittal for the driven equipment:
 - 1. Manufacturer's name.
 - 2. Manufacturer's type and frame designation.
 - 3. Horsepower output.

4. Time rating.
 5. Maximum ambient temperature rating.
 6. Insulation system designation.
 7. RPM at full load.
 8. Voltage, number of phases, frequency, and full load amperes.
 9. Code letter for locked rotor kVA.
 10. Service factor at 40°C ambient.
 11. NEMA design letter.
 12. Enclosure type.
 13. Lubrication requirements, including type and frequency.
 14. KW input power and power factor at 75% and 100% of rated horsepower output.
 15. Guaranteed minimum efficiency and nominal efficiency per MG1-12.55.
 16. Nominal efficiency.
- B. Provide installation, operation and maintenance instructions, and renewal parts list as required for maintenance manuals per Division 01 and Technical Specifications.

1.04 COORDINATION

- A. General: Coordinate motors with driven equipment requirements. Unless otherwise specified, equipment manufacturers or suppliers shall select and provide motors for their equipment in conformance with these specifications. Give particular attention to coordination of requirements for:
1. Power.
 2. Starting torque.
 3. Speed.
 4. Bearing load.
 5. Ambient temperature.
 6. Frequency of starting.

7. Moisture exposure.
 8. Adjustable speed control, where applicable.
- B. Suppliers of motors to be used with adjustable speed systems shall:
1. Provide all relevant motor data to the adjustable speed control manufacturer for analysis. Provide motors in conformance with and compatible with the adjustable speed control manufacturer's equipment and requirements.
 2. Provide all relevant motor data to the pump manufacturer for vibration, reed critical frequency and other required analyses.

1.05 SPECIFIC REQUIREMENTS

- A. The following motor characteristics are specified with the driven equipment in all cases:
1. Speed.
 2. Horsepower or supplier responsibility to determine.
 3. Horizontal or vertical arrangement.
 4. Indoor or outdoor location.
- B. Additional motor characteristics are specified with the driven equipment only where the required motor differs from the typical characteristics described below or where additional properties or characteristics are required that are not specified in this Section.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Motors shall be designed, built, and installed in the driven equipment, to provide long, trouble-free life in industrial service and shall be rated in conformance with NEMA MG1. Motors rated 100 horsepower or less and rated 600V or less shall be listed in UL Recognized Component Directory or shall be listed and labeled by other organizations acceptable to the authority having code enforcement jurisdiction.
- B. Unless otherwise specified with the driven equipment, provide motors with the following typical characteristics:
1. Motors shall be single speed and designed for continuous duty and full voltage starting. Motors shall provide standard starting torque.

2. Voltage Ratings:
 - a. 1/2 horsepower or less: 115 volts, single phase, 60 Hz, capacitor start. Small fan motors may be split phase or shaded pole type if standard for the equipment.
 - b. Above 1/2 horsepower: 460 volts, three phase, 60 Hz, squirrel cage induction motors.
 3. All motors shall have a service factor of 1.15 in an ambient temperature of 40°C.
 - a. Exceptions: Motors which have special enclosures or winding configurations may carry a Unity (1.0) Service Factor. Examples are totally enclosed, explosion proof, or submersible motors.
 4. Windings shall be copper.
 5. Provide ground lug inside the terminal box.
 6. Provide lifting eye on each motor weighing more than 50 pounds.
 7. Each motor shall be suitable for six starts per hour (5 minutes on and 5 minutes off, continuously) when powering the specific driven equipment required for this project.
 8. Each motor shall have an overall sound power level at no load not greater than given in NEMA MG1-12.49.
 9. Motors which have special operating characteristics such as multi-speed, high torque/high slip, short time intermittent ratings shall be nameplated to show how these characteristics differ from standard design.
- C. Motors used with adjustable frequency drives shall have inverter duty complying with NEMA MG-1 Part 31.40.4.2.

2.02 NAMEPLATE

- A. Provide stainless steel nameplate for each motor, attached to the motor by stainless steel screws or drive pins. Nameplates shall indicate clearly the information required by NEMA MG 1, Part 10 and MG1-12.55.

2.03 ENCLOSURE TYPE BY LOCATION

- A. Unless otherwise specified with the driven equipment, provide motors with the following typical enclosures:
 1. Indoors: Horizontal motors shall be open, drip-proof; vertical motors shall be drip-proof with guard.

2. Outdoors: Vertical motors shall be weather-protected type I. Horizontal motors shall be totally enclosed; fan cooled. All motors shall have the following features:
 - a. Bearing protection.
 - b. Anti-corrosion treatment of external hardware and internal metal parts.
 - c. Weatherproof terminal box with gaskets between the motor, terminal box and terminal box cover.
 - d. Guard screens on ventilation openings.
 - e. Moderate moisture resistant insulation, specified hereinafter.
 - f. Interior and exterior corrosion protection coatings.
 - g. Special attention to leads into terminal box.
- B. When specifically called for in the Specifications for the driven equipment or required by Code, provide the following enclosure types:
 1. Hazardous locations: Motors shall be explosion-proof and shall be UL listed for Class 1, division 1, Groups C and D locations; motors shall bear the UL label.
 2. Severe duty: Motors shall have the following features:
 - a. Totally enclosed; fan cooled enclosure.
 - b. Stainless steel nameplate.
 - c. Cast iron housing, bearing brackets and fan guard.
 - d. Cast iron conduit box with threaded conduit entrance.
 - e. Corrosion resistant fan.
 - f. Corrosion resistant hardware.
 - g. Automatic breather/drain.
 - h. Ground lug.
 - i. Regreasable bearings.
 - j. Provision for excluding water and dust from bearings.
 - k. Class F insulation.

1. Motors with service factor 1.15 or greater: 100% of nameplate horsepower.
2. Motors with service factor less than 1.15: 90% of nameplate horsepower.

TABLE 11002 -1

MOTOR NOMINAL EFFICIENCIES AT FULL LOAD

HP	900 RPM	1,200 RPM	1,800 RPM	3,600 RPM
Open Drip-Proof and Weather Protected Type 1 Motors				
1	78.5	78.5	82.5	80.0
1.5	80.0	80.0	84.0	81.5
2	85.5	82.5	82.5	85.5
3	85.5	82.5	82.5	84.0
5	86.5	86.5	85.5	86.5
7.5	87.5	89.5	87.5	88.5
10	90.2	90.2	89.5	86.5
15	90.2	91.7	90.2	89.5
20	91.7	91.7	91.0	90.2
25	91.7	92.4	91.7	90.2
30	92.4	93.0	92.4	92.4
40	91.7	93.0	93.6	93.6
50	93.0	93.0	93.6	93.6
60	93.6	93.6	94.1	94.1
75	94.1	93.6	94.1	93.6
100	94.5	94.5	94.5	94.1
125	94.5	95.0	95.0	94.1
150	95.0	94.5	95.0	94.1
200	95.0	95.0	95.0	94.1
250	94.5	95.0	95.0	94.5
300-500	95.0	95.8	95.8	94.5
Total Enclosed Fan Cooled Motors				
1	78.5	78.5	82.5	80.0
1.5	80.0	80.0	84.0	81.5
2	85.5	82.5	82.5	85.5
3	86.5	86.5	82.5	84.0
5	88.5	87.5	85.5	86.5
7.5	89.5	90.2	87.5	88.5
10	90.2	91.0	89.5	90.2
15	90.2	82.4	91.0	91.7
20	91.7	92.4	91.0	91.7
25	91.7	93.0	92.4	92.4
30	92.4	93.0	93.0	93.0
40	92.4	93.6	94.1	94.1

HP	900 RPM	1,200 RPM	1,800 RPM	3,600 RPM
50	93.6	93.6	94.1	94.1
60	93.6	94.1	94.1	94.1
75	94.1	94.1	94.1	94.5
100	94.5	95.0	95.0	94.5
125	94.5	95.0	95.4	95.0
150	94.5	95.0	95.4	95.4
200	95.0	95.0	95.4	95.4
250	95.0	95.4	95.8	95.8
300-500	95.0	95.8	95.8	95.8

- B. Probable motor horsepower ratings have been specified or shown on the Drawings. Changes from the specified horsepower may be accepted, if necessary to assure that motors do not exceed their maximum permissible loading, as defined above, under normal operation. Motor horsepower shall not be less than those specified in driven equipment sections. If a larger horsepower rating is required by the driven equipment, provide all changes required to motor starting and control equipment and to the conduit and wiring system without any additional cost to the Owner.

2.06 EFFICIENCY

- A. For motors 1 horsepower and larger, provide premium efficiency motors unless otherwise specified. Premium efficiency motors shall have nominal efficiencies at full load not less than those listed in Table 11002-1.
1. Guaranteed minimum efficiencies of premium efficiency motors shall correspond to nominal values as tabulated in NEMA MG-1, Table 12-6.
- B. Efficiencies shall be determined by using the IEEE 112, Test Method B using segregated loss determination.
- D. Single-phase fractional horsepower motors 1/4 HPT through 3/4 HP motors shall be high-efficiency split-capacitor types having minimum efficiency ratings of not less than 64% and power factors of not less than 94.5%.

2.07 LOCKED ROTOR KVA – CODE LETTER

- A. Provide motors with locked rotor kVA values less than or equal to those corresponding to the following:

Horsepower	Code Letter
≤5	M
7-1/2-10	H
≥15	G

2.08 WOUND ROTOR MOTORS

- A. Provide wound rotor motors where called for in the Specifications for the driven equipment. Wound rotor motors shall be General Electric Type M, Louis Allis, or equal. Provide removable inspection covers over slip rings.

2.09 THERMAL PROTECTION

- A. In each motor to be used with adjustable speed drives, in all motors 60horsepower and larger, or where called for in the Specifications for the driven equipment, provide integral thermostats or other approved devices to protect the motor from overheating. Thermostats or other devices shall be rated 125 Vac, 1 amp.

2.10 SPACE HEATERS

- A. Where called for in the specifications for the driven equipment, provide space heaters or solid state motor winding heating systems for motors. Heaters shall be 120 or 240 volts, single phase, as required by the control circuit voltage or be of the SCR voltage-controlled type. Heater wattage and voltage ratings shall be indicated on motor nameplate. Motor winding heating systems shall be as specified in Section 16890.

2.11 FACTORY TESTS

- A. Conduct factory tests on all motors in conformance with NEMA MG 1-12.51. All tests shall be made in accordance with IEEE Standard 112.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install motors in driven equipment in conformance with motor manufacturer's recommendations and requirements. Motor nameplate shall be visible when installed on the driven equipment.

END OF SECTION

SECTION 40 05 97

MECHANICAL IDENTIFICATION

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Identification of mechanical products installed under Divisions 40 and 43.

1.02 RELATED WORK

- A. Section 09 90 00 – Protective Coatings.

1.03 SUBMITTALS

- A. Submit product data.
- B. Submit schematic label and nameplate sketches with all text and colors shown.

1.04 REFERENCES

- A. ANSI A13.1. Scheme for the Identification of Piping Systems.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Color. Unless specified otherwise, conform with AMSI A 13.1.
- B. Plastic Nameplates. Laminated 3-layer plastic with engraved white letters on black contrasting background color.
- C. Metal Tags. Brass with stamped letters; tag size minimum 1 1/2-inch diameter with smooth edges.
- D. Plastic Pipe Markers. Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and fluid being conveyed.
- E. Plastic Tape Pipe Markers. Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

- F. Pipe label sizes. Sizes shall be as shown below:

Outside Diameter of Pipe	Length of Color Blend	Size of Letters
3/4 to 1 1/4-inches	8 inches	1/2 inch
1 1/2 to 2 inches	8 inches	3/4 inches
2 1/2 to 6 inches	12 inches	1 1/4 inches
8 to 10 inches	24 inches	2 1/2 inches

- G. Equipment label sizes. Sizes shall be as shown below:

Equipment	Size of Letters
Tanks	6 inches
Pumps and Controls	1/-1/4 inches

PART 3 – EXECUTION

3.01 PREPARTION

- A. Degrease and clean surfaces to receive adhesive for identification materials.
- B. Prepare surfaces in accordance with applicable instructions in Section 09800 – Protective Coatings.

3.02 INSTALLATION

- A. Plastic Nameplates. Install with corrosive-resistant mechanical fasteners, or adhesive.
- B. Metal Tags. Install on all valves, local gauges, and instruments with corrosive-resistant chain. Stamp with instrument tag number as shown on Project Piping and Instrumentation Drawings in 1/8-inch-high letter, 0.03 inch deep impression.
- C. Plastic Pipe Markers. Install complete around pipe in accordance with manufacturer's instructions.
- D. Plastic Tape Pipe markers. Install complete around pipe in accordance with manufacturer's instructions.
- E. Controls. Identify control panels and major control components outside panels with plastic nameplates.
- F. Valves. Identify valves in main and branch piping with tags.
- G. Piping. Identify piping with plastic pipe markers. Tags may be used on small diameter piping. Identify services. Flow direction, and pressure. Install in clear view and align with axis of piping. Located identification adjacent to each valve and "T", at each side of penetration of structure or enclosure, and at each obstruction. For addition information see paragraph 3.03 C.

- H. Storage Tanks. Identify tanks with plastic pipe tape markers per Section 3.03B schedule. Install in clear view and align with axis of tank.

3.03 LABELING SCHEDULES

- A. Label pipes as follows:

Field Color
Yellow

- B. Place tank labels 10' to 12' above finish grade, on the west face of the tank. Label as follows:

Tank	Tank Size Label	Identifier Label
Tank 1	12,500 Gallons	Tank 1
Tank 2	12,500 Gallons	Tank 2

- C. Place Pipe labels as follows:

All Lines	At walls and at 20-foot intervals
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END OF SECTION

SECTION 40 22 00

PIPE AND PIPE FITTINGS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Furnish and install all piping, including fittings, pipe supports, and other accessories as required, as schematically shown in the Drawings, and as described herein to interconnect equipment to existing systems into a complete and operable system. Provide pipe and fittings as required for the following systems:

Service	Symbol	Tank System	Pump System
1. Road Oil	RO	Tank #1, Tank #2	Pump #1, Pump #2

- B. Contractor Scope of Work:

Contractor shall furnish and install the following:

1. All pipe supports, anchors, guides, braces, temporary testing appurtenances, and associated pipe joining equipment as approved and required by the pipe manufacturer for all piping systems, as schematically shown in the Drawings, and as described herein to interconnect tanks and equipment into complete and operable piped systems.
 2. All pipe, fittings, pipe supports, valves, and other accessories as required for miscellaneous utilities (water, seal water, instrument air, compressed air, drainage, or other) to pumps, instruments, and other devices or assemblies specified elsewhere in Division 40 and 43 of these Specifications, or as called for in the Drawings, to install this piping system.
- C. The Contractor is required to verify pipe routing shown on the drawings, in the field, and shall determine verify the type and number of fittings required to successfully install the piping systems specified herein. Location of pipe supports, guides, and anchors has been specified on project drawings and shall be adhered to unless written permission is obtained from the manufacturer and the Engineer prior to deviation.

1.02 SUBMITTALS

- A. Submit Shop Drawings for all piping system segments for Engineer's review and approval.

- B. Include data for product review on pipe materials, fittings, valves, pipe supports, and other accessories. Coordinate submittals in this Section with those from other Sections in Divisions 40 and 43.
- C. Welders certificates certifying that welders comply with the installation procedures as outlined by ASTM D2657 Section 9 and as required by the pipe system manufacturers prior to construction.
- D. Furnish manufacturer's installation and operation manuals for all equipment.

1.03 QUALITY ASSURANCE

- A. All materials equipment furnished under this Section shall be of a manufacturer who has been regularly engaged in the design and manufacture of the materials and equipment for a period of at least 5 years. Demonstrate to the satisfaction of the Engineer that the quality is equal to the materials and equipment made by those manufacturers specifically named herein, if an alternate manufacturer is proposed.
- B. Welding Materials and Procedures. ASME Section IX Code, pipe system manufacturer instructions, and applicable state labor regulations.
- C. Welders Certification. Refer to Division 05.

1.04 REFERENCES

- A. Order of Precedence. Where a conflict arises between standards, the most stringent standard shall take precedence. Where a conflict arises between standards in this Specification and the Project Drawings, the most stringent standard shall take precedence.
- B. Codes and Standards. Materials shall comply with applicable portions of the following codes and standards, or codes and standards from the organizations indicated. Unless otherwise specified, the latest editions or revisions of these codes and standards shall be enforced:

1. American National Standards Institute (ANSI):

- a. B1.1 Unified Inch Screw Threads (UN and UNR Thread Form)
- b. B16.5 Pipe flanges and flanged Fittings, Steel Nickel Alloy and other Special Alloys
- c. B16.9 Factory-made Wrought Steel Butt-Welding Fittings
- d. B16.10 Face-to-Face and End-to-End Dimensions of Valves
- e. B16.21 Nonmetallic Flat Gaskets for Pipe Flanges
- f. B16.25 Butt-Welding ends
- g. B16.28 Wrought Steel Butt-Welding Short Radius Elbows and Returns
- h. B16.34 Valves - Flanged, Threaded, and Welding End
- i. B31.3 Chemical Plant and Petroleum Refinery Piping
- j. B36.10 Welded and Seamless Wrought Steel Pipe

2. American Society for Testing and Materials (ASTM):

- a. A 53 Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless
- b. A 105 Forgings, Carbon Steel, for Piping Components
- c. A 153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- d. A 181 Forgings, Carbon Steel for General Purpose Piping
- e. A 182 Forged or Rolled Alloy Steel Pipe Flanges, Forged Fittings, and Valves
- f. A 193 Alloy Steel and Stainless-Steel Bolting Materials for High-Temperature
- g. A 234 Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures

- C. References Not Listed. The list of reference standards presented under "References" above is a partial list only. Other standards governing the fabrication and quality of the products presented in this Section shall also apply, whether such standard is specifically listed or not. If several standards apply to the products specified, the most stringent standard shall govern.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in appropriate containers. Maintain products in clean, new condition.
- B. Deliver and store valves in shipping containers with labeling in place.

1.06 APPURTENANCES

- A. Furnish and install all necessary guides, inserts, anchors, and assembly bolts, washers and nuts, hangers, supports, gaskets, flanges, and all other appurtenant items specified or required for the proper installation and operation of the piping systems.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Pipe sizes shown on the Drawings are nominal inside diameter unless otherwise noted.
- B. Acceptance of installed piping systems shall be based on inspection and leakage tests.
- C. Butt weld in accordance with ANSI B 16.25.

2.02 BLACK STEEL PIPE

- A. Pipe: Schedule 80 black steel, ASTM A 53, Grade B, seamless.

- B. Joints: Butt welded, except where otherwise shown on the Drawings and where flanged accessories or valves are required.
- C. Fittings: Forged steel, butt weld type, Schedule 40 conforming to ASTM A 234.
- D. Flanges: Where required to connect to flanged equipment or valves, use weld-neck type flanges conforming to ANSI B16.5, Grade I or II. Flange drilling and facing shall match that of the flanged valves or equipment to which the pipe connects.
- E. Gaskets: 150 psig, 1/8-inch thick, compressed non-asbestos material, full-faced, ANSI B16.21 dimensions.

2.03 PIPE COUPLINGS AND FLEXIBLE PIPE PIECES

- A. General: For typical pipe joints, refer to pipe material specifications.
- B. Flexible Connectors:
 - 1. Provide flexible stainless steel braided connectors with flanged ends as shown on the Drawings. Units shall have minimum live length as recommended by the manufacturer for maximum misalignment of 1-inch.
 - 2. The minimum pressure rating required for the connectors is 200 psi.
 - 3. Material: AISI Type 316 stainless steel.
 - 4. Manufacturer: Flexonics 401M or equal.
- C. Expansion Joints:
 - 1. Provide flanged elastomeric expansion joints as shown on the Drawings. Expansion joints are to allow for a maximum compression of 2-inches.

2.04 PIPE SUPPORTS

- A. Manufacture and Design: To the maximum extent practical, use pipe supports that are standard factory fabricated units conforming to the typical supports and braces shown in the Drawings and as specified. Where required support cannot be provided by standard factory fabricated units, and is not detailed on the Drawings, provide special pipe supports. Special fabrications shall be in conformance with Section 05500. Provide 3/4-inch chamfer on corners of all support elements and file or grind smooth. Supports designated to allow axial pipe movement shall have smooth and even contact surfaces.
- B. Materials: Galvanize or paint (in accordance with 09800) all support systems.
- C. Provide plastic caps with rounded corner on all exposed ends of channels.

PART 3 – EXECUTION

3.01 PIPING INSTALLATION

A. General Handling and Placing:

1. Prevent injury to or scoring of the pipe lining and coating, as applicable, during handling, transportation, or storage. Any damaged pipe sections, specials, or fittings shall be repaired or replaced at the expense of the Contractor as satisfactory to the Engineer.
2. Carefully inspect each pipe fitting, valve, and accessory before installation. Inspect the interior and exterior protective coatings and patch all damaged areas in the field or replace to the satisfaction of the Engineer.
3. Place or erect all piping to accurate line and grade and backfill, support, hang, or brace against movement as specified or shown on the Drawings, or as required for proper installation. Remove all dirt and foreign matter from the pipe interior prior to installation and thoroughly clean all joints before joining.
4. Use reducing fittings where any change in pipe size occurs. Do not use bushings unless specifically noted on the Drawings. Use eccentric reducing fittings wherever necessary to provide free drainage of lines.

B. General Exposed Piping Installation:

1. Unless shown otherwise, install piping parallel to building lines, plumb and level.
2. Install piping without springing or forcing the pipe in a manner which would stress the pipe, valves, or connected equipment.
3. Set all pipe flanges level, plumb, and aligned. All flanged fittings shall be true and perpendicular to the axis of the pipe. All bolt holes in flanges shall straddle vertical centerline of pipes.
4. Flexibility and Expansion: Provide flexible couplings, flexible hose, or flexible spools for all piping connections to motor driven equipment and where otherwise shown. The Contractor may install additional flexible couplings at favorably reviewed locations to facilitate piping installation, provided that he submits complete details describing location, pipe supports, and hydraulic thrust protection.
5. Install unions of flexible connections where shown on the Drawings, and at all non-motor-driven equipment to facilitate removal of the equipments.

6. Provide valves wherever equipment drain connections are furnished and carry the discharge pipe to the nearest floor drain, drain trench or sump. Where no receptacle for drain exists, install drain piping to 1-inch above the floor. Drain piping and valve materials shall conform to the requirements of the system served.
7. Where piping conveying liquids passes over motor control centers, electrical panels, and other electrical devices, install a protective drainage tray below the piping.

C. Pipe Welding:

1. General: Unless specified otherwise, shop and field welding of pipe shall conform to ANSI B31.1 as amended by this paragraph.
2. All field and shop welding shall be done by the electric arc process unless otherwise specified. All field welding shall be done in passes not thicker than 1/4-inch. Size and type of electrodes, and current and voltages used, shall be subject to the favorable review of the Engineer. Ensure complete fusion and penetration throughout the bottom of the weld. Welds shall contain no valleys or undercuts in the center or edges of the weld. Thoroughly clean each pass, except the final one, of dirt, slag, and flux before the succeeding bead is applied.
3. Clean completed field welds of pipe joints of dirt, slag and flux, and then visually inspect. Completely chip out all defects in welds discovered during field inspection in a manner, which will permit proper and complete repair by welding subject to the favorable review of the Engineer. Caulking defective welds will not be permitted.
4. Use experienced, skilled welders familiar with the methods and materials to be used. Hand welding will be done only by welders qualified under the standard qualification procedure of Section IX of the ASME Boiler and Pressure Vessel Code. The contractor shall test his welders, when required by the Engineer, in accordance with that code and in the presence of the Engineer. An independent testing laboratory, favorably reviewed by the Engineer, shall supervise the testing and determine the quality of the test work. Weld specimens in the same positions as those in which the welder is to qualify his work. The Engineer may require test specimens at any time. Any welder whose work is found unsatisfactory shall not remain employed on this Contract, regardless of the quality of his earlier work. Each hand weld specimen shall be plainly marked with the welder's identifying symbol. The Contractor shall furnish all materials required and pay all costs for qualifying welders.
5. Field welds shall follow as closely as possible to the laying operation. All field welds shall be complete before lining or coating of the joints in steel pipe is begun.

6. A single continuous, watertight, full fillet weld shall be the minimum required at all field joints.
- D. Installation Specifics:
1. Black Steel Pipe
 - a. Install and weld in accordance with ANSI B31.3.
 - b. Threaded joints shall have connections metal-to-metal tight. Remove all burrs from the ends of the pipe and clean threads of all oil and chips. Coat male threads with a joint lubricant.

3.02 COUPLING INSTALLATION

- A. Flexible Couplings and Flange Coupling Adaptors: Prior to installation, thoroughly clean oil, scale, rust, and dirt from the pipe to provide a clean seat for the gasket. Wipe gaskets clean before they are installed. If necessary, flexible couplings and flanged coupling adapter gaskets may be lubricated with soapy water or manufacturer's standard lubricant before installation on the pipe ends. Install in accordance with the manufacturer's recommendations. Tighten bolts progressively, drawing up bolt on opposite side a little at a time until all bolts have a uniform tightness. Workers tightening bolts shall be equipped with torque-limiting wrenches or other favorably reviewed type.
- B. Tie Rods: Except where double nutting is called for on the drawings, install the nuts snug. Tighten the nuts gradually and equally at opposite side of the pipe until snug to prevent misalignment and to ensure that all rods carry equal loads. If double nutting is called for on the Drawings, double nut each end of each tie rod. The space between the pairs of nuts shall be 1/20inch greater than the distance between the lugs.
- C. Flexible Rubber Spools:
1. Install in accordance with manufacturer's instructions. Install flat with one-half the maximum expansion.
 2. Compression sleeves must be installed on all rubber spools.

3.03 INSTALLATION OF PIPE SUPPORTS

- A. General:
1. Install and adjust supports for each pipeline such that the pipeline is true to the indicated line and grade.
 2. Located anchors and braces for any single support on a continuous structure; that is, not on two sides of a structural expansion joint.

3. Tighten clamps to develop full friction along the pipeline except where loose fitting clamps are called for.

3.04 CLEANING

- A. Prior to testing, thoroughly clean the inside of each completed piping system of all dirt, loose scale, sand, and other foreign material. Sweep, flush with water or blow with compressed air as appropriate for the size and type of pipe. Flushing at a velocity of at least 3-feet per second. Install temporary strainers, temporarily disconnect equipment, or take other appropriate measures to protect equipment while cleaning piping.

3.05 FIELD TESTING

- A. General: Furnish all equipment, material, personnel, and supplies to leak test all piping. Make all taps and other necessary temporary connections. The test pressure, allowable leakage and test medium shall be as specified and as shown in paragraph J. Measure test pressure at the highest point on the line unless specifically noted otherwise. Coordinate testing with the Engineer.
- B. Exposed Piping: Install all supports, anchors, and blocks prior to the leakage test. Do not install temporary supports or clocking for final test.
- C. Encased Piping: Leak test encased piping after all pipe is installed and encased, and before any structures are constructed above it. However, the Contractor may conduct preliminary tests prior to encasement. For preliminary tests, provide necessary temporary thrust restraint.
- D. Accessories: Block off or remove equipment, valves, gauges, etc., which are not designed to withstand the full test pressure.
- E. Testing Apparatus: Provide pipe taps, nozzles, and connections as necessary to test the piping including valves to isolate the new system and test fluid. Drain lines and dispose of water afterwards as necessary. Plug these openings to satisfy the Engineer. Provide all required temporary bulkheads.
- F. Correction of Defects: If leakage exceeds the allowable, repair or replace the installation and repeat the test until the leak criteria is met. Repair visible leaks even if the pipeline passes the allowable leakage test.
- G. Reports: Keep records of each piping test, including:
 1. Description and identification of piping tested.
 2. Test pressure.
 3. Date of test.
 4. Witnessing by Contractor and Engineer.

5. Test evaluation.
 6. Remarks, to include such items as:
 - a. Leaks (type, location).
 - b. Repairs made on leaks.
 7. Test reports shall be submitted to the Engineer.
- H. Venting: where not shown on the Drawings, the Contractor may install valved "tees" at high points on piping to vent air. Cap valves after testing.
- I. Testing Specifics: Test piping as indicated in the following Schedule. Test each system for four hours.

PIPING TEST SCHEDULE						
Legend	System	Material	Test Pressure	Test Medium	Minimum Duration	Allowable Leakage
RO	Road Oil	Black Steel	150 PSIG	Water	4 Hours	None

END OF SECTION

SECTION 40 42 13

PIPE AND EQUIPMENT INSULATION

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Provide insulation and accessories for piping systems, tanks, and designated equipment.

1.02 SUBMITTALS

- A. Product Data: All materials.

1.03 APPLICABLE PUBLICATIONS (most recent edition)

- A. American Society of Testing and Materials (ASTM) Standards:
 - 1. C177 Test for thermal Conductivity of Materials by Guarded Hot Plate.
 - 2. D774 Burst Strength of Paper (Mullen Burst).
 - 3. D781 Test for Paperboard Puncture (Breach Puncture).
 - 4. E84 Surface Burn Characteristics of Building Materials.
 - 5. E96 Test for Water Vapor Transmission of Materials.
 - 6. C547 Fiberglass Insulation.
- B. National Fire Protection Association (NFPA) Standards:
 - 1. 255 Building Materials, Tests of Surface Burning Characteristics.
- C. Underwriters' Laboratories, Inc. (UL) Publications:
 - 1. 723 Test hazard Classification of Building Materials.

1.04 FIRE RESISTANCE

- A. Insulation. Smoke-developed ratings per NFPA 255, ASTM E84, and UL 723 testing requirements to be as follows:
 - 1. Fiberglass with jacket not to exceed a flame-spread rating of 50.
- B. Tape, Adhesives, Vapor Barrier Materials, and Jackets: Flame-spread ratings not to exceed 25.

- C. Factory-Applied Items/Materials: Test these items as assembled. Provide Certificates of Compliance from an approved testing laboratory if not UL approved. Flame-proofing treatments which are subject to deterioration are not acceptable.
- D. Field-Applied Items/Materials: These items may be tested individually. Provide Certificates of Compliance from an approved testing laboratory if not UL approved; flame-proofing treatments which are subject to deterioration are not acceptable.
- E. Exempt Items/Materials: The following are exempt from the fire-resistance ratings:
 - 1. Nylon duct insulation anchors.
 - 2. Treated wood insulation inserts.
 - 3. PVC fittings and valve covers.

1.05 THICKNESS

- A. Normal thickness of insulation is defined as the thickness of the basic insulating medium not including finishing coats.

1.06 APPROVED TESTING LABORATORIES

- A. Approved testing laboratories include:
 - 1. Underwriters' Laboratories, Inc. (UL)
 - 2. Canadian Standards Association (CSA), where acceptable to local authorities.

1.07 EXPOSED VERSUS CONCEALED INSULATION

- A. Exposed is defined as work exposed to the view of occupants in normally occupied areas and in equipment rooms.
- B. Concealed is defined as work located in ceiling spaces, chases, and other locations not exposed to view.

1.08 RELATED SECTIONS

- A. Section 40 22 00 – Pipe and Pipe Fittings
- B. Section 40 05 51 – Valves and Accessories
- C. Section 40 05 07 – Pipe Supports and Anchors

PART 2 – PRODUCTS

2.01 INSULATION CHARACTERISTICS

- A. Fiberglass Pipe and Tank Insulation: suitable for pipe and tank temperature from -60°F to 500°F; one-piece type with only one longitudinal joint; thermal conductivity not greater than 0.24 Btu per square foot per degree F per hour per inch of thickness at 75°F. Provide factory-applied all-service jacket.

2.02 JACKETS FOR PIPE AND TANK INSULATION

- A. Metal Jacket: 0.016-inch-thick aluminum with integral vapor barrier. Provide self-sealing, watertight metal bands for butt joints.

2.03 INSULATION OF FITTINGS, VALVES, AND PUMPS

- A. Fittings – Metal Jacket: Factory premolded metal covers with integral vapor barrier, fabricated of the same metal as adjacent insulation with factory precut insulation same type and thickness as the adjacent pipe insulation.
- B. Valves and Pumps: flexible blanket fabricated of a sandwich section of fiberglass batt (one pound per cubic foot density), same thickness as adjacent insulation, enclosed in glass cloth cover machine sewed at the ends; provide copper eyehooks and wire for lacing the blanket to the valve or pump.

2.04 JOINT TAPE

- A. Glass fiber reinforced, aluminum foil, and draft paper laminate with vapor barrier characteristics comparable to insulation facing.

2.05 FINISHING CEMENT

- A. Hydraulic setting, low shrinkage insulating and finishing cement for on-coat finish, suitable for painting with water-base paint, Johns-Manville No. 375, Ryder, Eagle, Pabco, or approved.

2.06 INSULATING CEMENT

- A. Mineral fiber cement suitable for application on metal in single layers up to 4-inch thick, Johns-Manville No. 460 Cement, or approved.

2.07 VAPOR BARRIER ADHESIVE

- A. Vapor barrier lap sealing adhesive, Foster 85-20, or approved.

2.08 LAGGING ADHESIVE

- A. Foster 30-36, Miracle LA69, Arabol, or approved.

2.09 ALUMINUM PIGMENTED VAPOR BARRIER MASTIC

- A. Foster 60-65 or approved.

2.10 INSULATION PIN FASTENERS

- A. Zinc-coated steel, 2-inch x 2-inch perforated plate with spindle and washer. Spindle length to suit insulation thickness.

2.11 INSULATION PIN ADHESIVE

- A. Contact cement suitable for fastening insulation pins to metal surfaces. Miracle Adhesive HT4620, Foster 82-11, Tuf-Bond all-purpose, or approved.

2.12 MASTIC

- A. Foster CI oil base or HI water base.

2.13 INSERTS (LOAD BEARING INSULATION BETWEEN PIPES AND PIPE HANGERS)

- A. As shown on the Drawings. Calcium silicate or other heavy density insulation material inserts, no less than 6-inches long, of same thickness and contour as adjoining insulation. Inserts shall be provided with vapor barrier. Factory-fabricated inserts suitable for the planned temperature range may be used with Owner's approval.

PART 3 – EXECUTION

3.01 GENERAL

- A. Install with all joints tightly butted.
- B. Tuck and tuft all edges of insulation.
- C. Install insulation to allow easy access to equipment for inspection and repairs.
- D. Carefully bevel and seal insulation around equipment nameplates.
- E. Removal all loose dirt, rust, all other loose foreign material, moisture, and frost from surfaces prior to installing insulation.
- F. Seal all raw edges of insulation at unions, flanges, etc.

3.02 TIME OF APPLICATION

- A. Apply insulation only after piping has been tested and certified as ready for operation, and after heat tracing elements have been installed where applicable.

3.03 ITEMS TO BE INSULATED

A. Piping:

1. Process pipe: All piping in outdoor locations on suction side of pumps.

B. Equipment:

1. Tanks: All in outdoor locations.
2. Valves: All in outdoor locations.
3. Pumps: All in outdoor locations, except for submersible pumps. House pumps in insulated enclosures.

3.04 ITEMS NOT TO BE INSULATED

A. Piping:

1. Valve stems, handwheels, and operators.
2. Piping on discharge side of pumps.

3.05 INSULATION TYPE AND THICKNESS

A. Conform to the following pipe insulation table:

Service	Insulation Type	Pipe Size Inches	Insulation Thickness Inches
All outdoor piping	Fiberglass	1/2 inch to 6 inch	2 inch
All outdoor piping	Fiberglass	8 inch and larger	2 1/2 inch
All tank walls	Fiberglass	---	3 inch
All tank roofs	Fiberglass	---	6 inch

3.06 PIPE INSULATION INSTALLATION

A. General:

1. Provide all insulation continuous.
2. Apply insulation on all cold surfaces where vapor barrier jackets are used with a continuous, unbroken vapor seal. Adequately insulate and vapor seal hangers, supports, anchors, etc., that are secured directly to cold surfaces to prevent condensation.
3. Install inserts (load-bearing insulation) on piping inside hangers. Inserts between pipe and pipe hangers shall consist of calcium silicate of thickness equal to the adjoining insulation and shall be provided with vapor barrier.

4. Apply specific adhesives, mastics, and coatings at the manufacturer's recommended minimum coverage per gallon.

3.07 FITTING INSULATION INSTALLATION

- A. Metal-Jacketed Insulation Fittings: Insulate elbows and tees for which factory-fabricated metal covers are available as follows:
 1. Apply factory precut insulation, tucking ends of the insulation snugly into the throat of the fitting, and edges adjacent to the pipe covering tufted and tucked in, fully insulating the pipe fitting.
 2. Apply the factory fabricated cover per manufacturer's recommendations.
 3. Seal all seams on cold lines with aluminum pigmented vapor barrier mastic.

3.08 METAL JACKETS

- A. Provide on all insulated piping, 0.016" aluminum.

END OF SECTION

SECTION 40 74 00

TEMPERATURE MEASUREMENT

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This Section specifies temperature measurement devices for process instrumentation, auxiliary equipment and supplies directly related to the installation of and operation of these temperature measurement devices.

1.02 QUALITY ASSURANCE

- A. Manufacturer. Temperature measurement devices furnished shall be manufactured by firms regularly and currently engaged in the design and manufacture of similar equipment. All equipment furnished shall be new and of current design.
- B. Maintainability. All equipment shall be designed for ease of maintenance and repair, and access to critical parts. All Equipment shall not require a major disassembly. Internal field adjustments where permitted or required herein shall be easily accessible upon removal of a panel or cover.
- C. Materials and Installation. Materials and installation shall comply with the requirements of the current editions of reference electrical codes and standard, and the codes and standards referred to shall be used for establishing the minimum quality of the materials and equipment supplied and installed. All equipment of the same type shall be products of the same manufacturer. Capacities of all equipment shall not be less than that indicated on the Drawings or specified.

1.03 SUBMITTALS

- A. Shop Drawings to be submitted in this Section shall be made in one package under Product Review category of Shop Drawings.
- B. Installation method. The proposed method of mounting sensors and instruments shall accompany all Shop Drawings.

PART 2 – PRODUCTS

2.01 THERMOETERS

A. General:

1. Accuracy: $\pm 1\%$ of span over entire range.
2. Case: Stainless steel case.
3. Size: 4 1/2-inch diameter
4. Pointer: Friction adjustable.
5. Connection: Lower connection (lower outlet).
6. Actuation: Inert gas. Pointer is driven directly by Bourdon tube which is silicone oil damped.
7. Bulb: 3/8-inch diameter x 3-inch effective length. AISI 316 SS with long extension locking fitting.
8. Capillary: AISI 316 SS, 10-feet long.
9. Armor: AISI 302 series stainless steel, spiral interlock.
10. Over-range: to 25% of span beyond top of range.
11. Ambient error: Maximum error 1% in middle half of span, for 25°F change in ambient temperature.
12. Temperature range: 20 – 500°F.

- B. Manufacturer. Thermometers shall be as manufactured by Ashcroft (Model 600A-01-C01-B08-L03-AK) or approved equal.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install per manufacturer's instructions.

END OF SECTION

SECTION 43 23 56

GEAR PUMPS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Furnish and install complete, tested, and operating, the equipment as shown on the Drawing and as specified herein.
- B. Work Included in this Section: Provide two (2) road oil pumps including motor(s), mount(s), gear reducers, an all accessories and components necessary for proper pump operation for the assigned service. Bid Option #2 would provide for an additional one (1) road oil pump including motor, mount, gear reducers, an all accessories and components necessary for proper pump operation for the assigned service.

1.02 SUBMITTALS

- A. Shop Drawings: Submit Product Review shop drawings for the pumps. Include sufficient data to show that equipment conforms to Specification requirements, including motor data and seismic anchorage certification and description. All pump(s) and appurtenances in this Section shall be submitted in a complete initial submittal.
- B. Performance Testing: Certified non-witnessed factory performance tests in accordance with Hydraulics Institute Standards are required for all pumps. Test results shall be submitted to the Engineer for review. Upon receipt of the Engineer's favorable review, the Contractor may ship the pumps to the job site.
- C. Manuals: Furnish manufacturer's installation, lubrication, operation, and maintenance manuals, bulletins, and spare parts lists.
- D. Affidavits: Furnish affidavits from the manufacturers stating that the equipment has been properly installed and tested and each is ready for full-time operation.

1.03 QUALITY ASSURANCE

- A. All equipment furnished under this Section shall: (1) be of a single manufacturer who has been regularly engaged in the design and manufacture of the equipment for at least 5 years; and (2) be demonstrated to the satisfaction of the Engineer that the quality is equal to equipment made by those manufacturers specifically named herein.

1.04 SEISMIC PROTECTION

- A. The equipment in this Section will require seismic certification and description.

1.05 WARNING SIGNS

- A. Each piece of driven machinery which can be started manually by any control station not within 15-feet of the machine, or which can be controlled automatically by any means, shall be identified with a warning sign inscribed:

CAUTION

THIS MACHINE IS REMOTELY CONTROLLED
AND MAY START AT ANY TIME.

The word "CAUTION" shall be in yellow block letters on black panel at the top of the sign, which shall have yellow background and text in black block letters. Signs shall be fabricated from 30-gauge copper bearing steel and finish shall be high baked enamel; the finished signs shall be weather resistant. Signs shall be 10-inches wide by 7-inches high. Signs shall be located in prominent locations at machines and shall be fastened to surfaces previously specified for nameplates.

PART 2 – PRODUCTS

2.01 GEAR PUMPS

- A. Characteristics: Provide pump with the following characteristics:

Quantity	2
Operating Point, gpm	35 - 150
Maximum Pump Speed	1800 rpm
Motor Horsepower	To be determined by Manufacturer
Pump Drive	Variable Speed

- B. Pump Types: Gear Pumps described above shall be Roper, Viking, or equal. All furnished gear pumps shall be supplied by the same pump manufacturer.

- C. Pump Construction:

1. General: Pumps shall be positive displacement, gear type and shall include pump, gear reducer, if necessary, motor, common steel base and guard. If gear reducer is used, maximum motor rpm shall not exceed 1,800 rpm.
2. The pump body, body supports, and packing gland shall be of high quality, close-grained cast iron. Castings shall be free from sand holes, blow holes, and other detrimental defects. Suction and discharge flanges

shall be Class 125-pound cast iron. A suitably sized hand hole with suitable removable cover shall be provided near the suction flange.

3. The pump gears shall be heat treated cast iron. The pumping gears shall be keyed to their shafts with a sliding fit for easy removal if necessary. Bearings shall be wear-resistant high-lead bronze. Four heavy-duty sleeve bearing shall be used to increase bearing life. The bearings shall be provided with grooves to allow circulation of the fluid being pumped for lubrication and control of bearing temperature. The outboard drive shaft bearings supports shall be provided to handle external radial loads and absorb thrust loads.
4. Motors:
 - a. Motors shall be sized by the manufacturer to provide sufficient horsepower to overcome the maximum starting torque for the pump and to provide the capacity at the head and speed requirements specified. Motors shall be horizontal for indoor operation. Motor rpm shall not exceed 1,800 rpm. Provide motor space heaters. See Section 11002 for detailed motor specifications.
 - b. Drives: Drives shall be by multiple V-belts and pulleys. Drives shall be supplied with OSHA approved safety guards. V-belt drives shall not exceed 4 to 1 speed reduction and shall have a 1.5 service factor. Furnish one extra set of sheaves and one set of belts for each pump to provide the alternate pump speed/capacity rating specified in Paragraph 2.01A.
5. Pump and Motor Mounting: The pump and motor shall be mounted on a common steel base. The pump and motor shall be aligned as shown on a common steel base. The pump and motor shall be aligned as shown on the Drawings. The base shall be supplied with a channel all around to serve as a drip pan, which shall have a 1-inch threaded outlet piped to the nearest funnel drain.
6. Pump Anchorage: Pump bases shall be fastened to concrete pump pads with anchor bolts. Bases shall be grout filled after anchoring.
7. Pump Housing: Pump shall be housed in an insulated and heated enclosure provided by Process Heating Company of Seattle, Washington, or approved equal.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Equipment shall be installed in strict conformance with manufacturer's installation instructions. Pump and motor alignment shall be checked according

to the Standards of the Hydraulics Institute after pump and motor have been installed at the site.

3.02 FIELD PAINTING

- A. Pumps, motors, and appurtenances shall receive a final color coat in the field in accordance with Section 099000.

3.03 FIELD TESTING

- A. All pumps shall be field tested. See Section 40 05 00 – General Equipment and Mechanical Components for details.

3.04 FIELD SERVICE

- A. The manufacturer shall provide a competent field service engineer to thoroughly check and inspect the pumps after installation, place the pumps in operation and make necessary adjustments, and instruct plant personnel in proper operating and maintenance procedures.

END OF SECTION

SECTION 43 41 13 WELDED STEEL TANKS

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section Includes: All labor, material, equipment, tools, and services required for the design, fabrication, erection, painting, and testing of ground level welded steel storage tanks and accessories.
- B. Related Sections:
 - 1. Section 01 30 00 - Submittal and Shop Drawings
 - 2. Section 05 12 00 - Structural Steel
 - 3. Section 09 90 00 - Protective Coatings
 - 4. Section 40 22 00 - Pipe and Pipe Fittings
 - 5. Section 40 05 51 - Valves and Accessories

1.02 REFERENCES

- A. American Iron and Steel Institute (AISI).
- B. American Society for Testing and Materials Standard Specifications (ASTM):
 - 1. ASTM A 123 Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products.
 - 2. ASTM B 633 Electrodeposited Coatings of Zinc on Iron and Steel.
- C. American Welding Society (AWS).
 - 1. ASW D 10.4 Recommended Practices for Welding Austenitic Chromium-Nickel Stainless Steel Piping and Tubing.
- D. International Building Code (IBC).
- E. American Petroleum Institute (API)
 - 1. API 650 Welded Steel Tanks for Oil Storage

1.03 SUBMITTALS

- A. Submit in accordance with Section 01 30 00 – Submittals and Shop Drawings.
- B. Product Data:
 - 1. Hangers, pipe, and equipment supports.
 - 2. High-strength bolts.
 - 3. Stainless steel items.
 - 4. Manufactured items, including access hatches, vents and safety devices.
- C. Shop Drawings:
 - 1. Fabrication and erection drawings for tank and all accessories, including all welding details.
 - 2. Design calculations for tank and accessories.
 - 3. Depth versus volume calibration table for the tank in units of inches, feet, and gallons.
- D. Manufacturer's Certifications:
 - 1. Tank design, including welded joint details and inspection personnel data.
 - 2. Tank fabrication, including mill tests and shop inspection report.
 - 3. Tank erection, including field inspection and testing report.

1.04 QUALITY ASSURANCE

- A. General:
 - 1. Demonstrate that the tank manufacturer has been regularly designing, fabricating, and erecting similar steel tanks for at least 10 years.
 - 2. Stamp and sign all shop drawings, calculations and welded joint details by a Structural Engineer or Civil Engineer registered in the state where the tank will be installed.
 - 3. Supply all new materials and fabricated items.
 - 4. Verify adequacy of tank foundation.
- B. Codes and Standards:

1. Tank Manufacture: API 650.
2. Safety of Access: OSHA and IBC.
- C. Testing Program: Refer to Section 05100 and the following:
 1. Qualification of Weld Procedures: API 650.
 2. Qualification of Welders: API 650.
 3. Shop and field Weld Inspection: API 650
 4. Weld Inspection Procedures: API 650.
 5. Tank Bottom Weld Testing: API 650.
 6. Tank Water Tests: API 650.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Tanks will be provided by Superior Steel Products, Inc., or approved equal, with the following criteria:
 1. Stationary vertical tank is constructed of 1/4-inch-thick A-36 steel plate for storage or 15,000 gallons of liquid asphalt.
 2. Tank sides and top are insulated with 6-inches of insulation (R-24). Floor is insulated with 3-inches of insulation (R-10) and covered with 12-gauge steel.
 3. Tank insulation cover is 0.032-inches thick stucco embossed aluminum. Top of tank is covered with non-skid plate.
 4. A 3-inch asphalt line inside the tank is provided for asphalt overflow and vent. Overflow shall have external outlet located just above grade.
 5. Supply and return lines are 3-inch flange connections.
 6. Fill pipe is 3-inch flange connection.
 7. Tank top is equipped with an 18-inch inspection port.
 - a. A flanged mixer port for agitation system is located on top of tank. Three (3) baffles are positioned inside of tank.
 - b. 20-inch flanged access door, located on side of tank near bottom.

- c. A safety high-level float with cut-off switch to help eliminate tank overflow.
- 8. A 3-inch drain valve.
- 9. Shipping saddles attached to tank.
- 10. Four (4) lifting lugs for moving tank into place.

2.02 DESIGN CRITERIA

- A. API 650, design per the Drawings and criteria per 2.01 of this Section.

2.03 TANK DESIGN

- A. Roof: Design purlins and rafters for seismic water sloshing where it will occur. Provide continuous fillet welds all around lapped surfaces at all purlin and rafter connections and beam supports.
- B. Roof Supports: Pipe or tubular columns, hermetically sealed.
- C. Corrosion Allowance: None.
- D. Roof-to-Shell Joint: Continuous fillet welds, each side of shell and roof plates.
- E. Shell Circumferential Joints: Complete penetration butt joints.

2.04 TANK ACCESSORIES

- A. General: Provide the tank complete with all pipe connections, access openings, nozzles, taps, drains, ladders, and other accessories as shown on the Drawings or required herein. All accessories shall conform to the API 650 and as specified.
- B. Stainless Steel Items: Provide AISI Type 304 material, unless Type 316 is specifically specified.
- C. Shell Manways: One (1) 20-inch diameter manway located in the shell and located according to the Drawings. Provide suitable means to hold the manway covers in the open position. Hinge shall be loose, so that easy bolting is possible. Hot-dip galvanize after fabrication.
- D. Piping and Pipe Connections: Per Section 402200 – Pipe and Pipe Fittings
 - 1. Provide welded steel inlet, outlet, and drain piping.
 - 2. Pipe connections: Locate exterior face of flanges 6-inches minimum from shell plate, unless shown otherwise.

E. Roof Access:

1. Provide an exterior steel ladder and guarded, safe access to the 18-inch roof manway in accordance with the IBC and OSHA. Hot-dip galvanize all parts of the steel ladders, guardrails, chain closure, access platform, and ladder supports after fabrication.
2. Exterior Ladder: Furnish access prevention at the bottom.
3. Roof Manway: Provide one (1) weather-tight, hinged 24-inch steel manway raised 3-inches minimum above roof. Select a cover that opens a full 90°, locks when open and can be pushed open from inside the tank. Support 300 lbs. on cover when closed.
4. Guardrail: Provide around the roof edge in accordance with IBC and OSHA.
5. Chain Closure: Provide 5/16-inch weldless carbon steel oblong link chain at each rail level. Fasten with boat type snap hook at one end and eye bolt at the other end.
6. Provide catwalks between tanks and platform as shown on the Drawings.

F. Vents:

1. Provide a 4-inch diameter, welded steel pipe roof vent routed to an elevation 3-feet above slab.
2. Provide screens over all vents. Manufacturer shall verify that adequate venting is provided to equalize pressure and prevent buckling of the tank. Screens shall be designed to pop out into the interior of the tank if the internal tank pressure becomes large enough to cause buckling of the tank shell.

G. Safety Eyes:

1. 3/8-inch diameter forged pad eyes with minimum 1-inch inside diameter eye and 1 1/4-inch diameter shoulder.
2. Weld perpendicular to the outside of the tank roof at the locations shown.
3. Weld with 1/4-inch fillet welds all around the pad eye shoulder.
4. Load capacity: 400 lbs. any direction.

H. Sight Level Gauge:

1. Level gauge will be Shand & Jurs or approved equal.
2. Provide float-operated gauge.

3. Steel with baked enamel coating, black numbers, and gradations on white background.
 4. Scale: Feet and tenths of feet.
- I. Zinc Coatings:
1. Bolts, Washers, and Nuts: Electrodeposited zinc-coated to conform with ASTM B633.
 2. Other Galvanized Items: Hot-dipped zinc-coated to conform with ASTM A123.
- J. Miscellaneous:
1. Provide 8-inch diameter flange for mixer.

2.05 FABRICATION

- A. API 650 and also:
1. Fabricate and assemble in the shop to the greatest extent possible.
 2. Shape all members correctly, with no kinks, twists, dents, or other blemishes prior to erection. Evenly spring all curved work.
 3. Make exposed edges free of burrs and sharp edges. Make corners rounded or chamfered.
 4. Shop prime all steel items which are not galvanized or epoxy-coated, with material that is compatible with the finish coat.
 5. Stainless Steel Items:
 - a. Use the proper type of stainless-steel electrodes or welding rods complying with AWS D10.4.
 - b. Remove by grinding and polishing, all scratches, marks, pits, and other blemishes on exposed surfaces.
 - c. Use grinding wheels and other tools that have never been used on carbon steel.

2.06 SOURCE QUALITY CONTROL

- A. Material: Verify that satisfactory mill test reports are available on all steel.
- B. Welding: See Section 05 12 00 – Structural Steel

1. Verify welders are qualified.
 2. Verify that weld procedures are followed.
- C. Report: Provide a shop inspection report including mill tests, radiographs and inspection records, before tank erection is started.

PART 3 – EXECUTION

3.01 ERECTION

- A. API 650 and also:
1. Comply with erection plan and welding sequences.
 2. Follow qualified weld procedures.
 3. Use qualified welders.
 4. Provide complete penetration butt welds at all side shell joints.
 5. Remove all evidence of any welding of temporary erection devices.
 6. Stainless steel items:
 - a. Use the proper type of stainless-steel electrodes or welding rods complying with AWS D10.4.
 - b. Remove by grinding and polishing, all scratches, marks, pits, and other blemishes on exposed surfaces.
 - c. Use grinding wheels and other tools that have never been used on carbon steel.

3.02 FIELD QUALITY CONTROL

- A. API 650 and:
1. Provide 24-hours notice of all testing to Engineer.
 2. Provide all testing equipment and satisfactory access to the work being inspected.
 3. Perform and evaluate all radiographs promptly, so any repairs can be made and re-evaluated without delay of the erection.
 4. The Engineer will be the sole judge of compliance with the quality of work specified herein or in API 650.
 5. Repair all leaks and retest by the same method that discovered the leak.

- B. Tank Welding:
 - 1. If Chapter 15, alternative Design Basis, applies retain a Certified Welding Inspector to be present during all inspections and testing and to specify the test locations.
 - 2. Inspection by trepanning, air carbon arc gouging and removal of sectional segments will not be permitted.
- C. Tank Bottom: Test all joints by the vacuum method after erection and prior to painting.
- D. Tank Bottom and Side Shell: Test by the water method, after erection and prior to painting.
- E. Report: Provide a field inspection report, including radiographs and inspection records before acceptance of the tank by the Owner.

3.03 PAINTING

- A. Perform interior and exterior cleaning, preparation, and painting in accordance with API 650 and Section 09 90 00 Protective Coatings.
- B. Provide a first anniversary inspection of the tank painting, including testing and any required repair work, at no additional cost to the Owner.

END OF SECTION

APPENDIX A

CITY OF TACOMA

and

WSDOT STANDARD PLANS

***** Note Standard plans and websites provided below are for contractor convenience. Additional standard plans may be required to construct the project. *****

COT Standard Plans Website:

https://www.cityoftacoma.org/government/city_departments/public_works/engineering/standard_plans_and_gis_typical_details

WSDOT Standard Plans Website:

<https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/standard-plans>

APPENDIX B

TACOMA ASPHALT BATCH PLANT – GEOTECHNICAL REPORT

Geotechnical Engineering Services

Asphalt Tank
City of Tacoma Road Maintenance Batch Plant
Tacoma, Washington

for
KPFF Consulting Engineers

July 14, 2022



GEOENGINEERS 
Earth Science + Technology

Geotechnical Engineering Services

Asphalt Tank
City of Tacoma Road Maintenance Batch Plant
Tacoma, Washington

for

KPFF Consulting Engineers

July 14, 2022



1101 South Fawcett Avenue, Suite 200
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253.383.4940

Geotechnical Engineering Services
Asphalt Tank
City of Tacoma Road Maintenance Batch Plant
Tacoma, Washington

File No. 0570-178-00

July 14, 2022

Prepared for:

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Appendix A. Subsurface Explorations and Laboratory Testing

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Figure A-2 Logs of Borings

Figure A-3 – Sieve Analysis Results

Appendix B. Report Limitations and Guidelines for Use

1.0 INTRODUCTION AND PROJECT UNDERSTANDING

This report presents the results of our geotechnical engineering services for the proposed Asphalt Tank City of Tacoma Road Maintenance Batch Plant project. The project site is located at 3010 South Center Street in Tacoma, Washington as shown on the Vicinity Map, Figure 1. The Site is currently in use by the City of Tacoma as their road maintenance asphalt batch plant.

Our understanding of the project is based on our discussions and communications with Bill Amour (KPF Consulting Engineers) and review of proposed site plans. We understand that the development will consist of a two new 12,500-gallon asphalt tanks supported on a mat foundation with an integrated reinforced concrete spill containment structure.

2.0 SCOPE OF SERVICES

The purpose of our geotechnical engineering services is to perform subsurface explorations and review other relevant subsurface information at the site to develop geotechnical design and construction recommendations. Our services have been provided in accordance with our signed agreement dated March 24, 2022.

3.0 SITE CONDITIONS

3.1. Geologic Setting

Our understanding of the site geology is based, in part, on review of the *Geologic Map of Tacoma 1:100,000-scale Quadrangle, Washington* (Schuster et al. 2015). The geologic map indicates that glacial soil deposits underlie the site and surrounding areas. These deposits are the result of glaciations that occurred during the Vashon Stade of the Fraser Glaciation, approximately 10,000 to 15,000 years ago. Surface soils at the site are primarily mapped as Steilacoom Gravel (Qg_{osg}). Steilacoom Gravel is a recessional outwash deposit and is described as pebbles and boulders with localized crossbedding, kettles, and ice-contact depression structures. These deposits are generated by glacial meltwaters depositing sediments as glaciers recede. In our experience, the Steilacoom gravels can range from sand with gravel to gravel with sand with varying silt contents and can range from loose to very dense. Cobbles and boulders can also be present and prevalent.

The geologic map also indicates that advanced outwash (Qga) is 100 to 200 feet north and uphill of the site. These deposits are a result of sediment deposited by meltwater from glaciers and then being overridden and to some degree consolidated by the weight of the glacier. These units are described as stratified sand and gravel with less common areas of silty sand and silts. In our experience, they typically are sand dominant and range from medium dense to very dense.

3.2. Surface Conditions

The majority of the site is paved in asphalt with smaller areas of concrete paving and is currently in operation as an asphalt batch plant for city of Tacoma maintenance projects. At the location of our boring, the asphalt was approximately 0.4 feet thick. The vicinity of the proposed structure is currently in use as storage for equipment and lies between a storage building and a stall for aggregate storage to the west and east with a retaining wall to the north.

North of the proposed improvements is an interlocking concrete block wall. The wall is approximately 11 to 12 feet tall and comprised of four horizontal rows of blocks with each block having the approximate dimensions of 4.5 feet wide (facing the wall), 3 feet tall, and 2 feet deep. Based on the dimensions of the blocks we have assumed a wall embedment from approximately 1 foot to a few inches. In general, the wall is battered towards the north at approximately 5 degrees; each horizontal row of blocks is set back approximately 2 to 4 inches. The interlocking components of the blocks consist of ridges along the top and edges with alternating indents along the bottom and alternating edges to allow for the linking of blocks during construction. No as-builts or analysis were provided regarding the wall's construction or history. There are some variations in the wall alignment and minor shifting of blocks.

3.3. Subsurface Conditions

3.3.1. Subsurface Explorations and Laboratory Testing

We evaluated subsurface conditions at the site by advancing one boring (B-1) to 45½ feet at the approximate location shown on the attached Site Plan, Figure 2.

Selected samples collected from the boring were tested in our laboratory to confirm field classifications and to evaluate pertinent engineering properties. Our laboratory testing program included grain-size analyses and percent fines determinations. A description of our subsurface exploration program, summary exploration logs, and a summary of our laboratory testing program and the test results are provided in Appendix A.

3.3.2. Soil and Groundwater Conditions

We observed what we interpret to be three significant engineering units in our explorations: fill, recessional outwash (Steilacoom gravels), and advanced outwash. Fill was encountered in our exploration extended to approximately 2 feet below ground surface (bgs). Fill material consisted of brown silty fine to medium sand with gravel and was directly beneath the existing asphalt pavement and a thin layer of what we interpret to be a crushed rock base course.

Beneath the fill, we observed what we interpret to be recessional outwash. These soils were typically dense to very dense sand with silt and variable gravel content. Hard drilling and drill chatter were noted in this unit. These are an indication of cobbles and boulders. The recessional outwash extended to approximately 12 feet bgs. At 12 feet bgs advanced outwash was encountered consisting of grayish brown fine to medium sand with varying silt and gravel content and extended to the base of our boring at 45½ feet.

Groundwater was encountered at approximately 37 feet bgs. The combination of the groundwater and relatively clean sand produced heave in the auger which caused practical refusal of the boring at 45½ feet.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1. General Geotechnical Considerations

Based on our understanding of the project, the explorations performed for this study, review of subsurface information near or within the project vicinity and our experience, it is our opinion that the proposed improvements can be designed and constructed generally as envisioned with regard to geotechnical

considerations. A summary of the primary geotechnical considerations for the project is provided below and is followed by our detailed recommendations.

- Soils observed at the site are generally dense to very dense and should provide adequate foundation support for the proposed improvements with a low risk of liquefaction and relatively low risk of significant settlement.
- Proposed structures at the site can be supported using mat foundations, provided that the foundation bearing surfaces are prepared as recommended. We anticipate that some overexcavation of footing subgrades may be necessary due to expected variability in the uppermost fill and some replacement with structural fill to ensure the recommended design bearing pressures may be necessary. Furthermore, we recommend that GeoEngineers be retained for on-site observations of subgrade to confirm bearing surface preparation and to potentially reduce the quantity of overexcavation during construction.

4.2. Seismic Design Considerations

4.2.1. Seismic Design Parameters

We understand seismic design of proposed structures will be performed using procedures outlined in the 2018 International Building Code (IBC). We used map-based values as recommended by the United States Geological Survey (USGS) to determine the seismic design spectrum. Based on conditions observed in our explorations, our review of geologic maps and our experience in the area, we anticipate soils below our explorations and extending to depth are dense to very dense. For seismic design and analysis, we recommend using a response spectrum for Site Class C. We recommend the parameters provided in Table 1 below be used for design.

TABLE 1. SEISMIC DESIGN CRITERIA

2018 IBC (ASCE 7-16) Seismic Design Parameters	Recommended Value ¹
Site Class	C
Mapped Spectral Response Acceleration at Short Period (S_s)	1.359 g
Mapped Spectral Response Acceleration at 1 Second Period (S_1)	0.47 g
Site Amplification Factor at 0.2 second period (F_a)	1.2
Site Amplification Factor at 1.0 second period (F_v)	1.5
Design Spectral Acceleration at 0.2 second period (S_{DS})	1.087 g
Design Spectral Acceleration at 1.0 second period (S_{D1})	0.47 g
Site Modified Peak Ground Acceleration (PGA_M)	0.6 g

Notes:

¹ Parameters developed based on Latitude 47.2334° and Longitude -122.5456°.

4.2.2. Liquefaction

Liquefaction refers to a condition where vibration or shaking of the ground, usually from earthquake forces, results in the development of excess pore pressures in loose, saturated soils and subsequent loss of strength in the deposit of soil so affected. In general, soils that are susceptible to liquefaction include loose to medium dense sands to silty sands that are below the water table. The *Liquefaction Susceptibility Map*

of Pierce County, Washington (Palmer, et al. 2004) indicates the site soils have a “very low” liquefaction potential. Based on the soil and groundwater conditions observed in our explorations and our experience, we concur that the risk for liquefaction at the site is very low.

4.2.3. Lateral Spreading Potential

Lateral spreading related to seismic activity typically involves lateral displacement of large, surficial blocks of non-liquefied soil when a layer of underlying soil loses strength during seismic shaking. Lateral spreading usually develops in areas where sloping ground or large grade changes (including retaining walls) are present. Based on our understanding of the liquefaction risk at the site and the proposed improvements, it is our opinion that the risk of lateral spreading is also very low. Seismic stability of the adjacent retaining wall is not related to liquefaction and is addressed in our recommendations below.

4.2.4. Surface Rupture Potential

According to the Washington State Department of Natural Resources Interactive Natural Hazards Map (accessed April 5, 2022), there are no mapped faults or other seismogenic features within about 1 mile of the site. Furthermore, the bedrock in the project area is covered by several hundred feet of glacial soils. Based on the distance to the nearest mapped fault or seismogenic feature and the geologic conditions, it is our opinion the risk for surface rupture at this site is low.

4.3. Site Development and Earthwork

4.3.1. General

We anticipate site development and earthwork activities will include demolition of the existing paving surfaces and excavation.

We expect the site grading and earthwork can be accomplished with conventional earthmoving equipment. However, recessional outwash can be encountered in a very dense condition with large particles and may take some effort during excavation if smaller equipment is used. The earthwork contractor should be prepared to encounter dense soil conditions at the site. Larger excavators with toothed buckets could be used for more efficient excavation.

The following sections provide specific recommendations for site development and earthwork.

4.3.2. Temporary Excavations and Cut Slopes

Based on observations made during excavation of our boring and our experience with other projects in similar soil conditions, we anticipate that shallow excavations could maintain vertical slopes for extended periods of time with only minor caving. However, excavations deeper than 4 feet should be shored or laid back at a stable slope if workers are required to enter. Shoring and temporary slope inclinations must conform to the provisions of Title 296 Washington Administrative Code (WAC), Part N, “Excavation, Trenching and Shoring.” Regardless of the soil type encountered in the excavation shoring, trench boxes or sloped sidewalls will be required under Washington Industrial Safety and Health Act (WISHA). We recommend contract documents specify that the contractor is responsible for selecting excavation and dewatering methods, monitoring the excavations for safety and providing shoring, as required, to protect personnel and structures.

In general, we recommend that for planning purposes all temporary cut slopes be inclined no steeper than about 1½H:1V (horizontal:vertical) if workers are required to enter the excavation. This guideline assumes all surface loads are kept at a minimum distance of at least one-half the depth of the cut away from the top of the slope and that seepage is not present on the slope face. Flatter cut slopes will be necessary where seepage occurs or if surface surcharge loads are anticipated. Temporary covering with heavy plastic sheeting should be used to protect these slopes during periods of wet weather.

4.3.3. Groundwater Handling Considerations

Based on our understanding of the proposed site improvements and our explorations, we do not anticipate that the regional groundwater table will be encountered during excavations at the site.

Areas of perched groundwater could be encountered during construction. The interface between more permeable and less permeable zones, such as variations in silt content within the outwash deposits can potentially create locations for accumulation of perched groundwater.

Groundwater handling needs will typically be higher following precipitation. We anticipate that shallow perched groundwater can be handled adequately with sumps, pumps and/or diversion ditches, as necessary. Ultimately, we recommend that the contractor performing the work be made responsible for controlling and collecting groundwater encountered.

4.3.4. Subgrade Preparation

Subgrades that will support structures should be thoroughly compacted to a uniformly firm and unyielding condition before placing of foundations or structural fill. We recommend that subgrades for structures be evaluated, as appropriate, to identify areas of yielding or soft soil. Probing with a steel probe rod or proof-rolling with a heavy piece of wheeled construction equipment are appropriate methods of evaluation.

If soft or otherwise unsuitable subgrade areas are revealed during evaluation that cannot be compacted to a stable and uniformly firm condition, we recommend that: (1) the unsuitable soils be scarified (e.g., with a ripper or farmer's disc), aerated and recompact, if practical; or (2) the unsuitable soils be removed and replaced with compacted structural fill, as needed.

4.3.5. Subgrade Protection and Wet Weather Considerations

Near-surface soils observed at the site generally contain low quantities of fines and may be workable during periods of wet weather. The wet weather season generally begins in October and continues through May in western Washington; however, periods of wet weather can occur during any month of the year. It may be possible to conduct earthwork at the site during wet weather months, provided appropriate measures are implemented to protect exposed soil. If earthwork is scheduled during the wet weather months, we offer the following recommendations:

- Measures should be implemented to remove or eliminate the accumulation of surface water from work areas. The ground surface in and around the work area should be sloped so that surface water is directed away and graded so that areas of ponded water do not develop. Measures should be taken by the contractor to prevent surface water from collecting in excavations and trenches.
- Earthwork activities should not take place during periods of heavy precipitation.
- Slopes with exposed soils should be covered with plastic sheeting.

- The contractor should take necessary measures to prevent on-site soils and other soils to be used as fill from becoming wet or unstable. These measures may include the use of plastic sheeting, sumps with pumps and grading. The site soils should not be left uncompacted and exposed to moisture. Sealing exposed soils by rolling with a smooth-drum roller prior to periods of precipitation will help reduce the extent to which these soils become wet or unstable.
- Construction traffic should be restricted to specific areas of the site, preferably areas that are surfaced with working pad materials not susceptible to wet weather disturbance or areas that are currently paved.
- Construction activities should be scheduled so that the length of time that soils are left exposed to moisture is reduced to the extent practical.

4.4. Fill Materials

4.4.1. On-Site Soil

Based on our subsurface explorations and experience, it is our opinion that existing site soils could be considered for use as structural fill, provided the soils can be adequately moisture conditioned, placed, and compacted as recommended and do not contain organics or other deleterious material. The recessional outwash soils present at the site are generally moisture tolerant with a relatively low fines content. These can be considered for use as fill during dry conditions and mild rain conditions.

On site soils were observed to contain cobbles significant quantities. This could make its use as fill time consuming or limit the fills' applications. For use as fill, we recommend on site soils be free of particles with diameters of 8 inches or greater. In addition, the presence of larger gravels and cobbles will prevent the use of the on-site materials as fill for pipe bedding and precise, smooth subgrade for footings may be difficult to establish with oversized particles.

Based on our laboratory testing of recessional and advanced outwash samples collected during the explorations, moisture content was typically at or slightly above optimum for compaction. Once disturbed, there is a possibility that soils may have the potential to absorb moisture and become unstable.

If the on-site soils will be used as fill, we recommend that: (1) earthwork be scheduled for spring or summer months where extended periods of dry weather are more likely; (2) earthwork is staged such that material is placed and compacted shortly after it is excavated, even covered stockpiles should be avoided if practical, as loose soil more readily absorbs moisture from precipitation; and (3) cut and fill quantities should assume that some material will become wet, unworkable and must be removed from the site. Alternatively, a non-structural area could be designated on site for disposal of wet and unworkable material.

If earthwork occurs during the wet season, or if the soils are persistently wet and cannot be dried back to near optimum due to prevailing wet weather conditions, we recommend the use of imported structural fill or select granular fill as described below.

4.4.2. Imported Structural Fill

Imported structural fill should consist of well-graded sand and gravel or crushed rock with a maximum particle size of 6 inches and less than 5 percent fines by weight based on the minus ¾-inch fraction. Organic matter, debris or other deleterious material should not be present. In our opinion, material with gradation characteristics similar to Washington State Department of Transportation (WSDOT) Specifications 9-03.9

(Aggregates for Ballast and Crushed Surfacing), 9-03.14(1) (Gravel Borrow) or 9-03.14(2) (Select Borrow) is suitable for use as imported structural fill with the exception that the fines content be less than 5 percent (based on the minus ¾-inch fraction) and the maximum particle size is 6 inches.

If prolonged dry weather prevails during the earthwork phase of construction, materials with a somewhat higher fines content may be acceptable.

4.4.3. Pipe Bedding

Trench backfill for the bedding and pipe zone should consist of well-graded granular material similar to “Gravel Backfill for Pipe Zone Bedding” described in Section 9-03.12(3) of the WSDOT Standard Specifications. The material must be free of roots, debris, organic matter, and other deleterious material. Other materials may be appropriate depending on manufacturer specifications and/or local jurisdiction requirements.

4.4.4. Trench Backfill

We recommend that trench backfill within structural areas such as roadways and within building footprints consist of Imported Structural Fill, as described above. In non-structural areas the excavated recessional outwash can be reused as backfill provided it is free of debris, organic material, and rock fragments larger than 6 inches.

4.5. Fill Placement and Compaction

4.5.1. General

To obtain proper compaction, fill and backfill material should be placed in uniform horizontal lifts and compacted near the optimum moisture content. Lift thickness and compaction procedures will depend on the moisture content and gradation characteristics of the soil and the type of compaction equipment used. The maximum allowable moisture content varies with the soil gradation and should be evaluated during construction. Generally, 8- to 12-inch loose lifts are appropriate for steel-drum vibratory roller compaction equipment. Compaction should be achieved by mechanical means. During fill and backfill placement, sufficient testing of in-place density should be conducted to check that adequate compaction is being achieved.

4.5.2. Area Fills

Fill placed to raise site grades and structural areas should be placed on subgrades prepared as previously recommended. All fill material placed below structures and footings and extending beyond the edge of the structures a distance equal to the depth of the fill should be compacted to at least 95 percent of the theoretical maximum dry density (MDD) per ASTM International (ASTM) D 1557.

4.5.3. Trench Backfill

For utility excavations, we recommend that the initial lift of fill over the pipe be thick enough to reduce the potential for damage during compaction, but generally should not be greater than about 18 inches above the pipe. In addition, rock fragments greater than about 1 inch in maximum dimension should be excluded from this lift.

Trench backfill material placed below structures and footings should be compacted to at least 95 percent of the MDD. In paved areas, trench backfill should be uniformly compacted in horizontal lifts to at least 95 percent of the MDD in the upper 2 feet below subgrade. Fill placed below a depth of 2 feet from subgrade in paved areas must be compacted to at least 92 percent of the MDD. In non-structural areas, trench backfill should be compacted to a firm condition that will support construction equipment as necessary.

4.6. Asphalt Tank and Containment Foundation Support

4.6.1. General

We understand that the anticipated foundation type for the proposed asphalt tank is a mat foundation. Based on discussion with the design team, we understand that the mat foundation will be an irregular shaped pad that incorporates the tank spill containment. It is our opinion, based on our study, the proposed structures can be adequately supported on a reinforced mat foundation.

Based on the groundwater conditions in our explorations and our understanding of the proposed footing elevations (bottom of footings established within a few feet of existing site grade), it is our opinion footing drains are not necessary to maintain bearing support as provided in this report.

The sections below provide our recommendations for foundation bearing surface preparation and foundation design parameters.

4.6.2. Foundation Bearing Surface Preparation

The mat foundation should bear on existing dense recessional outwash soils, structural fill extending to these soils, or on the uppermost fill existing on site, provided it is in a dense condition upon excavation to grade. Bearing surfaces should be cut to final subgrade grade with a smooth-edged bucket to limit disturbance and all loose soil should be removed from the bearing surfaces. **Prepared bearing surfaces must be observed by the geotechnical engineer to confirm that footings are founded in dense glacial soils.** If structural fill is placed below foundations as either replacement of overexcavated soils or to establish a bearing pad, we recommend the structural fill extend laterally beyond the foundation perimeter a distance equal to the depth of fill (measured from the base of the footing where necessary), or 3 feet, whichever is less.

Foundation bearing surfaces should not be exposed to standing water. If water is present in the excavation, it must be removed before placing formwork and reinforcing steel. A 6-inch-thick layer of crushed rock or a 3- to 4-inch layer of lean-mix concrete can be used to protect the base of excavations and limit disturbance to bearing surfaces during construction.

The overexcavated subgrade should be evaluated by a member of our firm prior to placement of fill to confirm excavation limits. Prepared foundation bearing surfaces should be evaluated by a member of our firm prior to placement of formwork or reinforcing steel to verify that bearing surface has been prepared in accordance with our recommendations or to provide recommendations for remediating unsuitable bearing soils.

4.6.3. Recommended Allowable Soil Bearing Pressure

Mat foundations prepared as recommended may be designed using an allowable soil bearing pressure of 2,000 pounds per square foot (psf) when bearing on proof-compacted dense recessional outwash (undisturbed) or structural fill extending to proof compacted recessional outwash. This bearing pressure applies to the total of dead and long-term live loads and may be increased by one-third when considering transient loads, including earthquake or wind loads. These are net bearing pressures. The weight of the footing and overlying backfill can be ignored in calculating footing sizes.

Significantly higher bearing pressures can be achieved for foundations bearing directly on dense recessional outwash, but these higher bearing pressures must be considered on a case-by-case basis and might require special or more detailed bearing surface preparation recommendation to limit settlement. If higher bearing pressures would be beneficial to the design, please contact us for further recommendations.

4.6.4. Modulus of subgrade reaction

A modulus of subgrade reaction of 200 pounds per cubic inch (pci) can be used for designing containment structures surrounding the asphalt tank, provided the slab subgrade consists of firm and unyielding recessional outwash soils or compacted structural fill and has been prepared in accordance with recommendations presented in this report. This value is for a 1-foot by 1-foot square plate. The modulus of subgrade reaction for a foundation varies based on its minimum width according to the following equation:

$$k_s = k_{s1}[(B+1)/2B]^2$$

Where k_s is the modulus of subgrade reaction, k_{s1} is the modulus of subgrade reaction for a 1-foot by 1-foot plate, and B is the minimum width or lateral dimension of the mat.

4.6.5. Foundation Settlement

Disturbed soil must be removed from the base of footing excavations and the bearing surface should be prepared as recommended. Provided these measures are taken, we estimate the total static settlement of shallow foundations will be on the order of 1 inch or less for the bearing pressures presented above. Differential settlements could be on the order of ¼ to ½ inch between similarly loaded foundations or over a distance of 50 feet of continuous footings. The settlements should occur rapidly, essentially as loads are applied. Settlements could be greater than estimated if disturbed or saturated soil conditions are present below footings.

4.6.6. Lateral Resistance

The ability of the soil to resist lateral loads is a function of the base friction, which develops on the base of foundations and slabs, and the passive resistance, which develops on the face of below-grade elements of the structure as these elements move into the soil. For cast-in-place foundations supported in accordance with the recommendations presented above, the allowable frictional resistance on the base of the foundation may be computed using a coefficient of friction of 0.40 applied to the vertical dead-load forces. If precast foundations are included as part of project plans, we can provide specific recommendations for base friction resistance for precast foundations.

The allowable passive resistance on the face of the foundation or other embedded foundation elements may be computed using an equivalent fluid density of 250 pounds per cubic foot (pcf) for footings surrounded by undisturbed site soils. If footings are backfilled with structural fill to a lateral distance equal to two times the footing embedment, an equivalent fluid pressure of 350 pcf can be used.

These values include a factor of safety of about 1.5. The passive earth pressure and friction components may be combined provided that the passive component does not exceed two-thirds of the total. The top foot of soil should be neglected when calculating passive lateral earth pressure unless the area adjacent to the foundation is covered with pavement or a slab-on-grade.

4.7. Retaining Walls and Below-Grade Structures

4.7.1. Design Parameters

We recommend the following lateral earth pressures be used for design of conventional retaining walls and below-grade structures backfilled with structural fill. Our design pressures assume that the ground surface around the retaining structures will be level or near level. If drained design parameters are used, drainage systems must be included in the design in accordance with the recommendations presented in the “Drainage” section below.

The active soil pressure condition assumes the wall is free to move laterally $0.001 H$, where H is the wall height. The at-rest condition is applicable where walls are restrained from movement. The above recommended lateral soil pressures do not include the effects of sloping backfill surfaces or surcharge loads, except as described. Overcompaction of fill placed directly behind retaining walls or below-grade structures must be avoided to limit lateral pressures placed on the wall. We recommend use of hand-operated compaction equipment and maximum 6-inch loose lift thickness when compacting fill within about 5 feet of retaining walls and below-grade structures.

- Active soil pressure may be estimated using an equivalent fluid density of 40 pcf for the drained condition.
- Active total soil and hydrostatic pressure may be estimated using an equivalent fluid density of 80 pcf for the undrained condition; this value includes hydrostatic pressures.
- At-rest soil pressure may be estimated using an equivalent fluid density of 55 pcf for the drained condition.
- At-rest total soil and hydrostatic pressure may be estimated using an equivalent fluid density of 95 pcf for the undrained condition; this value includes hydrostatic pressures.
- Passive soil pressure may be estimated using an equivalent fluid density of 250 pcf for the drained condition.
- Passive total soil and hydrostatic pressure may be estimated using an equivalent fluid density of 210 pcf for the undrained condition; this value includes hydrostatic pressures.
- For seismic considerations, a uniform lateral pressure of $15H$ psf (where H is the height of the retaining structure or the depth of a structure bgs) should be added to the lateral earth pressure.
- A traffic surcharge should be included if vehicles are allowed to operate within a zone equal to the height of the retaining walls. A traffic surcharge can be estimated with a uniform horizontal load of 70 psf, or by assuming an additional 2 feet of fill. This is based on a uniform surface load of 250 psf; other surface loads should be considered on a case-by-case basis.

Retaining wall foundations may be designed using the recommendations presented above for building foundation design. We estimate settlement of retaining structures will be similar to the values previously presented for structure foundations.

4.7.2. Load from Existing Retaining Structures

The storage tank containment wall will be located about 1 to 4 feet from the existing retaining structure and that the space between the two will be filled with concrete. The adjacent retaining wall is standing under current conditions and, therefore, is expected to place no load on the new structure under static or non-seismic conditions. Under seismic conditions the existing wall and retained soil could place an additional kinematic force on the new structure. We estimated the maximum design force the existing wall could place on the new structure by first conservatively assuming the wall has a factor of safety of 1.0 and then using this to estimate the soil strength parameters of the backfill. With this method we estimate that the maximum design force the existing wall could place on the new tank foundation is about 2,100 pounds per linear foot of wall. This can be applied as a distributed load over the new foundation and containment wall. This load assumes that the foundation is free to yield or permanently displace a small amount (less than 2 inches) following the design seismic event. If resisting forces are less than this maximum, the new structure will still add to the overall stability of the system but could result in larger than expected lateral deformations.

5.0 LIMITATIONS

We have prepared this report for KPFF Consulting Engineers for the Asphalt Tank COT Road Maintenance Batch Plant project in Tacoma, Washington. KPFF Consulting Engineers may distribute copies of this report to owner's authorized agents and regulatory agencies as may be required for the Project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices for geotechnical engineering in this area at the time this report was prepared. The conclusions, recommendations and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty, express or implied, applies to the services or this report.

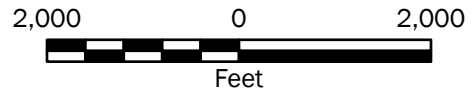
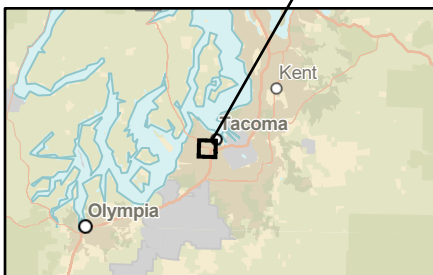
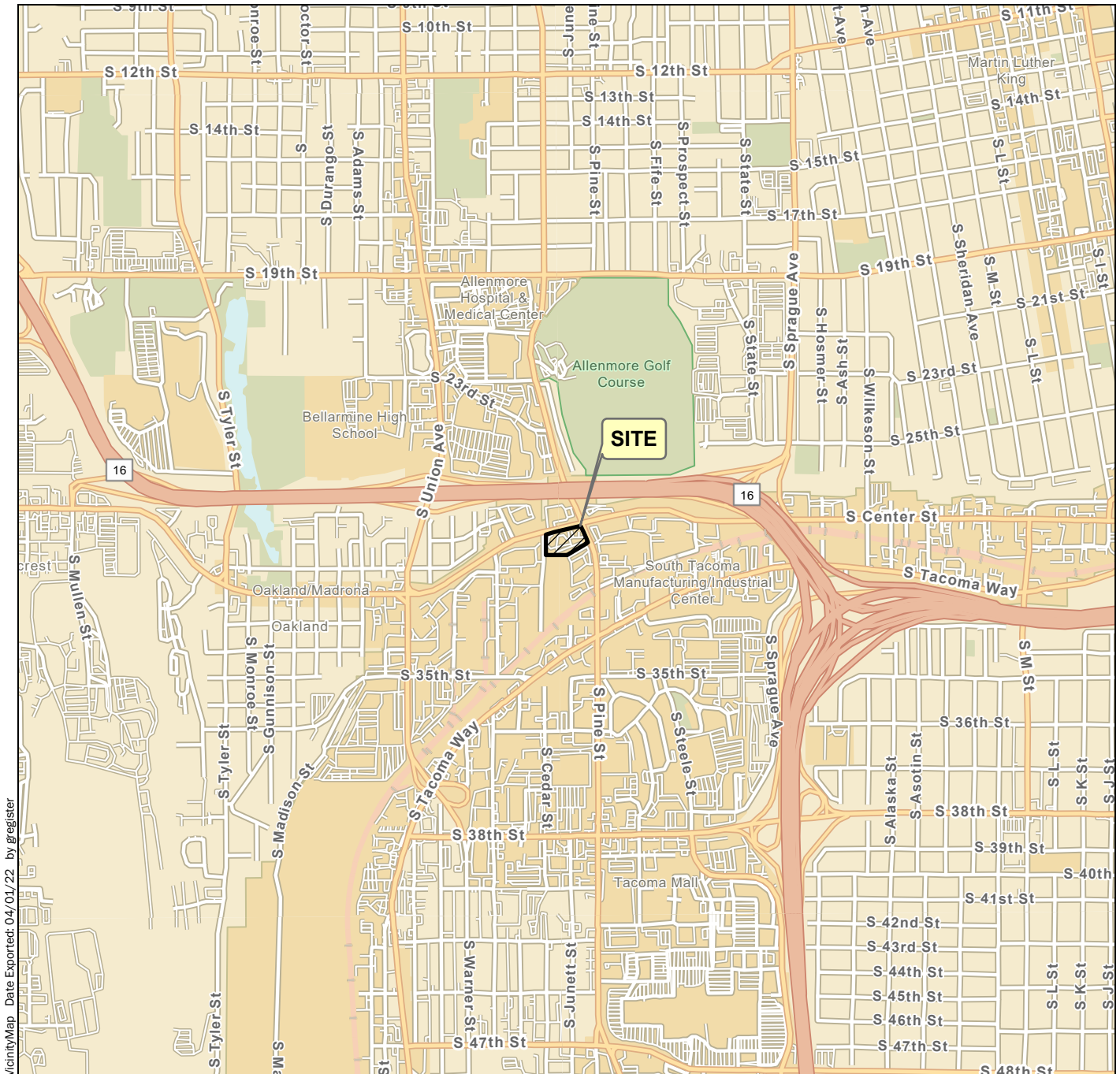
Please refer to Appendix B titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

6.0 REFERENCES

International Code Council. (2018) "2018 International Building Code." 2018.

Washington State Department of Transportation. (2020). "Standard Specifications for Road, Bridge and Municipal Construction", WSDOT, Washington

Schuster, E., Cabibbo, A., Schilter, J, and Hubert, I. (2015) "Geologic Map of the Tacoma 1:100,000-scale Quadrangle, Washington" Washington Department of Natural Resources, Division of Geology and Earth Resources, Map Series 2015-03



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 UTM Zone 10N

Vicinity Map

City of Tacoma - Road Maintenance Batch Plant
Tacoma, Washington



Figure 1

P:\0570178\CAD\00\Geotech Report\057017800_F02_Site Plan.dwg TAB:F02 Date Exported: 04/08/22 - 7:42 by gregister



Legend

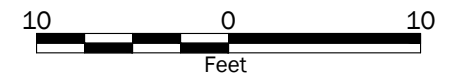
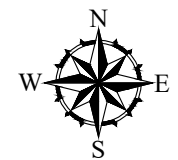
B-1  Boring by GeoEngineers, Inc., 2022

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Aerial from Google Earth Pro dated 08/14/2020.

Projection: Washington State Plane, South Zone, NAD83, US Foot



Site Plan

City of Tacoma - Road Maintenance Batch Plant
Tacoma, Washington



Figure 2

APPENDIX A

Subsurface Explorations and Laboratory Testing

APPENDIX A

SUBSURFACE EXPLORATIONS AND LABORATORY TESTING

Subsurface Explorations

Subsurface conditions for the proposed Asphalt Batch Tank and COT Road Maintenance Batch Plant project were explored by advancing 1 boring pits on March 18, 2022 at the approximate locations shown on the Site Plan, Figure 2. The boring was advanced to a depth of about 45½ feet below ground surface (bgs) using a track mounted Diedrich D-50 drilling rig operated by Holocene Drilling. After the boring was completed, the hole was backfilled using bentonite hole plug and the top 3 feet was capped with concrete.

During the exploration program our field representative obtained samples, classified the soils encountered and maintained a detailed log of the exploration. The relative densities noted on the boring log is based on the results of the standard penetration test and our experience and judgment. The samples were collected and retained in sealed plastic bags and then transported back to our office. The soils were classified visually in general accordance with the system described in Figure A-1, which includes a Key to the Exploration Logs. A summary log of the exploration is included as Figures A-2.

The locations of the boring were determined using an electronic tablet with global positioning system (GPS) software. The locations of the explorations should be considered approximate. Elevations were estimated from supplemental survey information provided by SRI-Rochlin Construction Services.

Laboratory Testing

Soil samples obtained from the borings were transported to GeoEngineers laboratory. Representative soil samples were selected for laboratory tests to evaluate the pertinent geotechnical engineering characteristics of the site soils and to confirm our field classification.

Our testing program consisted of the following:

- Two grain-size distribution analyses (sieve analyses [SA])
- Three percent fines determinations (%F)

Tests were performed in general accordance with test methods of ASTM International (ASTM) or other applicable procedures. The following sections provide a general description of the tests performed.

Sieve Analysis (SA)

Grain-size distribution analyses were completed on selected samples in general accordance with ASTM Test Method D 6913. This test method covers the quantitative determination of the distribution of particle sizes in soils. Typically, the distribution of particle sizes larger than 75 micrometers (µm) is determined by sieving. The results of the tests were used to verify field soil classifications and determine pertinent engineering characteristics. Figure A-14 presents the results of our sieve analyses.

Percent Fines (%F)

Selected samples were “washed” through the U.S. No. 200 sieve to estimate the relative percentages of coarse- and fine-grained particles in the soil. The percent passing value represents the percentage by weight of the sample finer than the U.S. No. 200 sieve (75 µm). Tests were conducted in general accordance with ASTM D 1140. Test results are used to aid in soil classification and correlation with other pertinent engineering soil properties and are presented on the exploration logs at the respective sample depths.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

	2.4-inch I.D. split barrel / Dames & Moore (D&M)
	Standard Penetration Test (SPT)
	Shelby tube
	Piston
	Direct-Push
	Bulk or grab
	Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS		TYPICAL DESCRIPTIONS
GRAPH	LETTER	
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact



Measured groundwater level in exploration, well, or piezometer



Measured free product in well or piezometer

Graphic Log Contact



Distinct contact between soil strata



Approximate contact between soil strata

Material Description Contact



Contact between geologic units



Contact between soil of the same geologic unit

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point lead test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
UU	Unconsolidated undrained triaxial compression
VS	Vane shear

Sheen Classification

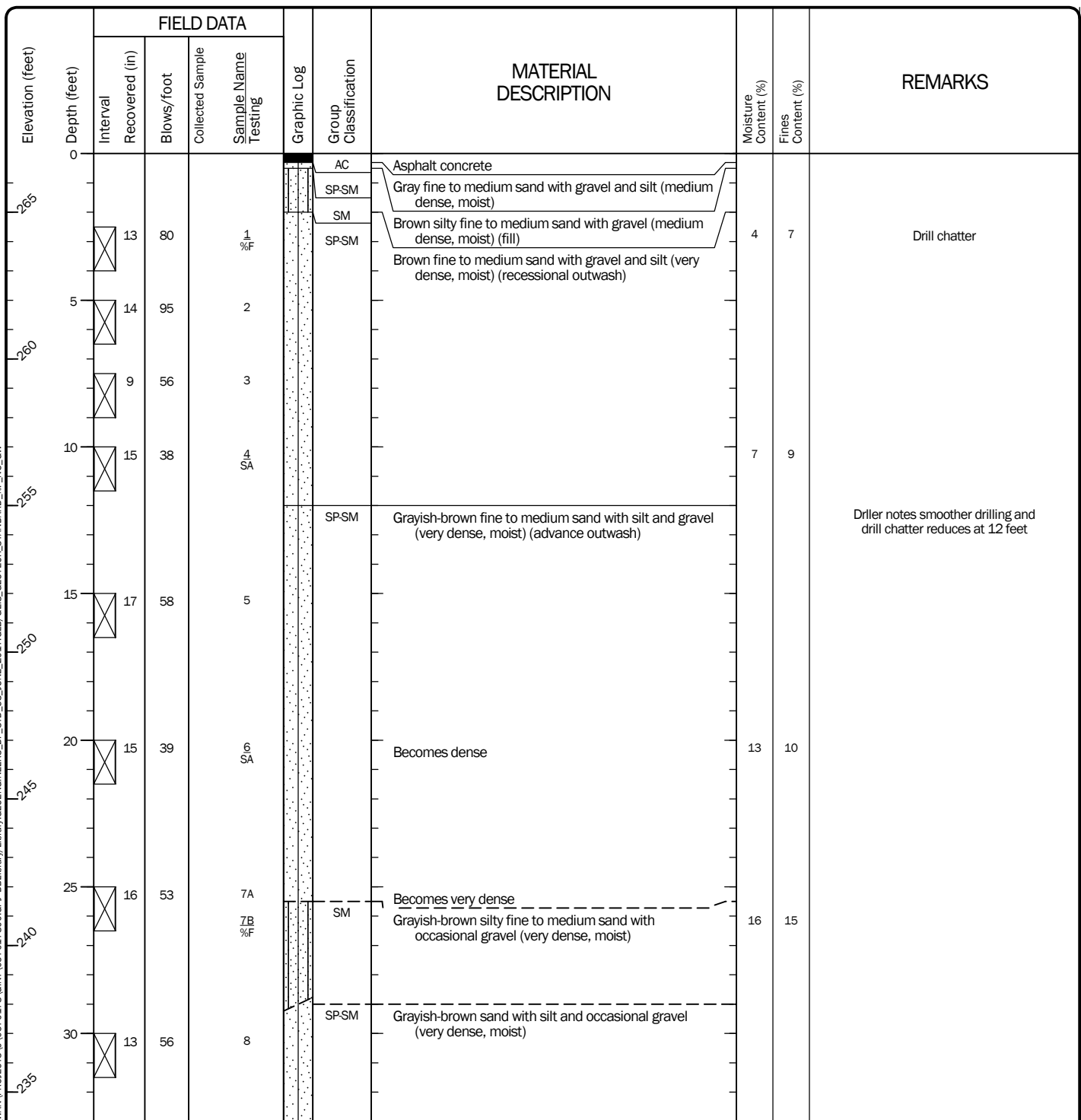
NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

Key to Exploration Logs



Figure A-1

Drilled	Start 3/18/2022	End 3/18/2022	Total Depth (ft)	45.5	Logged By Checked By	AVD LSP	Driller Holocene Drilling, Inc.	Drilling Method	Hollow-stem Auger
Surface Elevation (ft) Vertical Datum	267 NAVD88				Hammer Data	Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment	Diedrich D-50 Track-mounted
Easting (X) Northing (Y)	1149642 699068				System Datum	WA State Plane South NAD83 (feet)		See "Remarks" section for groundwater observed	
Notes:									



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Aerial Imagery.

Log of Boring B-1



Project: City of Tacoma - Road Maintenance Batch Plant
Project Location: Tacoma, Washington
Project Number: 0570-178-00

Figure A-2
Sheet 1 of 2

Date: 7/13/22 Path: \\GEOENGINEERS.COM\WAN\PROJECTS\0\0570178 GINT\057017800.GPJ DBLibrary\Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB8_GEOTECH_STANDARD_SF_NO_GW

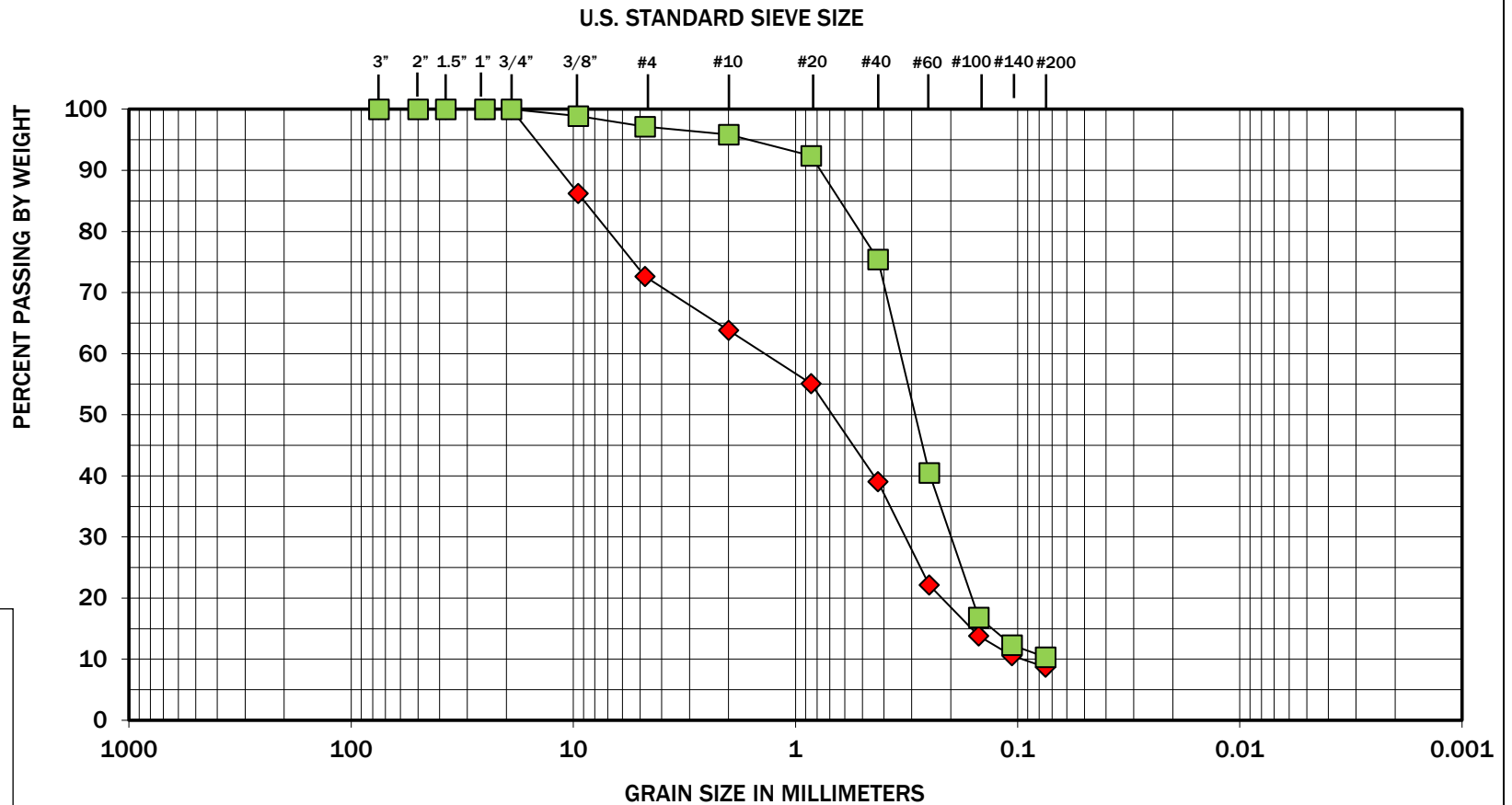
Elevation (feet)	Depth (feet)	FIELD DATA				Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing						
230	35	16	76		9 %F				13	9	Groundwater measured at 37.2 feet
225	40	18	88		10			Becomes wet			
	45	6	50		11			Practical refusal due to heaving sands at 45.5 feet			

Log of Boring B-1 (continued)



Project: City of Tacoma - Road Maintenance Batch Plant
Project Location: Tacoma, Washington
Project Number: 0570-178-00

Figure A-2
Sheet 2 of 2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Soil Description
◆	B1	10	7	Poorly graded sand with silt and gravel (SP-SM)
■	B1	20	13	Poorly graded sand with silt (SP-SM)



Note: This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations, or generated by separate operations or processes.

The grain size analysis results were obtained in general accordance with ASTM C 136. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052

GEOENGINEERS



Figure A-3

City of Tacoma - Road Maintenance Batch Plant
Tacoma, Washington

Sieve Analysis Results

APPENDIX B

Report Limitations and Guidelines for Use

APPENDIX B

REPORT LIMITATIONS AND GUIDELINES FOR USE¹

This appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) rely on professional judgment and opinion to a greater extent than other engineering and natural science disciplines, where more precise and/or readily observable data may exist. To help clients better understand how this difference pertains to our services, GeoEngineers includes the following explanatory “limitations” provisions in its reports. Please confer with GeoEngineers if you need to know more how these “Report Limitations and Guidelines for Use” apply to your project or site.

Geotechnical Services are Performed for Specific Purposes, Persons and Projects

This report has been prepared for KPFF Consulting Engineers, and for the Project(s) specifically identified in the report. The information contained herein is not applicable to other sites or projects.

GeoEngineers structures its services to meet the specific needs of its clients. No party other than the party to whom this report is addressed may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed scope of services for the Project, and its schedule and budget, our services have been executed in accordance with our signed Agreement with KPFF Consulting Engineers, dated February 24, 2022 and generally accepted geotechnical practices in this area at the time this report was prepared. We do not authorize, and will not be responsible for, the use of this report for any purposes or projects other than those identified in the report.

A Geotechnical Engineering or Geologic Report is based on a Unique Set of Project-Specific Factors

This report has been prepared for the proposed Asphalt Tank COT Road Maintenance Batch Plant project in Tacoma, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- Not prepared for you,
- Not prepared for your project,
- Not prepared for the specific site explored, or
- Completed before important project changes were made.

For example, changes that can affect the applicability of this report include those that affect:

- The function of the proposed structure;
- Elevation, configuration, location, orientation or weight of the proposed structure;

¹ Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

- Composition of the design team; or
- Project ownership.

If changes occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Environmental Concerns are Not Covered

Unless environmental services were specifically included in our scope of services, this report does not provide any environmental findings, conclusions, or recommendations, including but not limited to, the likelihood of encountering underground storage tanks or regulated contaminants.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the site, new information or technology that becomes available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Information Provided by Others

GeoEngineers has relied upon certain data or information provided or compiled by others in the performance of our services. Although we use sources that we reasonably believe to be trustworthy, GeoEngineers cannot warrant or guarantee the accuracy or completeness of information provided or compiled by others.

Geotechnical and Geologic Findings are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies the specific subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions at other locations. Actual subsurface conditions may differ, sometimes significantly, from the opinions presented in this report. Our report, conclusions and interpretations are not a warranty of the actual subsurface conditions.

Geotechnical Engineering Report Recommendations are Not Final

We have developed the following recommendations based on data gathered from subsurface investigation(s). These investigations sample just a small percentage of a site to create a snapshot of the subsurface conditions elsewhere on the site. Such sampling on its own cannot provide a complete and accurate view of subsurface conditions for the entire site. Therefore, the recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be

finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for the recommendations in this report if we do not perform construction observation.

We recommend that you allow sufficient monitoring, testing and consultation during construction by GeoEngineers to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes if the conditions revealed during the work differ from those anticipated, and to evaluate whether earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective means of managing the risks associated with unanticipated conditions. If another party performs field observation and confirms our expectations, the other party must take full responsibility for both the observations and recommendations. Please note, however, that another party would lack our project-specific knowledge and resources.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by members of the design team or by contractors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. The logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Photographic or electronic reproduction is acceptable but separating logs from the report can create a risk of misinterpretation.

Give Contractors a Complete Report and Guidance

To help reduce the risk of problems associated with unanticipated subsurface conditions, GeoEngineers recommends giving contractors the complete geotechnical engineering or geologic report, including these "Report Limitations and Guidelines for Use." When providing the report, you should preface it with a clearly written letter of transmittal that:

- Advises contractors that the report was not prepared for purposes of bid development and that its accuracy is limited; and
- Encourages contractors to confer with GeoEngineers and/or to conduct additional study to obtain the specific types of information they need or prefer.

Contractors are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

